



|  |                                       |   |
|--|---------------------------------------|---|
|     | <b>FMA Elevation Grant Checklist</b>  |   |
|  | <b>PART I</b>                         |   |
|  | <b>Elevation Property Information</b> |   |
| Address (line 1)   |                                       |   |
| Address (line 2)   |                                       |   |
| City   |                                       |   |
| County   |                                       |   |
| State  |                                       |   |
| ZIP  |                                       |   |
| <b>Owner Information</b>   |                                       |   |
| First Name   |                                       |   |
| Middle Name  |                                       |   |
| Last Name  |                                       |   |
| Home Phone   |                                       |   |
| Cell Phone   |                                       |   |
| Work Phone   |                                       |   |
| e-mail   |                                       |   |
| Owner's Mailing address  |                                       |   |
| Address (line 1)   |                                       |   |
| Address (line 2)   |                                       |   |
| City   |                                       |   |
| County   |                                       |   |
| State  |                                       |   |
| ZIP  |                                       |   |
| Does this property have any other co-owners or holders of record interest ? (Yes/No) |                                       |   |
| <b>Property Information</b>  |                                       |   |
| Latitude   |                                       |   |
| Longitude  |                                       |   |
| Year Built   |                                       |   |
| Structure Type (ie. Single Family, Duplex)   |                                       |   |
| Property Tax Identification Number   |                                       |   |
| Legal Description  |                                       |   |
| Does this property have a NFIP Policy Number? (Yes/No)                               |                                       |   |
| NFIP Policy Number   |                                       |   |
| Hazards to be Mitigated ?  |                                       | Coastal Storm, Flood, Hurricane, Severe Storm |
| Property Action  |                                       | Elevate Structure, Acquisition                |
| <i>Continued on next page</i>  |                                       |   |

|  |                                      |  |
|--|--------------------------------------|--|
|                                     | <b>FMA Elevation Grant Checklist</b> |  |
|  | <b>PART I (Continued)</b>            |  |
|  | <b>Property Information II</b>       |  |
| Substantially Damaged in the past ?<br>(Yes/No)  |                                      |  |
| Purchase Offer Amount  |                                      |  |
| Base Flood Elevation   |                                      |  |
| Lowest Floor Elevation   |                                      |  |
| Number of feet the lowest floor<br>elevation of the structure is being<br>raised above Base Flood Elevation<br>(BFE) |                                      |  |
| Foundation Type  |                                      |  |
| Flood Zone Designation   |                                      |  |
| Comments   |                                      |  |

| Required Information to Attach to Application  |  |
|--|--|
| Elevation Certificate  |  |
| Flood Insurance Policy   |  |
| Detailed Scope of Work   |  |
| Three Detailed Cost Estimate   |  |
| Benefit Cost Analysis (if total project<br>cost, including engineering, is above<br>\$175,000 waiver |  |
| Photographs (at least one for each<br>side)  |  |
| Estimated Schedule (duration in<br>generic months)   |  |
| Engineering Estimate   |  |
| FIRMette   |  |



## FMA Elevation Grant Checklist

### PART II

(Yes or No)

*If you have answered "Yes" to any of the questions below in Parts A through J you will need to attach additional information as identified in the full application form*

|   |  |
|---|--|
| <b>A. National Historic Preservation Act (Historic Buildings and Structures)</b>  |  |
| 1. Does your project affect or is it in close proximity to any Buildings or structures over 50 years in Age?  |  |
| 2. Is Building or Structure on the National Register of Historic Places or a National Register Historic District?   |  |
| <b>B. National Historic Preservation Act- Archeological Resources</b>   |  |
| 1. Does your project involve disturbance of ground?   |  |
| <b>C. Endangered species Act and Fish and wildlife coordination Act</b>   |  |
| 1. Are federally listed threaten or endangered species or their critical habitat present in the area affected by the project?   |  |
| 2. Does your project remove or affect vegetation?   |  |
| 3. Is your project in, near (within 200 feet) or likely to affect any type of waterway or body of water?  |  |
| <b>D. Clean Water Act, Rivers and Harbor Act, and Executive Order 11990</b>   |  |
| 1. Will the project involve dredging or disposal of dredge material, excavation, adding fill material or result in any modification to water bodies or wetlands designated as waters of the U.S. as identified by the US Army Corps of Engineers or on the National Wetlands Inventory? |  |
| <b>E. Executive Order 11988 (Floodplain Management)</b>   |  |
| 1. Does a Flood Insurance Rate Map (FIRM), Flood Hazard Boundary Map FHBM or other study indicate that the project is located or will affect a 100 year flood plain...?   |  |
| 2. Does the project alter a watercourse, water flow patterns, or a drainage way, regardless of its floodplain designation?  |  |
| <b>F. Coastal Zone Management Act</b>   |  |
| 1. Is the Project located in the State's designated Coastal Zone?   |  |
| <b>G. Farmland Protection Policy Act</b>  |  |
| 1. Will the project convert more than 5 acres of Prime or Unique farmland outside city limits to a non-agricultural use?  |  |
| <b>H. RCRA and CERCLA (Hazardous and Toxic Materials)</b>   |  |
| 1. Is there a reason to suspect there are contaminants from a current or past use of the property associated with the proposed project?   |  |
| 2. Are there any studies, investigations, or enforcement actions related to the property associated with the proposed project?  |  |
| 3. Does any project construction or operation activities involve the use of hazardous or toxic materials?   |  |
| 4. Do you know in any of the current or past land-uses of the property affected by the proposed project or of the adjacent properties are associated with hazardous or toxic materials?   |  |

Continued on next page



## FMA Elevation Grant Checklist

### PART II (Continued)

|  | (Yes or No) |
|--|-------------|
| <b>I. Executive Order 12898, Environmental Justice for Low Income and Minority Populations</b>   |             |
| 1. Are there low income or minority populations in the project's area of effect or adjacent to the project area?   |             |
| <b>J. Other Environmental/Historic Preservation Laws or Issues</b>   |             |
| 1. Are there other environmental /historic preservation requirements associated with this project that you are aware of?   |             |
| 2. Are there controversial issues associated with this project?  |             |
| 3. Have you conducted any public meeting or solicited public input or comments on your specific proposed mitigation project?   |             |
| <b>K. Summary and Cost of Potential Impacts</b>  |             |
| 1. Having answered the questions in Parts A through J., have you identified any aspects of your proposed project that have potential to impact environmental resources or historic properties? |             |
| <i>If you have answered "Yes" to any of the questions within Parts A through J you will need to attach additional information as identified in the full application form</i>                   |             |

## **STRUCTURAL ENGINEERS**

Structures Engineering Inc.  
1020 Plain St., Suite 240  
Marshfield, MA 02050  
781-834-0085

Anderson Structural Engineering, Inc.  
764 Plain St.  
Marshfield, MA 02050  
781-837-6949  
thomasase@verizon.net  
<http://www.andersonstructural.com>

Peter J. Falk, PE  
Rivermoor Engineering  
146 Front Street, Suite 211  
Scituate, MA 02066  
781-545-2848  
<http://www.rivermoorengineering.com>

## **BUILDING MOVERS**

Gordon Building Movers  
74 Cushing St.  
Hingham, MA 02043  
781-749-2199

D & K Building Moving  
18 Riverside Sq.  
Hyde Park, MA 02136  
617-364-1775  
DKBuildingMovers@gmail.com  
<http://www.dkbuildingmovers.com>

