

From: [French Wetmore](#)
To: colronjanaverill@comcast.net; [Scott Boettcher](#)
Subject: RE: Clarifying Information Needs --- RE: Flood Authority Small Projects Proposal
Date: Friday, July 20, 2018 9:30:04 AM
Attachments: [HMA Addendum 022715 508.pdf](#)

Historically, FEMA has addressed moving a building by funding the purchase of a property (building and land). For relocation, FEMA has either sold the building back to the owner who can move it wherever he wants (providing it's out of the floodplain) or let the owner remove the building and clean up the parcel to save FEMA demolition expenses. In either case, FEMA takes the title to the property and it must remain vacant. In rural areas, where a parcel may be 40 acres, FEMA has accepted deed restrictions. Or, the parcel can be subdivided and FEMA only buys the new lot that with the building on it and the owner moves it to the other newly-created lot, on high ground.

In other words, FEMA has worked around the usual buyout procedures to allow moving a building.

FEMA's current guidance lists the following as an eligible project:

Property Acquisition and Structure Relocation: The voluntary physical relocation of an existing structure to an area outside of a hazard-prone area, such as the Special Flood Hazard Area (SFHA) or a regulatory erosion zone and, typically, the acquisition of the underlying land. Relocation must conform to all applicable State and local regulations. The property must be deed-restricted in perpetuity to open space uses to restore and/or conserve the natural floodplain functions. For property acquisition and structure relocation projects, see Addendum, Part A.

Attached is the Addendum.

You will recall that local officials in the Basin don't want FEMA grants because of the staff workload.

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From: colronjanaverill@comcast.net <colronjanaverill@comcast.net>
Sent: Friday, July 20, 2018 8:40 AM
To: 'Scott Boettcher' <scottb@sbgh-partners.com>
Cc: French@FrenchAsoc.com
Subject: FW: Clarifying Information Needs --- RE: Flood Authority Small Projects Proposal

Scott, I know that FEMA, and for a short time State Capital Budget money, can be applied to elevating homes above the BFE, or in repetitive damages can be used to buy out a property. Does French know if those funds can be used to move a home to a higher elevation on the property? I understand the desire to help the property owner; however, I am still concerned about establishing

a precedent that could swamp us with more requests than we could possibly fund.

Ron Averill

RONALD H AVERILL
Colonel, US Army Retired
City of Centralia Representative
Chehalis River Basin Flood Authority

From: tkollasch@willapabay.org <tkollasch@willapabay.org>
Sent: Thursday, July 19, 2018 17:08
To: 'Scott Boettcher' <scottb@sbgh-partners.com>; 'Anthony Waldrop' <ghcdwater@gmail.com>
Cc: 'Brandon Carman' <cdfishtech@gmail.com>; colronjanaverill@comcast.net
Subject: RE: Clarifying Information Needs --- RE: Flood Authority Small Projects Proposal

Scott,

The attached map provides more accurate depiction of the elevations in the vicinity of the new and existing home locations.

- The home currently sits at 111.8 ft and is just downstream of the 109.7 ft proposed BFE line. So it's currently just two feet or so above BFE.
- The new home site is just upstream of the proposed 106.3 BFE line and the area sits at 114.1 ft. This puts the new location almost 8ft above BFE.
- Note that channel elevations between the two sites are as low as 105 ft, thus the risk to the landowner in accessing the existing site.
 - This also illustrates the risk that the river could catch in that low channel and cut the landowner off from the home permanently.

Please let me know if you need anything else.

-Tom

From: tkollasch@willapabay.org <tkollasch@willapabay.org>
Sent: Wednesday, July 18, 2018 4:32 PM
To: 'Scott Boettcher' <scottb@sbgh-partners.com>; 'Anthony Waldrop' <ghcdwater@gmail.com>
Cc: 'Brandon Carman' <cdfishtech@gmail.com>; 'colronjanaverill@comcast.net' <colronjanaverill@comcast.net>
Subject: RE: Clarifying Information Needs --- RE: Flood Authority Small Projects Proposal

Scott,

Anthony is away on vacation this week, so I will do my best to provide the answers you're looking for.

1. Property Value: The Grays Harbor County Assessor values the 63 acres at \$145,780 which, as is common practice, is far below fair market value. I would be speculating to guess at a real market value, but 56 acres with a home would seem likely to sell for twice the assessed value or a bit more.
2. The current home has had floodwater closely surround it, but never had water in it. The new location is 5 to 6 feet higher than the ground on which the house currently sits. The new area where the home will be sited has never been known to flood but is still inside the current mapped floodplain on the FIRM map for the area (see below).
3. There is no Base Flood Elevation currently established for this area. However, there are draft Flood Hazard Study maps which propose to revise the Zone A mapped area (significantly reduced) and establish BFE transects within this part of the Wynoochee River valley (see attached map with the existing and proposed home sites tagged). Neither the current house location nor the proposed location are within the 'new' Zone A but are within the current FIRM map Zone A. Grays Harbor County is likely to adopt these maps in the future, but in the meantime, they can be used as 'best available data' when permitting a homesite in the floodplain. While I don't have exact elevations for the two sites yet, I expect that we will be able to set the home at least two feet above the 'new' BFE for the location (around 107ft) within the current proposed costs; and likely 5 to 6 feet above BFE.
4. The home has not flooded itself, but the structure is in danger of being lost to the river via bank erosion in the future. If the erosion situation continues apace, that could happen in 3 to 7 years. Access to the existing home site is dangerous during normal flood events because there are channels between the house and road that are activated and flow with force. The driveway has been moved twice and is in imminent danger of being lost along with the utilities within the next year.
5. We have not explored FEMA funding options at this time.