Gary Sylvester's Building Movers &  
Excavating  
571 Thomas B. Landers Rd.  
East Falmouth, MA 02536  
508-548-4397  
info@sylvesterbuildingmovers.com  
<http://www.sylvesterbuildingmovers.com>

## **HOUSE RAISERS**

Jim Nielsen  
Seacoast Construction  
Marshfield, MA  
781-837-9414

Jack Clancy  
Clancy Construction  
Marshfield, MA  
781-834-4161

John Dolan  
Dolan Builders  
13 Gridley Bryant  
Scituate, MA 02060  
781-545-1339

## **PILE DRIVERS**

Paul J. Armstrong  
South Shore Pile Driving, LLC  
12 Sea St.  
Marshfield, MA 02050  
781-706-4021  
paul@sspiledriving.net  
[www.sspiledriving.net](http://www.sspiledriving.net)

Monponset Erectors  
1740 Hyde Park Ave.  
Hyde Park, MA 02136  
617-361-6225

Winkler Crane  
P.O. Box 1110  
Truro, MA 02666  
508-737-4696  
winklercrane@aol.com  
<http://www.winklercrane.com>

## **REGISTERED LAND SURVEYORS**

EET, INC.  
465 Furnace Street, Suite 2  
Marshfield, MA 02050  
781-837-3152  
Contact: Bob Crawford, RLS

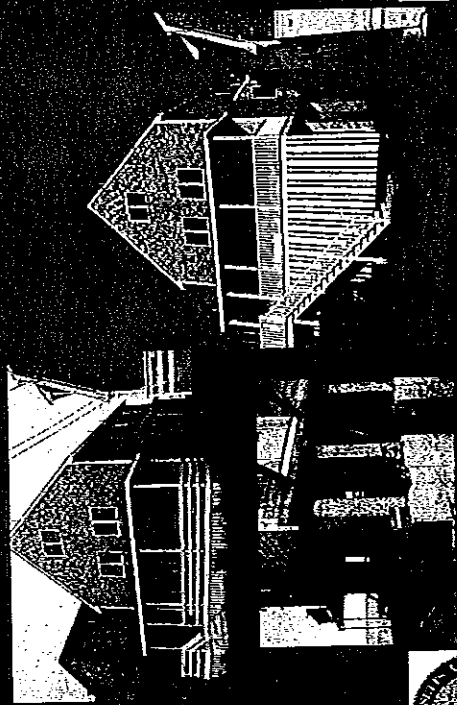
MILLBROOK SURVEY  
401 Parsonage Street  
Marshfield, MA 02050  
781-834-9791  
Contact: Tom Sullivan, RLS

LAWRENCE HUGHES  
1160 Ocean Street  
Marshfield, MA 02050-3617  
781-834-0134  
Contact: Lawrence Hughes, RLS

STENBECK & TAYLOR  
844 Webster Street  
Marshfield, MA 02050  
781-834-8591  
Contact: Brian J. Taylor, RLS

MERRILL ASSOCIATES, INC.  
427 Columbia Road  
Hanover, MA 02339  
781-826-9200

## UNIFIED HAZARD MITIGATION ASSISTANCE (HMA) GRANTS



dc  
Massachusetts



## What is Mitigation?

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- "sustained actions taken to reduce or eliminate long-term risk to people and property from hazards and their effects..."
- Build better/stronger — don't simply restore to pre-disaster conditions
- Looking for upgrades, improvements & enhancements over existing conditions
- Mitigation breaks the cycle of damage/repair/damage





## FEMA Hazard Mitigation Grants

- ☐ Property owners must apply to Town; property owners cannot apply direct to MEMA/FEMA
- ☐ Elevation and acquisition grants are strictly voluntary on the part of the homeowner
- ☐ FEMA-funded; administered by MEMA/DCR at State level
- ☐ Not 'emergency' type program (the grant process takes time)
- ☐ Cannot fund work that has already been completed
- ☐ PDM and FMA programs are annual programs that are nationally competitive. Each year FEMA will indicate the amount of funding available nationwide for these programs.
- ☐ HMGP is funded following a presidentially declared disaster

## Important Factors

- ☐ **This is a reimbursement grant**
  - Meaning the homeowner pays first and submits bills, checks, etc. and is then reimbursed for actual eligible costs incurred
  - Partial reimbursements are allowable, and recommended
  - 10% of total grant is withheld by MEMA until after final inspection by MEMA/FEMA
- ☐ **There is a cost share to these grants**
  - Grant funds are typically funded with 75% Federal share, 25% non-federal match (non-federal match for residential acquisitions and structural elevations is generally provided by property owner)
  - Properties included in a project sub-application for FMA funding must be NFIP insured at the time of the application submittal
  - The non-federal share must be directly related to the proposed activities and must be identified in the application
  - Some specific properties are eligible for more than 75% federal share; those are SRL or RL properties under the NFIP (not a published list)



## SRL/RL Definitions (1 of 2)

The Biggert-Waters Act of 2012 (BW-12) established definitions of repetitive loss property and severe repetitive loss property for cost-sharing purposes in the FMA Program. (Note: BW-12 also eliminated the SRL program and integrated it into FMA).

- A RL property (potentially eligible for 90% Fed. funding) is a structure (covered by a contract for flood insurance made available under the NFIP) that:
  - (a) Has incurred flood-related damage on 2 occasions, in which the cost of the repair, on the average, equaled or exceeded 25 percent of the market value of the structure at the time of each such flood event; and
  - (b) At the time of the second incidence of flood-related damage, the contract for flood insurance contains increased cost of compliance coverage.
- A SRL property (potentially eligible for 100% Fed. funding) is a structure (covered by a contract for flood insurance made available under the NFIP) that:
  - (i) Has incurred flood related damage – for which 4 or more separate claims payments have been made under flood insurance coverage with the amount of each such claim exceeding \$5,000, and with the cumulative amount of such claims payments exceeding \$20,000; or
  - (ii) For which at least 2 separate claims payments have been made under such coverage, with the cumulative amount of such claims exceeding the market value of the insured structure.

## SRL/RL Definitions (2 of 2)

- There is a longstanding definition in the National Flood Insurance Program (NFIP) for repetitive loss property. That is a property with 2 or more flood insurance claims paid under the NFIP of over \$1,000 each, within any 10-year period. This definition is used for most aspects of the NFIP, including describing areas of repetitive flooding in a community's hazard mitigation plan.