Please let me know if you have any further questions.

Thanks,

-Tom

Tom Kollasch

Watershed Restoration Program Manager

Pacific and Grays Harbor Conservation Districts

tkollasch@willapabay.org

360-589-1033

From: Scott Boettcher <scottb@sbgh-partners.com>

Sent: Monday, July 16, 2018 7:10 AM

To: Anthony Waldrop <ghcdwater@gmail.com>

Cc: Tom Kollasch <tkollasch@willapabay.org>; Brandon Carman <cdfishtech@gmail.com>;
colronjanaverill@comcast.net

Subject: Clarifying Information Needs --- RE: Flood Authority Small Projects Proposal

Anthony – A few clarifying information needs from our 2019-21 local projects reviewing team re

your proposed project (<https://www.ezview.wa.gov/DesktopModules/Documents2/View.aspx?tabID=28124&alias=1492&mid=69498&ItemID=6161>):

1. Can you please reply back ("reply all") with any information you can assemble regarding the value of the home/property (GHC Assessor, etc.).
2. Can you please clarify how much the home will be elevated if moved back (upland/up gradient). Does this take the home out of flood concern?
3. How much elevation (and cost) would it take to get the home out of the 100 year flood? How about 2 feet above BFE?
4. How imminent is the flood threat? Is threat predominately loss of access/use or is it loss of structure?
5. Have you looked at other funding programs (e.g., FEMA)? If so what did you find.

Thanks for your help. **Please get back to me by the end of the day July 20th at the latest.**

Thanks again.

Scott

Scott Boettcher, Staff
Chehalis River Basin Flood Authority
360/480-6600
scottb@sbgh-partners.com

From: Scott Boettcher

Sent: Tuesday, July 3, 2018 10:33 AM

To: Anthony Waldrop <ghcdwater@gmail.com>

Cc: Tom Kollasch <tkollasch@willapabay.org>; Brandon Carman <cdfishtech@gmail.com>;
colronjanaverill@comcast.net

Subject: RE: Flood Authority Small Projects Proposal

Thank you Anthony. Your proposal has been rec'd on time.

Scott

Scott Boettcher, Staff
Chehalis River Basin Flood Authority
360/480-6600
scottb@sbgh-partners.com

From: Anthony Waldrop <ghcdwater@gmail.com>

Sent: Tuesday, July 3, 2018 9:46 AM

To: Scott Boettcher <scottb@sbgh-partners.com>

Cc: Tom Kollasch <tkollasch@willapabay.org>; Brandon Carman <cdfishtech@gmail.com>

Subject: Flood Authority Small Projects Proposal

Hi Scott,

Attached is a proposal sponsored by the Grays Harbor Conservation District. Let me know if there is anything else you need.