## Types of Eligible Activities

- ☐ Elevation of structures
- ☐ Acquisition of structures (conversion to open space)
- ☐ Elevation of utilities
- ☐ Wind Retrofit
- ☐ Drainage Improvements (culvert upgrades, etc.)
- ☐ Stormwater Management (detention/retention)
- ☐ Backflow prevention

## Facts on Structural Elevation

- ☐ Elevate existing structure above Base Flood Elevation (BFE)
- ☐ Construction must be in conformance with all federal, state, and local permitting/design requirements (building permit, Notice of Intent, etc.)
- ☐ Must also meet ASCE/SEI 24-05 criteria
- ☐ Elevation Certificate before and after elevation will be required
- ☐ Benefit-Cost Analysis (BCA) documentation
- ☐ Maintain flood insurance in perpetuity after project completion (recorded via deed restriction)
- ☐ Cannot increase square footage of home; elevation of existing structure only



## Elevation — Application Requirements

- ☐ Following items are needed for an application:
  - Detailed Scope of Work — usually provided by a contractor or engineer/architect hired by the homeowner
  - Elevation certificate
  - Cost estimate (3 bids from contractors)
  - Photos (at least one of each side)
  - Physical address and property owner's name
  - Flood Insurance Rate Map (FIRMette)
  - Tax Assessors Card

## Facts on Acquisition

- ☐ Fair Market Value (FMV) for the land & home are determined by an appraisal
- ☐ The federal grant will pay for usually up to 75% of the FMV; the remaining 25% is usually absorbed by homeowner or through another non-federal funding source
- ☐ The community buys private property, acquires title to it, and then demolishes the building and removes utilities
- ☐ The deed is then recorded as permanent open space and no building can occur in the future. The town will maintain the land in the future
- ☐ Buyouts are strictly voluntary (both on the part of the Town & property owner). No homeowners are ever forced to relinquish their property
- ☐ Participation or inclusion in an application for funds, does not obligate a homeowner to sell home
- ☐ Reference HMA Guidance Addendum for additional details regarding Property acquisition





## Acquisition — Application Requirements

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- ☐ Following items are needed for an application:
  - Detailed Scope of Work and total budget
  - Benefit cost information (more details later in presentation)
  - Statement of Assurances
  - Deed Restriction Language (drafts)
  - Property Owner Documentation
    - Owner must be a US Citizen or qualified alien
    - Letter of Voluntary Interest
    - Estimate of fair market value (official appraisal is not needed for the application)

## Other Types of Mitigation Activities...

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- ☐ Mitigation Reconstruction
  - Pays up to \$150,000 to elevate building on the same site where an existing building and/or foundation has been partially or completely destroyed
  - Only permitted for structures outside of the regulatory floodway or coastal high hazard area (Zone V)
- ☐ Utility Elevation (non-structural retrofitting)
  - Modifications to existing utilities to raise them to a higher level in the home (above BFE)
  - Will not pay for new appliances/equipment
- ☐ Wind Retrofit
  - Storm Shutters, impact resistant glass, in conformance with *Retrofit Guide for Residential Buildings (FEMA P-804)*



## Benefit-Cost Analysis (BCA)

- ☐ A BCA is required for all mitigation projects
- ☐ For Acquisitions and Elevations in the Special Flood Hazard Area (Flood Zone) there is a BCA waiver in place
  - If your acquisition project costs less than \$276,000 the waiver may apply
  - If your elevation project costs less than \$175,000 the waiver may apply
- ☐ BCA looks at damages twice; before mitigation & after mitigation
  - Benefits = damages and/or losses avoided with project implementation
    - damages to buildings, infrastructure, contents;
    - economic impacts of loss of building, public services, net business income and costs for temporary quarters;
    - avoided emergency response costs (security, temp. protective measures, etc.)
- ☐ Typically the homeowner provides all the data to the town and the town conducts the BCA analysis in FEMA Software

## Roles & Responsibilities

- ☐ FEMA:
  - Review and evaluate sub-applications submitted by State;
  - Approve federal funding for selected projects
- ☐ State (Grantee):
  - Provide Assistance & solicit for project applications;
  - Conduit for applications and funding to locals;
  - Responsible for project management and accountability of funds at State level
- ☐ Local (Sub-Grantee):
  - Work with property owners/businesses to develop mitigation applications;
  - Primary responsibility for developing project applications and Benefit-Cost Analyses (BCA);
  - Project management, implementation and local accountability of project funds



## Summary

- ☐ MEMA is conduit for applications and funding to/from FEMA
- ☐ Town is the sub-grantee and the POC/conduit for local residents
- ☐ The Town will work with homeowners to ensure all terms and conditions of the grant are being met
- ☐ Projects must be cost effective

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## Grant Guidelines & Resources

- ☐ FEMA Unified HMA Program Guidance (2 PDF's)
  - <https://www.fema.gov/media-library/assets/documents/33634>
- ☐ Homeowner's Guide to Retrofitting Second Edition (FEMA 312)
  - <https://www.fema.gov/library/viewRecord.do?id=1420>
- ☐ Protect Your Property from Flooding
  - <http://www.fema.gov/library/viewRecord.do?id=3262>
- ☐ Above the Flood: Elevating your Flood Prone House (FEMA 347)
  - <http://www.fema.gov/library/viewRecord.do?id=1424>

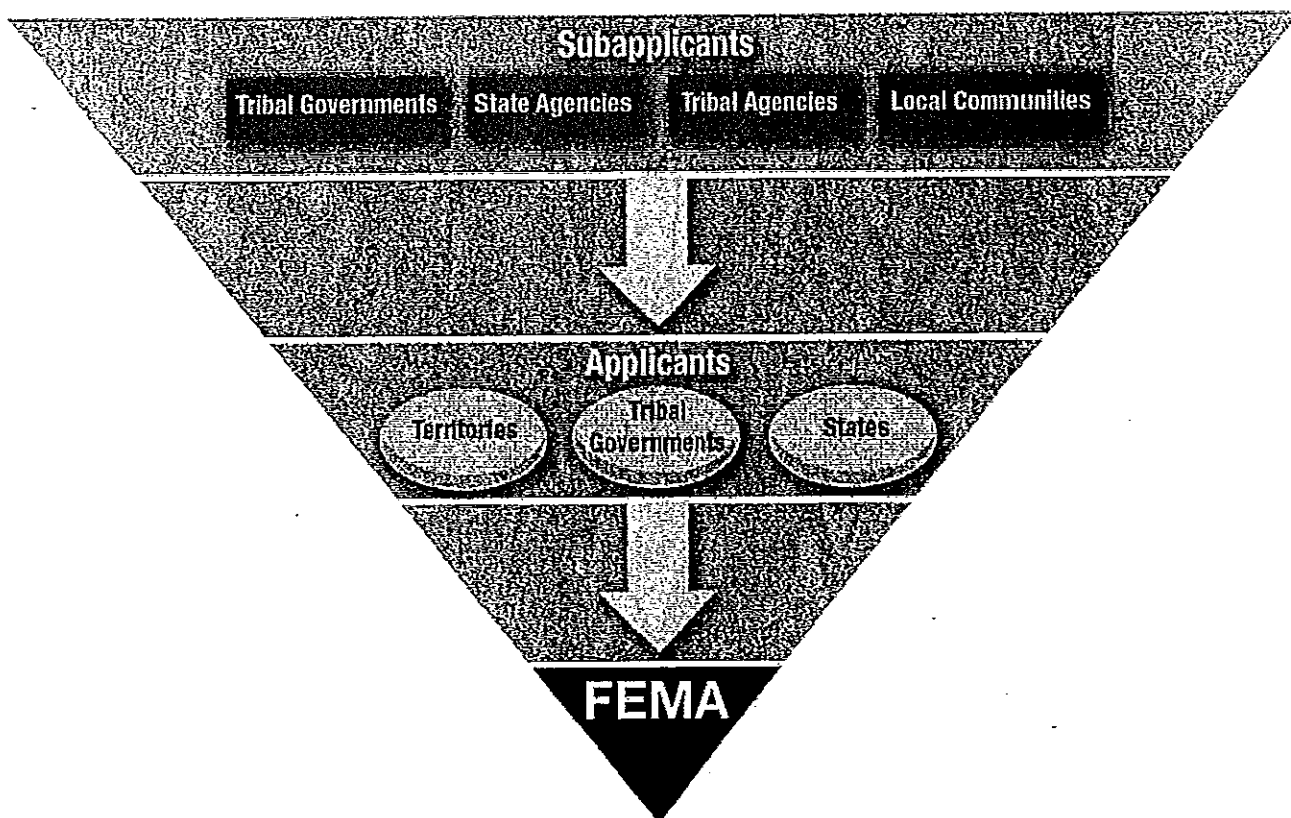
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## FEMA Flood Mitigation Assistance flow chart