Thanks,

-Anthony

--

Anthony Waldrop

Grays Harbor Conservation District

330 Pioneer Avenue West

Montesano, WA, 98563

Phone: 360-249-8532



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Wynoochee RM 15.2

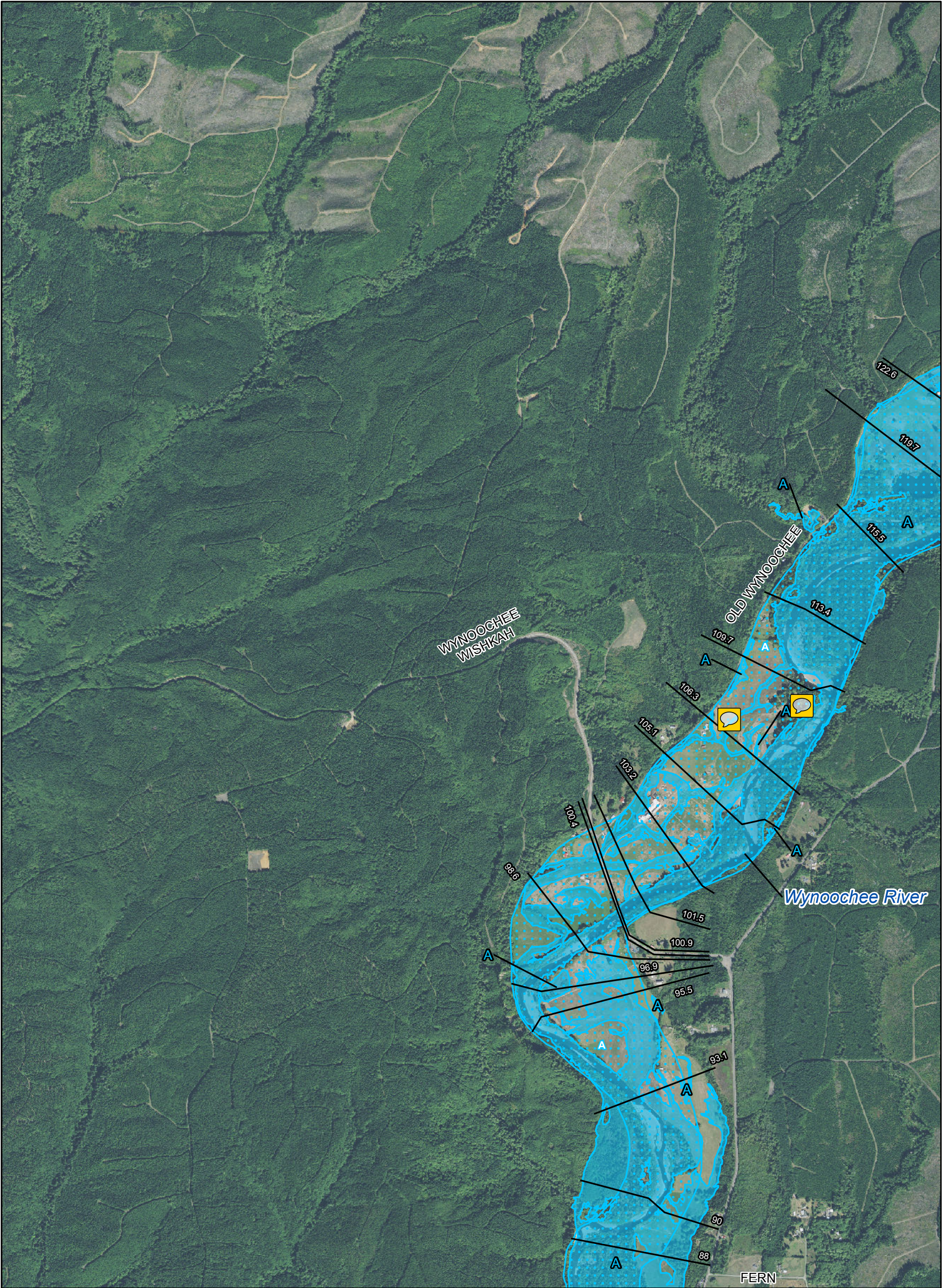


Legend

- House**
- Current Location
 - Potential Location
- CONTOUR**
- 2 ft contour

Notes:

Aerial imagery NAIP 2017
 Topography from 2017 Topobathymetric LiDAR DEM
 Contour Interval - 2ft
 Lambert conformal conic projection, NAD 1983
 State Plane Coordinate System (WA South Zone)



Mapping	VE Zone	AE Zone	AE Floodway Zone	AO/AH Zone	A Zone	Shaded X Zone X	Protected By Levee
Current Effective	VE 14	AE 12	AE	AO 2	A	0.2%	X
New Study	VE 14	AE 12	FLOODWAY	AO 2	A	0.2%	N/A

Limit of Study or Floodway

Cross Section

0 750 1,500 3,000 Feet

N
W
E
S

FEMA Region X
Lower Chehalis Watershed
Flood Hazard Study
Draft Workmaps
Page F3 (7 of 45)
September 2016

DRAFT



Hazard Mitigation Assistance Guidance Addendum

Hazard Mitigation Grant Program, Pre-Disaster Mitigation
Program, and Flood Mitigation Assistance Program

February 27, 2015



FEMA

Federal Emergency Management Agency
Department of Homeland Security
500 C Street, S.W.
Washington, DC 20472

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A. Property Acquisition and Structure Demolition or Relocation for Open Space

Part A of the Addendum supplements the information provided in Parts I through IX of the Hazard Mitigation Assistance (HMA) Guidance. The project-specific guidance in this section does not provide all of the information necessary to apply for funding through an HMA program and must be read in conjunction with all other relevant sections of this guidance.

A.1 Overview

For property acquisition and structure demolition or relocation projects for the purpose of creating open space, Applicants and subapplicants must comply with Title 44 of the Code of Federal Regulations (CFR) Part 80 and this guidance. A project may not be framed in a manner that has the effect of circumventing these requirements.

Generally, Federal Emergency Management Agency (FEMA)-funded property acquisition and structure demolition or relocation projects with the purpose of creating open space consist of the following: the community purchases a flood-prone structure from a willing seller and then demolishes or relocates it to a site outside the floodplain. The purchased property is deed restricted and maintained as open space in perpetuity to restore and/or conserve the natural floodplain functions. Although some communities elect to develop a site outside the floodplain and relocate structures to the new site, simpler acquisition and structure demolition projects require minimal environmental review, are considerably less expensive, and allow the homeowner to determine where to relocate.