**Individual homeowners and businesses may apply for funding through eligible subapplicants**







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## PART X. APPENDICES

### A. Acronyms

|         |  |
|---------|--|
| ABFE    | Advisory Base Flood Elevation                    |
| ADA     | Americans with Disabilities Act                  |
| ADR     | Alternative Dispute Resolution                   |
| ASCE    | American Society of Civil Engineers              |
| BCA     | Benefit-Cost Analysis                            |
| BCR     | Benefit-Cost Ratio                               |
| BFE     | Base Flood Elevation                             |
| BIA     | Bureau of Indian Affairs                         |
| BLM     | Bureau of Land Management                        |
| CBRA    | Coastal Barrier Resource Act                     |
| CBRS    | Coastal Barrier Resource System                  |
| CDBG    | Community Development Block Grant                |
| CFDA    | Catalog of Federal Domestic Assistance           |
| CFR     | Code of Federal Regulations                      |
| CRS     | Community Rating System                          |
| DHS     | Department of Homeland Security                  |
| DOB     | Duplication of Benefits                          |
| DOI     | Department of the Interior                       |
| DOP     | Duplication of Programs                          |
| DOT     | Department of Transportation                     |
| eGrants | Electronic Grants                                |
| EHP     | Environmental Planning and Historic Preservation |
| EO      | Executive Order                                  |
| EOC     | Emergency Operations Center                      |
| EPA     | U.S. Environmental Protection Agency             |
| ESA     | Endangered Species Act                           |
| FCO     | Federal Coordinating Officer                     |
| FEMA    | Federal Emergency Management Agency              |
| FHWA    | Federal Highway Administration                   |

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|       |  |
|-------|--|
| FIMA  | Flood Insurance and Mitigation Administration    |
| FIRM  | Flood Insurance Rate Map                         |
| FIS   | Flood Insurance Study                            |
| FMA   | Flood Mitigation Assistance                      |
| FY    | Fiscal Year                                      |
| GAR   | Governor's Authorized Representative             |
| GIS   | Geographic Information System                    |
| GSTF  | Greatest Savings to the Fund                     |
| Hazus | Hazards United States                            |
| HMA   | Hazard Mitigation Assistance                     |
| HMGP  | Hazard Mitigation Grant Program                  |
| HUD   | U.S. Department of Housing and Urban Development |
| HVAC  | Heating, Ventilation, and Air Conditioning       |
| IBC   | International Building Code                      |
| ICC   | Increased Cost of Compliance                     |
| IRS   | Internal Revenue Service                         |
| ITP   | Independent Third Party                          |
| NAP   | Non-Insured Crop Disaster Assistance Program     |
| NEMIS | National Emergency Management Information System |
| NEPA  | National Environmental Policy Act                |
| NFIA  | National Flood Insurance Act                     |
| NFIF  | National Flood Insurance Fund                    |
| NFIP  | National Flood Insurance Program                 |
| NFPA  | National Fire Protection Association             |
| NHPA  | National Historic Preservation Act               |
| NOAA  | National Oceanic and Atmospheric Administration  |
| NPS   | National Park Service                            |
| NRCS  | Natural Resources Conservation Service           |
| O&M   | Operations and Maintenance                       |
| OMB   | Office of Management and Budget                  |
| OPA   | Otherwise Protected Area                         |
| PARS  | Payment and Reporting System                     |

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|              |   |
|--------------|---|
| PDM          | Pre-Disaster Mitigation   |
| PNP          | Private Non-profit  |
| POC          | Point of Contact  |
| POP          | Period of Performance   |
| SBA          | Small Business Administration   |
| SEI          | Structural Engineering Institute  |
| SF           | Standard Form   |
| SFHA         | Special Flood Hazard Area   |
| SFM          | Strategic Funds Management  |
| SHMO         | State Hazard Mitigation Officer   |
| SOW          | Scope of Work   |
| SRIA         | Sandy Recovery Improvement Act of 2013                                  |
| Stafford Act | Robert T. Stafford Disaster Relief and Emergency Assistance Act         |
| TB           | Technical Bulletin  |
| URA          | Uniform Relocation Assistance and Real Property Acquisition Act of 1970 |
| USACE        | U.S. Army Corps of Engineers  |
| U.S.C.       | United States Code  |
| USDA         | U.S. Department of Agriculture  |
| USFA         | U.S. Fire Administration  |
| USFS         | U.S. Forest Service   |
| USFWS        | U.S. Fish and Wildlife Service  |
| USGS         | U.S. Geological Survey  |
| WUI          | Wildland-Urban Interface Area   |



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## B. Glossary

**Applicant:** The entity, such as a State, Territory, or Indian Tribal government, applying to FEMA for a grant that will be accountable for the use of the funds. Once grant funds are awarded, the Applicant becomes the "Grantee."

**Base Flood:** A flood having a 1 percent chance of being equaled or exceeded in any given year.

**Base Flood Elevation (BFE):** The elevation shown on the Flood Insurance Rate Map (FIRM) for Zones AE, AH, A1-A30, AR, AR/A, AR/AE, AR/A1-A30, AR/AH, AR/AO, V1-V30, and VE that indicates the water surface elevation resulting from a flood that has a 1 percent chance of equaling or exceeding that level in any given year.

**Benefit-Cost Analysis (BCA):** A quantitative procedure that assesses the cost-effectiveness of a hazard mitigation measure by taking a long-term view of avoided future damages as compared to the cost of a project.

**Benefit-Cost Ratio (BCR):** A numerical expression of the cost-effectiveness of a project calculated as the net present value of total project benefits divided by the net present value of total project costs.

**Biomass:** Biological material derived from living, or recently living organisms.

**Building:** A structure with two or more outside rigid walls and a fully secured roof that is affixed to a permanent site; a manufactured home or a mobile home without wheels, built on a chassis and affixed to a permanent foundation, that is regulated under the community's floodplain management and building ordinances or laws. "Building" does not mean a gas or liquid storage tank or a recreational vehicle, park trailer, or other similar vehicle.

**Clean-site certification:** A letter from the appropriate local, State, Indian Tribal, or Federal entity determining that no further remedial action is required to protect human health or the environment.

**Coastal Barrier Resource System (CBRS):** A geographic unit designated to serve as a protective barrier against forces of wind and tidal action caused by coastal storms and serving as habitat for aquatic species. Congress restricted Federal spending and assistance for development-related activities within CBRS units to protect them from further development. Federal flood insurance is unavailable in these areas. CBRS units are identified on FEMA FIRMs.

**Coastal High Hazard Area:** An area of special flood hazard extending from offshore to the inland limit of a primary frontal dune along an open coast and any other area subject to high velocity wave action from storms or seismic sources.

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**Combustible material:** Any material that, in the form in which it is used and under the conditions anticipated, will ignite and burn or will add appreciable heat to an ambient fire.

**Community Rating System (CRS):** A program developed by FEMA to provide incentives for those communities in the NFIP that have gone beyond the minimum floodplain management requirements to develop extra measures to provide protection from flooding.

**Cost-effectiveness:** Determined by a systematic quantitative method for comparing the costs of alternative means of achieving the same stream of benefits for a given objective. The benefits in the context of hazard mitigation are avoided future damages and losses. Cost-effectiveness is determined by performing a BCA.

**Cost share:** The portion of the costs of a federally assisted project or program not borne by the Federal Government.

**Defensible space:** An area that is either natural or manmade, where material capable of allowing a fire to spread unchecked has been treated, cleared, or modified to slow the rate and intensity of an advancing wildfire and to create an area for fire-suppression operations to occur.

**Dwelling:** A building designed for use as a residence for no more than four families or a single-family unit in a building under a condominium form of ownership.

**Elevated Building:** A building that has no basement and a lowest floor that is elevated to or above the BFE by foundation walls, shear walls, posts, piers, pilings, or columns. Solid perimeter foundations walls are not an acceptable means of elevating buildings in Zones V and VE.

**Environmental Benefits:** Environmental benefits are direct or indirect contributions that ecosystems make to the environment and human populations. For FEMA BCA, certain types of environmental benefits may be realized when homes are removed and land is returned to open space uses. Benefits may include flood hazard reduction; an increase in recreation and tourism; enhanced aesthetic value; and improved erosion control, air quality, and water filtration.

**Equipment:** Tangible, nonexpendable, personal property having a useful life of more than 1 year and an acquisition cost of \$5,000 or more per unit. A Grantee may use its own definition of equipment provided such definition would at least include all equipment defined above.

**Federal Agency:** Any department, independent establishment, Government corporation, or other agency of the executive branch of the Federal Government, including the U.S. Postal Service, but not the American National Red Cross.

**Federal Cognizant Agency:** The Federal agency responsible for reviewing, negotiating, and approving cost allocation plans or indirect cost proposals developed on behalf of all Federal agencies. The OMB publishes a list of Federal Cognizant Agencies.

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**Firebreak:** a strip of cleared land that provides a gap in vegetation or other combustible material that is expected to slow or stop the progress of a wildfire.

**Fire-proofing:** Removal or treatment of fuels to reduce the danger of fires igniting or spreading. (e.g., fire-proofing roadsides, campsites, structural timber).

**Fire-resistant material:** Material that has a property that prevents or retards the passage of excessive heat, hot gases, or flames under conditions of use.

**Fire retardant:** A chemical applied to lumber or other wood products to slow combustion and flame spread.

**Fire Severity Zone:** Three concentric zones around a building used to determine the most effective design for defensible space.

**Flammability:** The relative ease with which fuels ignite and burn regardless of the quantity of the fuels.

**Flood Insurance Rate Map (FIRM):** Official map of a community on which FEMA has delineated both the special hazard areas and the risk premium zones applicable to the community.

**Floodplain:** Any land area that FEMA has determined has at least a 1 percent chance in any given year of being inundated by floodwaters from any source.

**Floodplain Management:** The operation of an overall program of corrective and preventive measures for reducing flood damage, including but not limited to, emergency preparedness plans, flood control works, and floodplain management regulations.

**Floodway:** The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height. Communities regulate development in these floodways to ensure that there are no increases in upstream flood elevations.

**Freeboard:** Freeboard is a factor of safety usually expressed in feet above a flood level for purposes of floodplain management. "Freeboard" tends to compensate for the many unknown factors that could contribute to flood heights greater than the height calculated for a selected size flood and floodway conditions, such as wave action, bridge openings, and the hydrological effect of urbanization of the watershed.

**Fuel break:** A natural or manmade change in fuel characteristics that affects fire behavior so that fires burning into them can be more readily controlled.

**Fuel condition:** Relative flammability of fuel as determined by fuel type and environmental conditions.

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**Governor's Authorized Representative (GAR):** The individual, designated by the Governor, who serves as the grant administrator for all funds provided under HMGP; the person empowered by the Governor to execute, on behalf of the State, all necessary documents for disaster assistance.

**Grant:** An award of financial assistance for a specified purpose by the Federal government to an eligible Grantee.

**Grantee:** The entity, such as a State, Territory, or Indian Tribal government to which a grant is awarded and that is accountable for the use of the funds provided. The Grantee is the entire legal entity even if only a particular component of the entity is designated in the grant award document.

**Green Open Space:** Green open space is land that does not directly touch a natural body of water, such as a river, lake, stream, creek, or coastal body of water.

**Hazardous fuels reduction:** An area strategically located in relation to predicted fire hazard and occurrence where the vegetation has been permanently modified or replaced so that fires burning into it can be more easily controlled (e.g., vegetation management activities).

**Hazard mitigation planning:** A process used by governments to identify risks, assess vulnerabilities, and develop long-term strategies for protecting people and property from the effects of future natural hazard events.

**HMGP Lock-In Ceiling:** The level of HMGP funding available to a Grantee for a particular Presidential major disaster declaration.

**Identified for Further Review:** Subapplications identified for further review contain sufficient information for a preliminary determination of cost-effectiveness and feasibility. In certain instances, FEMA may work with Applicants to confirm cost-effectiveness and feasibility. Identification for further review is not a notification of award.

**Ignition-resistant construction:** Construction standards based on use of fire-resistant materials, non-combustible materials, and 1-hour fire-rated assemblies.

**Increased Cost of Compliance:** Coverage for expenses a property owner must incur, above and beyond the cost to repair the physical damage the structure actually sustained from a flooding event, to comply with mitigation requirements of State or local floodplain management ordinances or laws; acceptable mitigation measures are structure elevation, dry floodproofing, structure relocation, structure demolition, or any combination thereof.



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**Indian Tribal Government:** A federally recognized governing body of an Indian or Alaska Native Tribe, band, nation, pueblo, village, or community that the Secretary of the Interior acknowledges to exist as an Indian Tribe under the Federally Recognized Tribe List Act of 1994, 25 U.S.C. 479a. This does not include Alaska Native corporations, the ownership of which is vested in private individuals.

**Indirect cost:** Cost that is incurred by a Grantee for a common or joint purpose benefitting more than one cost objective that is not readily assignable to the cost objectives specifically benefited.

**Indirect cost rate:** Percentage established by a Federal department or agency for a Grantee to use in computing the dollar amount it charges to the grant to reimburse itself for indirect costs incurred in doing the work of the grant activity.

**Management costs:** Any indirect costs, administrative expenses, and any other expenses not directly chargeable to a specific project that are reasonably incurred by a Grantee or subgrantee in administering and managing a grant or subgrant award. For HMGP, management cost funding is provided outside of Federal assistance limits defined at 44 CFR Section 206.432(b).

**Manufactured (Mobile) home:** A structure, transportable in one or more sections that is built on a permanent chassis and designed for use with or without a permanent foundation when attached to the required utilities.