Federal law requires properties acquired with FEMA funds in structure demolition or relocation projects to be maintained as open space in perpetuity and Recipients and subrecipients to be responsible for oversight in ensuring and enforcing proper land use and for coordinating with FEMA on any future land use or property disposition issues.

During the development of an acquisition project for open space, property owners are responsible for notifying the subapplicant of their interest in participating in the proposed project. They must provide all of the information requested by the subapplicant, and they must complete all of the actions that are required to complete the subapplication and to implement the property acquisition and structure demolition or relocation.

A.2 Additional Project Eligibility Requirements

For a property to be eligible for FEMA-funded acquisition, the subapplicant must acquire the [full] fee title of the property (except for any easements and encumbrances that FEMA determines are compatible with open space) from a willing, voluntary seller or must retain such interest. The subapplicant must commit not to use eminent domain if the property owner chooses not to participate and must verify that the property is not needed as a part of an intended

or planned HMA project. Once funds have been awarded for the project, a property may not be subdivided before it is acquired except for portions outside the Special Flood Hazard Area (SFHA) or any risk zone identified by FEMA.

A property is eligible for acquisition if it:

- ◆ Will be acquired from a willing, voluntary seller
- ◆ Contains a structure that may or may not have been damaged or destroyed as a result of a hazard event
- ◆ Is undeveloped, flood-prone land that is part of a project with an adjacent eligible property with one or more existing structure(s) and the total project remains cost effective
- ◆ Has easements that are incompatible with open space or encumbrances that can all be extinguished
- ◆ Is not contaminated with hazardous materials at the time of acquisition other than incidental demolition or household waste
- ◆ Is not part of an intended, planned, or designated project area for which the land is to be acquired by a certain date and/or where there is an intention to use the property for any public or private use that is inconsistent with the open space deed restrictions and FEMA acquisition requirements (e.g., roads, flood control levees)

Other eligibility requirements are as follows:

- ◆ Per the Coastal Barrier Resources Act (CBRA) FEMA HMA programs may fund projects in Otherwise Protected Areas (OPAs) if they do not require flood insurance after project completion. Acquisitions in a Coastal Barrier Resources System (CBRS) unit are eligible only if they qualify for one of the exceptions in Section 6 of CBRA, Title 16 United States Code (U.S.C.) 3505. That is, acquisitions are eligible if they are consistent with the purposes of the CBRA and qualify as projects for the study, management, protection, and enhancement of fish and wildlife resources and habitats, as provided in 16 U.S.C. 3505(a)(6)(A) and 44 CFR Section 206.345. Acquisitions are subject to the regulatory restrictions of allowable uses under 44 CFR Section 80.19 and eligibility requirements of 44 CFR Section 206.434.
- ◆ Any structure that is relocated must be placed outside the SFHA and outside any regulatory erosion zone or other mapped hazard area, and the relocation must conform to any other applicable State or local land use regulations.

A.2.1 Limits on Subsurface Uses Affecting Eligibility

Any incompatible easements or other encumbrances to the property must be extinguished before acquisition. Subsurface hydraulic fracturing and horizontal directional drilling (HDD) generally are not authorized uses of properties acquired with FEMA HMA funds. FEMA generally will not approve property acquisition for open space projects involving properties with underground oil,

gas, or other mineral encumbrances that may allow hydraulic fracturing/HDD to occur. Subrecipients cannot enter into leases or other encumbrances that permit oil, gas, or other mineral extraction by hydraulic fracturing/HDD. Owners, or holders of previously acquired HMA properties, generally cannot encumber the property with or transfer underground oil, gas, or other mineral rights that may allow hydraulic fracturing/HDD to occur on or under that property.

Consistent with applicable statutes and regulations, properties for which funds have not been approved and obligated are subject to these restrictions. These limits are not applicable for those properties in approved projects that have already reached the point of obligation. However, for approved projects, any future actions, such as a subsurface lease renewal or creation of a new encumbrance involving hydraulic fracturing/HDD on or under the surface of a property, would be subject to FEMA approval. HDD generally is not an allowable use.

A.2.2 Open Space Restrictions

To be eligible, a project must result in property acquisition and structure demolition or relocation, and the acquisition and demolition or relocation must meet all of the requirements of 44 CFR Part 80 and adhere to the following guidance on open space restrictions governing the use of award funds and the use of acquired real property.

The subrecipient will dedicate and maintain the property in perpetuity for uses that are compatible with open space, recreational, or wetlands management practices and that are consistent with conservation of natural floodplain functions by recording deed restrictions consistent with the FEMA Model Deed Restriction (see Addendum Part A.6.4 for information on the FEMA Model Deed Restriction). Hydraulic fracturing/HDD is a practice with currently unresolved environmental impacts and unknown open space compatibility; therefore, it is generally not an allowable use.