**Mitigation:** Any sustained action taken to reduce or eliminate long-term risk to life and property from a hazard event.

**Mitigation activity:** A mitigation measure, project, plan, or action proposed to reduce risk of future damage, hardship, loss, or suffering from disasters. The term “measure” is used interchangeably with the term “project” in this program.

**National Flood Insurance Program (NFIP):** Provides the availability of flood insurance in exchange for the adoption of a minimum local floodplain management ordinance that regulates new and Substantially Improved development in identified flood hazard areas.

**Non-combustible material:** Material of which no part will ignite and burn when subjected to fire, such as any material conforming to ASTM E 136.

**Nonflammable:** Material unlikely to burn when exposed to flame under most conditions.

**Non-Federal funds:** Financial resources provided by sources other than the Federal Government. The term does not include funds provided to a State or local government through a Federal grant unless the authorizing statute for that grant explicitly allows the funds to be used as cost share for other Federal grants.

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**Non-Residential structure:** Includes, but is not limited to small business concerns, places of worship, schools, farm buildings (including grain bins and silos), pool houses, clubhouses, recreational buildings, mercantile structures, agricultural and industrial structures, warehouses, hotels and motels with normal room rentals for less than 6 months' duration, and nursing homes.

**Office of Environmental Planning and Historic Preservation:** Integrates the protection and enhancement of environmental, historic, and cultural resources into the FEMA mission and FEMA programs and activities; ensures that FEMA activities and programs related to disaster response and recovery, hazard mitigation, and emergency preparedness comply with Federal environmental and historic preservation (EHP) laws and Executive orders; and provides EHP technical assistance to FEMA staff, local, State, and Federal partners, and Grantees and subgrantees.

**Otherwise Protected Areas (OPAs):** Designation created by the Coastal Barrier Improvement Act. Flood insurance is restricted in OPAs even though they are not in the CBRS and may receive other forms of Federal assistance. OPAs are identified on FEMA FIRMs.

**Period of Performance (POP):** The period of time during which the Grantee is expected to complete the grant activities and to incur and expend approved funds.

**Pile burning:** Piling removed vegetation into manageable piles and burning the individual piles during safe and approved burning conditions.

**Post-FIRM Building:** A building for which construction or Substantial Improvement occurred after December 31, 1974, or on or after the effective date of an initial FIRM, whichever is later.

**Practicable:** An action that is capable of being done within existing constraints. The test of what is practicable depends upon the situation and includes consideration of all pertinent factors, such as environment, cost, and technology.

**Pre-FIRM Building:** A building for which construction or Substantial Improvement occurred on or before December 31, 1974, or before the effective date of an initial FIRM.

**Prescribed burning:** The deliberate and managed use of fire ignited by management actions to meet specific fuels management objectives.

**Presidential Major Disaster:** Any natural catastrophe (including any hurricane, tornado, storm, high water, wind-driven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm, or drought) or, regardless of cause, any fire, flood, or explosion, in any part of the United States, which in the determination of the President causes damage of sufficient severity and magnitude to warrant major disaster assistance under the Stafford Act to supplement the efforts and available resources of States, local governments, and disaster relief organizations in alleviating the damage, loss, hardship, or suffering caused thereby.

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**Private non-profit (PNP):** Any non-governmental agency or entity that currently has: (i) an effective ruling letter from the Internal Revenue Service granting tax exemption under section 501(c), (d), or (e) of the Internal Revenue Code of 1954; or (ii) satisfactory evidence from the State that the organization or entity is a non-profit one organized or doing business under State law.

**Project:** Any mitigation measure or action proposed to reduce risk of future damage, hardship, loss, or suffering from disasters.

**Public Assistance:** Supplementary Federal assistance provided under the Stafford Act to State and local governments or certain PNP organizations other than assistance for the direct benefit of individuals and families. For further information, see 44 CFR Part 206, Subparts G and H. Fire Management Assistance Grants under section 420 of the Stafford Act are also considered Public Assistance.

**Replacement cost value:** The cost to replace property with materials of like kind and quality, without any deduction for depreciation.

**Riparian Area:** The land that directly abuts a natural body of water, such as a river, lake, stream, creek, or coastal body of water.

**Slash:** The accumulation of vegetative materials such as tops, limbs, branches, brush, and miscellaneous residue results from forest management activities such as thinning, pruning, timber harvesting, and wildfire hazard mitigation.

**Special Flood Hazard Area (SFHA):** The land in the floodplain within a community subject to a 1 percent or greater chance of flooding in any given year. An area having special flood, mudflow, or flood-related erosion hazards, and shown on a Flood Hazard Boundary Map or a FIRM as Zone A, AO, A1-A30, AE, A99, AH, AR, AR/A, AR/AE, AR/AH, AR/AO, AR/A1-A30, V1-V30, VE; or V.

**State Hazard Mitigation Officer (SHMO):** The representative of a State government who is the primary point of contact with FEMA, other Federal agencies, and local units of government in the planning and implementation of pre- and post-disaster mitigation activities.

**Structural fire protection:** The protection of homes or other buildings from wildland fire.

**Subapplicant:** The entity, such as a community/local government, Tribal government, or PNP, that submits a subapplication for FEMA assistance to the Applicant. Once funding is awarded, the subapplicant becomes the "subgrantee."

**Subgrant:** An award of financial assistance under a grant by a Grantee to an eligible subgrantee.

**Subgrantee:** The entity, such as a community/local government, Tribal government, or PNP to which a subgrant is awarded and who is accountable to the Grantee for the use of the funds provided.

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**Substantial Damage:** Damage of any origin sustained by a building whereby the cost of restoring the building to its before-damaged condition would equal or exceed 50 percent of the market value of the building before the damage occurred.

**Wildfire:** An uncontrolled fire spreading through vegetative fuels, exposing and possibly consuming structures.

**Wildland-Urban Interface Area:** That geographical area where structures and other human development meet or intermingle with wildland or vegetative fuels.

All terms not listed above are used consistent with the term definitions used in 44 CFR unless otherwise specified.

## C. Additional Resources

| Description   | Web Link or Contact Information  |
|---|--|
| <b>1. NFIP Resources</b>  |  |
| National Flood Insurance Program  | <a href="http://www.floodsmart.gov">http://www.floodsmart.gov</a>  |
| Floodplain Management   | <a href="http://www.fema.gov/national-flood-insurance-program">http://www.fema.gov/national-flood-insurance-program</a>  |
| Map Service Center  | <a href="http://msc.fema.gov">http://msc.fema.gov</a><br>Telephone: (877) FEMA-MAP (336-2627)  |
| FIRMs   | <a href="http://www.fema.gov/national-flood-insurance-program-1/flood-insurance-rate-map-firm">http://www.fema.gov/national-flood-insurance-program-1/flood-insurance-rate-map-firm</a>  |
| ABFEs   | Mississippi: <a href="http://www.fema.gov/news-release/abfes-are-best-resources-mississippians-rebuilding-now">http://www.fema.gov/news-release/abfes-are-best-resources-mississippians-rebuilding-now</a><br>Louisiana: <a href="http://www.fema.gov/news-release/2006/02/06/post-katrina-policy-building-elevations">http://www.fema.gov/news-release/2006/02/06/post-katrina-policy-building-elevations</a> |
| Flood Insurance Studies   | <a href="http://www.fema.gov/national-flood-insurance-program-2/flood-insurance-study-fis">http://www.fema.gov/national-flood-insurance-program-2/flood-insurance-study-fis</a>  |
| FEMA Form AW-501  | <a href="http://www.fema.gov/national-flood-insurance-program-1/mitigated-properties-updates">http://www.fema.gov/national-flood-insurance-program-1/mitigated-properties-updates</a>  |
| <b>2. Mitigation Planning and Risk Assessment Resources</b>                                       |  |
| Hazard Mitigation Planning Overview   | <a href="http://www.fema.gov/hazard-mitigation-planning-overview">http://www.fema.gov/hazard-mitigation-planning-overview</a>  |
| Local Mitigation Planning Handbook (FR302-094-1)  | <a href="http://www.fema.gov/library/viewRecord.do?id=7209">http://www.fema.gov/library/viewRecord.do?id=7209</a>  |
| Local Mitigation Plan Review Guide  | <a href="http://www.fema.gov/library/viewRecord.do?fromSearch=fromsearch&amp;id=4859">http://www.fema.gov/library/viewRecord.do?fromSearch=fromsearch&amp;id=4859</a>  |
| Mitigation Planning Guidance  | <a href="http://www.fema.gov/mitigation-planning-laws-regulations-guidance">http://www.fema.gov/mitigation-planning-laws-regulations-guidance</a>  |
| Mitigation Planning Policies  | <a href="http://www.fema.gov/mitigation-planning-laws-regulations-guidance">http://www.fema.gov/mitigation-planning-laws-regulations-guidance</a>  |
| Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards                                 | <a href="http://www.fema.gov/library/viewRecord.do?id=6938">http://www.fema.gov/library/viewRecord.do?id=6938</a>  |
| Integrating Hazard Mitigation Into Local Planning: Case Studies and Tools for Community Officials | <a href="http://www.fema.gov/library/viewRecord.do?id=7130">http://www.fema.gov/library/viewRecord.do?id=7130</a>  |
| Mitigation Planning How-To Guides (FEMA)  | <a href="http://www.fema.gov/hazard-mitigation-planning-resources">http://www.fema.gov/hazard-mitigation-planning-resources</a>  |
| Hazard Mitigation Planning Risk Assessment  | <a href="http://www.fema.gov/hazard-mitigation-planning-risk-assessment">http://www.fema.gov/hazard-mitigation-planning-risk-assessment</a>  |
| IS-318: Mitigation Planning for Local and Tribal Communities                                      | <a href="http://training.fema.gov/EMIWeb/IS/courseOverview.aspx?code=IS-318">http://training.fema.gov/EMIWeb/IS/courseOverview.aspx?code=IS-318</a>  |
| IS-328: Plan Review for Local Mitigation Plans  | <a href="http://training.fema.gov/EMIWeb/IS/courseOverview.aspx?code=IS-328">http://training.fema.gov/EMIWeb/IS/courseOverview.aspx?code=IS-328</a>  |
| Hazus   | <a href="http://www.fema.gov/hazus">http://www.fema.gov/hazus</a>  |
| USGS National Map   | <a href="http://nationalmap.gov/">http://nationalmap.gov/</a>  |
| USGS Natural Hazards Gateway  | <a href="http://www.usgs.gov/natural_hazards/">http://www.usgs.gov/natural_hazards/</a>  |

| Description  | Web Link or Contact Information   |
|--|---|
| <b>3. Benefit-Cost Analysis Resources</b>                    |   |
| BCA Software and Helpline                                    | Telephone: (866) 222-3580<br>Email: <a href="mailto:bchelp@fema.dhs.gov">bchelp@fema.dhs.gov</a>  |
| BCA Overview   | <a href="http://www.fema.gov/benefit-cost-analysis">http://www.fema.gov/benefit-cost-analysis</a>   |
| BCA Policies   | <a href="http://www.fema.gov/benefit-cost-analysis">http://www.fema.gov/benefit-cost-analysis</a>   |
| <b>4. Feasibility and Effectiveness Resources</b>            |   |
| Engineering Helpline   | Telephone: (866) 222-3580<br>Email: <a href="mailto:enghelpline@fema.dhs.gov">enghelpline@fema.dhs.gov</a>  |
| Engineering Case Studies                                     | <a href="http://www.fema.gov/grant-applicant-resources">http://www.fema.gov/grant-applicant-resources</a>   |
| Property Acquisition Projects                                | <a href="http://www.fema.gov/library/viewRecord.do?id=1861">http://www.fema.gov/library/viewRecord.do?id=1861</a>   |
| Structure Elevation Projects                                 | <a href="http://www.fema.gov/library/viewRecord.do?id=1862">http://www.fema.gov/library/viewRecord.do?id=1862</a>   |
| Minor Localized Flood Reduction Projects                     | <a href="http://www.fema.gov/library/viewRecord.do?id=1863">http://www.fema.gov/library/viewRecord.do?id=1863</a>   |
| Non-Structural Seismic Retrofit                              | <a href="http://www.fema.gov/library/viewRecord.do?id=1865">http://www.fema.gov/library/viewRecord.do?id=1865</a>   |
| Structural Seismic Retrofit                                  | <a href="http://www.fema.gov/library/viewRecord.do?id=1866">http://www.fema.gov/library/viewRecord.do?id=1866</a>   |
| Wind Shutters  | <a href="http://www.fema.gov/library/viewRecord.do?id=1864">http://www.fema.gov/library/viewRecord.do?id=1864</a>   |
| <b>5. EHP Resources</b>                                      |   |
| EHP Program  | <a href="http://www.fema.gov/environmental-planning-and-historic-preservation-program">http://www.fema.gov/environmental-planning-and-historic-preservation-program</a>   |
| EHP Helpline   | Telephone: (866) 222-3580<br>Email: <a href="mailto:ehhelpline@fema.dhs.gov">ehhelpline@fema.dhs.gov</a>  |
| EHP Guidance   | <a href="http://www.fema.gov/environmental-planning-and-historic-preservation-program/environmental-historic-preservation-1">http://www.fema.gov/environmental-planning-and-historic-preservation-program/environmental-historic-preservation-1</a>     |
| EHP eLearning Tool   | <a href="http://www.fema.gov/environmental-planning-and-historic-preservation-program/elearning-tool-fema-grant-applicants-45">http://www.fema.gov/environmental-planning-and-historic-preservation-program/elearning-tool-fema-grant-applicants-45</a> |
| EHP Policies   | <a href="http://www.fema.gov/hazard-mitigation-assistance-policy">http://www.fema.gov/hazard-mitigation-assistance-policy</a>   |
| EHP Training   | <a href="http://training.fema.gov/EMIWeb/IS/IS253a.asp">http://training.fema.gov/EMIWeb/IS/IS253a.asp</a>   |
| National Register of Historic Places                         | <a href="http://www.nps.gov/history/nr/">http://www.nps.gov/history/nr/</a>   |
| <b>6. eGrants and NEMIS (HMGP) Resources</b>                 |   |
| FEMA Enterprise Service Desk – for HMGP (NEMIS-MT) issues    | Telephone: (888) HLP-FEMA (1-888-457-3362)<br>Email: <a href="mailto:fema-enterprise-service-desk@fema.dhs.gov">fema-enterprise-service-desk@fema.dhs.gov</a>   |
| FEMA Enterprise Service Desk – eGrants issues                | Telephone: (877) 611-4700   |
| eGrants Resources Web site                                   | <a href="http://www.fema.gov/mitigation-egrants-system">http://www.fema.gov/mitigation-egrants-system</a>   |
| eGrants Applicant Quick Reference Guide                      | <a href="http://www.fema.gov/library/viewRecord.do?id=3266">http://www.fema.gov/library/viewRecord.do?id=3266</a>   |
| eGrants Subapplicant Quick Reference Guide                   | <a href="http://www.fema.gov/library/viewRecord.do?id=3267">http://www.fema.gov/library/viewRecord.do?id=3267</a>   |
| eGrants System for Grant Applicants online course (IS-31)    | <a href="http://training.fema.gov/EMIWeb/IS/is31a.asp">http://training.fema.gov/EMIWeb/IS/is31a.asp</a>   |
| eGrants System for Subgrant Applicants online course (IS-30) | <a href="http://training.fema.gov/EMIWeb/IS/is30a.asp">http://training.fema.gov/EMIWeb/IS/is30a.asp</a>   |