No new structures will be built on the property, except:

- ◆ Public buildings that are open on all sides and functionally related to a designated open space or recreational use
- ◆ Public restrooms
- ◆ Structures that are compatible with open space, recreational, or wetlands management use and applicable floodplain management policies and practices, and for which compatibility is confirmed in writing by the FEMA Regional Administrator before construction of the structures begins
- ◆ Structures described in the three bullets above that will be elevated or floodproofed to the Base Flood Elevation (BFE) plus 1 foot of freeboard and that meet the applicable requirements of the National Flood Insurance Program (NFIP) floodplain management regulations at 44 CFR Section 60.3

A.3 Property Acquisition Application Package

Subapplicants are responsible for meeting the requirements and timeframes in 44 CFR Section 80.13 and for providing the information that is necessary for the Applicant and FEMA to determine the eligibility of the project as described in the subapplication. The subapplication must contain property and project information, including the project description and Environmental Planning and Historic Preservation (EHP) information.

FEMA may request additional information after the subapplication has been submitted to ensure that all necessary information is received. However, all information required by the regulations and this guidance must be received before a funding decision and award or final approval can be made.

A.3.1 General Application Requirements

For property acquisition projects, the project Scope of Work (SOW) in the subapplication must include the following:

- ◆ For all HMA programs, the value of each property (pre-event or current, as appropriate) and documentation demonstrating how the market value was determined
- ◆ An appeal or reconsideration process for property owners who dispute the purchase offer property valuation

Additional subapplication requirements include:

- ◆ Statement of Assurances
- ◆ A sample of the deed restriction
- ◆ Property owner documentation
- ◆ Voluntary interest documentation
- ◆ Certification of owner status for pre-event value
- ◆ Consultation regarding other ongoing Federal activities

A.3.2 Allowable Property-Related Costs

Allowable costs are costs that are necessary and reasonable for the proper and efficient performance and administration of the Federal award. Allowable costs for property acquisition and structure demolition or relocation projects for open space depend on the scope of the project. Allowable costs are listed in **Table 1**.

A shortfall is the difference between the amount the subrecipient pays an owner for a damaged residence and the cost of a comparable replacement home in a non-hazard-prone location if the cost of the replacement home is higher. A shortfall is an allowable cost up to \$31,000 per property. See Addendum Part A.6.9.4.

A.3.3 Non-allowable Property-Related Costs

Property-related costs that are not allowable under HMA programs include, but are not limited to, the following:

- ◆ Compensation for land that is already held by an eligible entity, even if the eligible entity is not the subapplicant for the project; however, compensation for development rights (e.g., obtaining an open space easement) may be an allowable cost (see **Table 1**)
- ◆ Property acquisition and structural demolition projects where State and/or local laws or ordinances create a legal condition that requires structure demolition and/or prohibits future development of the property (e.g., a coastal setback requirement)
- ◆ Remediation, remediation plans, and environmental cleanup and certification of contaminated properties; however, permitted disposal of incidental demolition, household hazardous wastes, and fuel tanks that support a residential use only may be an allowable cost
- ◆ Aesthetic improvements and landscaping, new site property acquisition, and public infrastructure and utility development

Table 1: Generally Allowable Costs for Property Acquisition and Structure Demolition or Relocation for Open Space

Both Structure Demolition and Relocation	Structure Demolition Only	Structure Relocation Only
<ul style="list-style-type: none"> • Removal of demolition debris and household hazardous wastes to an approved landfill (including debris from the demolition of houses, garages, driveways, sidewalks, and above-grade concrete slabs) • Abatement of asbestos and/or lead-based paint • Removal of septic tanks; if not removed, floors and walls must be cracked or crumbled so the tank will not hold water, and the tank must be filled with sand or other clean fill • Permitted disposal of fuel tanks that support residential use only • Removal of all structure foundation and basement walls to at least 1 foot below the finish grade of the site • Filling of basements with compacted clean fill (basement floors must have a minimum 1-foot-diameter hole in the floor to allow for drainage) • Removal of only the trees, if any, that restrict the demolition work on any structure • Termination of all abandoned utilities at least 2 feet below the finish grade of the site • Capping of all wells and/or removal of associated components • Grading, leveling, and site stabilization of all demolition sites 	<ul style="list-style-type: none"> • Market value of the real property (land and structures) either at the time of sale or immediately prior to the most recent disaster or flood event, subject to applicable adjustments, provided State/local laws do not prohibit future improvements and/or require structure demolition • For land already owned by an eligible entity, compensation is for the structure and for development rights only, not for the land. This includes any entity eligible to apply for award or subaward funding under the relevant funding program, even if the entity is not the Applicant or subapplicant for the project. • Fees for necessary appraisals, title searches, title insurance, property inspections, and surveys • Property tax liens or tax obligations can be extinguished with proceeds from property sale while performing the transfer of title • Fees associated with the title transfer, contract review, and other costs associated with conducting the real estate settlement, including recordation of the deed and deed restrictions • Demolition, site restoration, and site stabilization of the acquired site 	<ul style="list-style-type: none"> • Market value of the real property (land only) • For land already owned by an eligible entity, compensation is for the development rights. This includes any entity eligible to apply for award or subaward funding under the relevant funding program, even if the entity is not the Applicant or subapplicant for the project. • Fees for necessary appraisals, title searches, title insurance, property inspections, plan reviews, permit fees, and surveys • Property tax liens or tax obligations can be extinguished with proceeds from property sale while performing the transfer of title • Fees associated with the title transfer, contract review, and other costs associated with conducting the real estate settlement, including recordation of the deed and deed restrictions • Jacking and moving the structure to a different site • The reasonable cost of disassembling, moving, and reassembling any attached appurtenances such as porches, decks, skirting, ramps, and awnings • Necessary site preparations, including foundation, water, sewer, and utility hookups • Site restoration and site stabilization of the acquired site

A.4 Implementation

This section discusses clear title, statement of voluntary participation, final mitigation offer, open space land use requirement, and subsequent transfer of a property interest.

A.4.1 Clear Title

The subrecipient shall conduct a title search for each property it plans to acquire. The purpose of the title search is to ensure that the owner is the sole and actual titleholder to the property, to identify other persons with a property interest if the owner is not the sole and actual titleholder, and to ensure that the title is clear (i.e., there are no mortgages or liens outstanding on the sale of the property). In addition, the property must not have easements or other encumbrances that are incompatible with open space and that would make the property either ineligible for acquisition or noncompliant with FEMA's open space land use restrictions (see Addendum Part A.6.2).

All known encumbrances that are incompatible with open space use must be revised or extinguished to ensure that the property use is consistent with the open space requirements in 44 CFR Part 80 and this guidance. Encumbrances include any encumbrance providing an interest in subsurface resource rights whether or not the interest involves an implicit right for surface access to the subsurface resource. The Applicant will obtain a title insurance policy reflecting that all incompatible easements or other encumbrances to the title have been extinguished to demonstrate a clear fee title in conformance with 44 CFR Section 80.17(b).

If evidence obtained during the review indicates long-dormant subsurface rights (usually in excess of 50 years or beyond the reach of a standard title search) and the identity of the subsurface owner is unknown or otherwise not reasonably ascertainable, FEMA may approve the eligibility of the acquisition on a case-by-case basis. If a right to access a subsurface resource is discovered and asserted after the acquisition, the Recipient and subrecipient are required to take all appropriate action to enforce the open space restrictions required by 44 CFR Section 80.19.

Other title-related requirements are as follows:

- ◆ A title insurance policy demonstrating that a clear title conveys must be obtained for each approved property that will be acquired
- ◆ A physical site inspection for each property must be conducted to verify that there are no physical encumbrances to the property (a site survey may be necessary to clearly establish property boundaries)
- ◆ The property title must be transferred by a warranty deed in all jurisdictions that recognize warranty deeds
- ◆ All incompatible easements or encumbrances must be extinguished
- ◆ The subrecipient must take possession at settlement

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- ◆ The subrecipient must record the deed at the same time as and along with the programmatic deed restrictions
 - ◆ The deed transferring title to the property and the programmatic deed restrictions will be recorded according to State law and within 14 days after the settlement
 - ◆ All property transfers must be consistent with 44 CFR Part 80 and this guidance

A.4.2 Statement of Voluntary Participation

The Statement of Voluntary Participation formally documents the Notice of Voluntary Interest and information related to the purchase offer. The Statement of Voluntary Participation is available on the FEMA website at <https://www.fema.gov/media-library/assets/documents/13708>. The subrecipient must provide FEMA with a signed copy of the Statement of Voluntary Participation for each property post-award. For more information on voluntary interest documentation, see Addendum Part A.6.5.1. For more information on the purchase offer, see Addendum Part A.6.9.

Participation is not voluntary for tenants of properties to be acquired; for information about considerations for tenants, see Addendum Part A.6.10.

A.4.3 Final Mitigation Offer

The final Mitigation Offer to a property owner is based on the value assigned to a property (“purchase offer”) and applicable additions and deductions. Deductions to the purchase offer may include Duplication of Benefits (DOB) deductions, and additions may include any supplemental housing or insurance incentive payments. The subrecipient must ensure that all property owners are treated fairly and are offered an equitable package of benefits. The subrecipient (using a Statement of Voluntary Participation) shall inform each property owner in writing of the market value (pre-event or current) of the property and the method used to determine the final Mitigation Offer.

If several entities or programs are acquiring property in the same area, property owners may find it confusing if different offers are made to area owners at different times. To avoid any negotiation difficulties or confusion, the subrecipient should coordinate the release of property valuation information and purchase offers to property owners for the various programs. The subrecipient may wish to set a time limit with the property owner for the validity of a purchase offer. The subrecipient must provide an appeal or reconsideration process for property owners who dispute the amount of the purchase offer property valuation.