| Description   | Web Link or Contact Information  |
|---|--|
| eGrants Internal System online course (IS-32)   | <a href="http://training.fema.gov/EMIWeb/IS/courseOverview.aspx?code=is-32">http://training.fema.gov/EMIWeb/IS/courseOverview.aspx?code=is-32</a>  |
| MT eGrants Internal Quick Reference Guide   | <a href="http://www.fema.gov/library/viewRecord.do?fromSearch=fromsearch&amp;id=5885">http://www.fema.gov/library/viewRecord.do?fromSearch=fromsearch&amp;id=5885</a>  |
| NEMIS-MT Frequently Asked Questions:  | <a href="http://www.fema.gov/hazard-mitigation-grant-program/national-emergency-management-information-system-mitigation-module">http://www.fema.gov/hazard-mitigation-grant-program/national-emergency-management-information-system-mitigation-module</a><br><a href="http://www.fema.gov/library/viewRecord.do?id=4913">http://www.fema.gov/library/viewRecord.do?id=4913</a> |
| NEMIS-MT User Manual  | <a href="http://www.fema.gov/library/viewRecord.do?id=4909">http://www.fema.gov/library/viewRecord.do?id=4909</a>  |
| <b>7. HMA Application and Award Resources</b>   |  |
| HMA Overview  | <a href="http://www.fema.gov/hazard-mitigation-assistance">http://www.fema.gov/hazard-mitigation-assistance</a>  |
| HMA Helpline  | Telephone: (866) 222-3580<br>Email: <a href="mailto:hmagrantshelpline@dhs.gov">hmagrantshelpline@dhs.gov</a>   |
| HMA Policies  | <a href="http://www.fema.gov/hazard-mitigation-assistance-policy">http://www.fema.gov/hazard-mitigation-assistance-policy</a>  |
| <b>8. Acquisition Project Resources</b>   |  |
| Model Deed Restriction  | <a href="http://www.fema.gov/library/viewRecord.do?id=6327">http://www.fema.gov/library/viewRecord.do?id=6327</a>  |
| Model Acknowledgement of Conditions for Mitigation in Special Flood Hazard Area   | <a href="http://www.fema.gov/library/viewRecord.do?id=3592">http://www.fema.gov/library/viewRecord.do?id=3592</a>  |
| Model Statement of Assurances   | <a href="http://www.fema.gov/library/viewRecord.do?id=6365">http://www.fema.gov/library/viewRecord.do?id=6365</a>  |
| Notice of Voluntary Interest  | <a href="http://www.fema.gov/library/viewRecord.do?id=3595">http://www.fema.gov/library/viewRecord.do?id=3595</a><br><a href="http://www.fema.gov/library/viewRecord.do?id=3596">http://www.fema.gov/library/viewRecord.do?id=3596</a>   |
| Statement of Voluntary Participation  | <a href="http://www.fema.gov/library/viewRecord.do?id=3333">http://www.fema.gov/library/viewRecord.do?id=3333</a>  |
| <b>9. Mitigation Reconstruction References</b>  |  |
| <ul style="list-style-type: none"> <li>• ASCE/SEI 24-05, <i>Flood Resistant Design and Construction</i>, January 2006</li> <li>• ASCE/SEI 7-05, <i>Minimum Design Loads for Buildings and Other Structures</i>, 2005</li> <li>• <i>International Building Code (IBC)</i>, 2006 edition</li> <li>• International Code Council, <i>Reducing Flood Losses Through the International Codes</i>, 3rd Edition, 2008</li> <li>• FEMA P-55, <i>Coastal Construction Manual</i>, 4th Edition, August 2011</li> <li>• FEMA P-424, <i>Design Guide for Improving School Safety in Earthquakes, Floods and High Winds</i>, December 2010</li> <li>• FEMA 489, <i>Mitigation Assessment Team Report: Hurricane Ivan in Alabama and Florida</i>, August 2005</li> <li>• FEMA P-499, <i>Home Builder's Guide to Coastal Construction Technical Fact Sheet Series</i>, December 2010</li> <li>• FEMA 543, <i>Design Guide for Improving Critical Facility Safety from Flooding and High Winds</i>, January 2007</li> <li>• FEMA 549, <i>Mitigation Assessment Team Report: Hurricane Katrina in the Gulf Coast</i>, July 2006</li> <li>• FEMA 550, <i>Recommended Residential Construction for Coastal Areas: Building on Strong and Safe Foundations</i>, 2nd Edition, December 2009</li> <li>• FEMA 551, <i>Selecting Appropriate Mitigation Measures for Floodprone Structures</i>, March 2007</li> <li>• FEMA 577, <i>Design Guide for Improving Hospital Safety in Earthquakes, Floods, and High Winds: Providing Protection to People and Buildings</i>, June 2007</li> </ul> |  |

| Description  | Web Link or Contact Information |
|--|---------------------------------|
| <b>10. Structure Elevation References</b>  |                                 |
| <ul style="list-style-type: none"> <li>• ASCE/SEI 24-05, <i>Flood Resistant Design and Construction</i>, January 2006</li> <li>• FEMA P-55, <i>Coastal Construction Manual</i>, 4th Edition, August 2011</li> <li>• FEMA P-259, <i>Engineering Principles and Practices of Retrofitting Floodprone Residential Structures</i>, 3rd Edition, January 2012</li> <li>• FEMA P-312, <i>Homeowners Guide to Retrofitting</i>, 2nd Edition, December 2009</li> <li>• FEMA 347, <i>Above the Flood: Elevating Your Flood Prone House</i>, May 2000</li> <li>• FEMA P-499, <i>Home Builder's Guide to Coastal Construction Technical Fact Sheet Series</i>, December 2010</li> <li>• FEMA Technical Bulletin TB-1, <i>Openings in Foundation Walls and Walls of Enclosures</i>, 2008</li> <li>• FEMA Technical Bulletin TB-5, <i>Free-of-Obstruction Requirements</i>, 2008</li> <li>• FEMA Technical Bulletin TB-9, <i>Design and Construction Guidance for Breakaway Walls</i>, 2008</li> <li>• FEMA Form 81-31, <i>NFIP Elevation Certificate</i>, February 2013</li> </ul> |                                 |