A.4.4 Open Space Land Use Requirements

Subrecipients must apply deed-restriction language to all acquired properties to ensure that the property is maintained in perpetuity as open space consistent with natural floodplain functions, as agreed to by accepting FEMA mitigation award funding. Deed-restriction language is applied

to acquired properties by recording the open space and deed restrictions. Modifications to the language in the FEMA Model Deed Restriction can be made only with prior approval from the FEMA Office of Chief Counsel through the appropriate FEMA Regional Office. The FEMA Model Deed Restriction is available on the FEMA website at <https://www.fema.gov/media-library/assets/documents/28496?id=6327>.

Allowable land uses for open space generally include parks for outdoor recreational activities, wetlands management, nature reserves, cultivation, grazing, camping (except where adequate warning time is not available to allow for evacuation), unpaved surfaces, and other uses that FEMA determines are compatible with the award and deed restrictions. See Addendum Part A.6.1 for a more detailed list of allowed uses. FEMA makes a determination of the open space compatibility of access to a subsurface resource on a case-by-case basis.

Land uses that are not allowable include:

- ◆ Hydraulic fracturing/HDD
- ◆ Walled buildings
- ◆ Flood control structures, such as levees, dikes, or floodwalls
- ◆ Paved surfaces
- ◆ Bridges
- ◆ Cemeteries
- ◆ Actions that pose health, safety, or environmental risk in the floodplain
- ◆ Above- or below-ground pumping stations or storage tanks
- ◆ Placement of fill materials
- ◆ Other uses that obstruct the natural and beneficial use of the floodplain

See Addendum Part A.6.2 for a more detailed list of land uses that are generally not allowed.

A.4.4.1 Competing Federal Interests

In rare circumstances, when the Administrator has determined that competing Federal interests are unavoidable and has analyzed floodplain impacts for compliance with 44 CFR Section 60.3 or higher standards, the Administrator may find that only U.S. Army Corps of Engineers (USACE) projects recognized by FEMA in 2000 and improvements to pre-existing Federal-aid transportation systems are allowable uses. A pre-existing Federal aid transportation system includes roads and bridges that are eligible for Federal aid under 23 U.S.C., including National Highway System component projects, Surface Transportation Program projects, and Highway Safety Improvement Program projects. These projects may be subject to additional EHP review.

A.4.5 Subsequent Transfer of a Property Interest

Post-Federal award, the subrecipient may transfer a property interest only with the prior approval of the appropriate FEMA Regional Administrator and only to certain entities in accordance with 44 CFR Section 80.19(b) and this guidance.

After acquiring the property interest, the subrecipient, including successors in interest, may convey any interest in the property only if the appropriate FEMA Regional Administrator, through the Recipient, gives prior written approval of the transferee. The transferee must be another public entity or a qualified conservation organization. Property transfer to private citizens and corporations will not be approved. A qualified conservation organization is an organization whose purpose has been conservation for at least 2 years before the opening of the application period that resulted in the transfer of the property interest to the subrecipient, pursuant to Section 170(h)(3) and (4) of the Internal Revenue Code of 1954, as amended, and the applicable implementing regulations. The transferee must document its status as a qualified conservation organization where applicable.

Any request to convey an interest in the property must include a signed statement that contains documentation of the following:

- ◆ The proposed transferee acknowledges and agrees to be bound by the terms of the original mitigation award/subaward conveyance according to 44 CFR Part 80 and this guidance.
- ◆ The statement references and incorporates the original deed restrictions providing notice of the conditions in this section.
- ◆ The statement incorporates a provision for the property interest to revert to the subrecipient or Recipient in the event the transferee ceases to exist or loses its eligible status as defined under this section. See 44 CFR Section 80.19 for more information.

The subrecipient may convey an easement or lease to a private individual or entity for purposes that are compatible with the uses described in 44 CFR Section 80.19 and this guidance with prior approval of the appropriate FEMA Regional Administrator and as long as the conveyance does not include authority to control and enforce the terms and conditions identified above. The FEMA Regional Administrator may choose to consult with the FEMA Office of Chief Counsel in reviewing documents proposed to convey an interest in the property. Any lease or easement must be for uses that are compatible with open space purposes and is clearly subject to the land use and other restrictions of the property by reference and/or incorporation of the recorded deed restriction language.

A.5 Property Acquisition Closeout

At completion of the award/subaward activity, FEMA and the Recipient shall verify that all required subaward activities have been accomplished in accordance with all programmatic guidance and proper grants management practices and 44 CFR Section 80.21, that all properties identified in the subapplication have been acquired, and that the Model Deed Restriction language was recorded with each corresponding deed.

The subrecipient shall provide to FEMA, through the Recipient, the following property information:

- ◆ A photograph of the property site after project implementation
- ◆ A copy of the recorded deed and attached deed restrictions for each property
- ◆ Latitude and longitude coordinates of the property
- ◆ A signed Statement of Voluntary Participation from the owner of each property identified in the subaward SOW (see Addendum Part A.6.5.1)
- ◆ For each property identified in the FEMA Repetitive Loss database, a completed FEMA Form AW-501 documenting the completion of mitigation on the repetitive loss property is required. The form is available on the FEMA website at <https://www.fema.gov/media-library/assets/documents/13146>.

For more information about project closeout, see Part VI, F of the HMA Guidance.

A.5.1 Future Federal Benefits

After settlement of the property acquisition transaction, no disaster assistance for any purpose from any Federal entity may be sought or provided with respect to the property, and FEMA will not distribute flood insurance benefits for that property for claims related to damage occurring after the date of settlement in accordance with the requirements in 44 CFR Part 80.

In addition, crops for which insurance is not available will not be eligible for any disaster assistance and are grown at the farmer's risk. Payment through the Non-Insured Crop Disaster Assistance Program (7 U.S.C. 7333) for damage to crops for which insurance is not available is considered "disaster assistance" and, as such, is not available to owners of open space-restricted land. However, benefits obtained through crop insurance programs offered under the Federal Crop Insurance Act, as amended (7 U.S.C. 1501 et seq.), are not considered disaster assistance and are available to owners of open space-restricted land.

A.5.2 Open Space Monitoring, Reporting, and Inspection

The Recipient will work with subrecipients to ensure that the property is maintained in accordance with land use restrictions. The Recipient and subrecipients should jointly monitor

and inspect acquired properties every 3 years to ensure that the inspected parcels continue to be used for allowable open space purposes.

Every 3 years, the subrecipient, the Recipient, and FEMA must coordinate to ensure that the subrecipient submits documentation to the appropriate FEMA Regional Administrator certifying that the subrecipient has inspected the subject property within the month preceding the report and that the property continues to be maintained consistent with the provisions of the award/subaward. If the property subsequently transfers to an allowable transferee, the subrecipient, the Recipient, and FEMA will coordinate with that entity to submit the information.

The Recipient, the subrecipient, and FEMA have the right to enter the parcel, with notice, to inspect the property to ensure compliance with land use restrictions. Subrecipients may identify the open space nature of the property on local tax maps to assist with monitoring.

A.5.3 Enforcement

If the required monitoring (or other information) results in the determination that the subject property is not being maintained according to the terms of the award, the subrecipient, Recipient, and FEMA are responsible for taking measures to bring the property back into compliance.

In the event a property is not maintained according to the identified terms, the Recipient shall notify the subrecipient (which includes successors in interest) that they have 60 days to correct the violation. If the subrecipient fails to demonstrate a good faith effort within the terms of the grant agreement within 60 days, the Recipient shall enforce the terms of the grant agreement by taking any measures it deems appropriate, including bringing an action of law or equity in a court of competent jurisdiction. If the Recipient fails to bring the property into compliance, FEMA may enforce the terms of the grant agreement by taking any measures it deems appropriate, including:

- ◆ Withholding FEMA mitigation awards or assistance from the Recipient, subrecipient, and current holder of the property interest (if different) pending corrective action
- ◆ Requiring the transfer of title
- ◆ Bringing an action of law or equity in a court of competent jurisdiction against the Recipient, subrecipient, and/or their respective successors

FEMA also reserves the right to transfer the property title and/or easement to a qualified third party for future maintenance. For additional information, see 44 CFR Section 80.19(e)(ii).

A.6 Supplemental Guidance

Allowable land uses for properties acquired for open space under all HMA programs for projects within CBRs units are identified in Addendum Part A.6.1.1. FEMA may prohibit additional post-acquisition uses that it determines, in consultation with the U.S. Fish and Wildlife Service, are inconsistent with the purposes of the CBRA.

After settlement, no Federal disaster assistance for any purpose from any Federal source and no flood insurance payments may be made with respect to the property, and no person or entity shall seek such amounts.

The subrecipient must obtain the approval of the Recipient and the FEMA Regional Administrator before conveying ownership (fee title) of the property to another public agency or qualified conservation organization. All development rights in the form of a conservation easement on the property must be conveyed to the conservation organization or retained by the subrecipient or other public entity.

By accepting award funds, the subrecipient accepts responsibility for monitoring and enforcing the deed restriction and/or easement language.

The open space restrictions described above and included in 44 CFR Section 80.19 apply to all FEMA-funded property acquisitions for the purpose of open space, regardless of when the application period opened, when the Presidential major disaster was declared, or when the property was acquired.

For more information on managing open space after a property acquisition and structure demolition or relocation project, see Addendum Part A.5.2. For the FEMA Model Deed Restriction see Addendum Part A.6.4.

A.6.1 Allowable Uses of Open Space

The list below is a guide to open space use that addresses typical situations, but the subrecipient and Recipient should review every situation for adherence to the relevant regulations, open space intent, and floodplain management principles. The local floodplain administrator should review all proposed uses of acquired floodplain land. The Recipient and subrecipient, in coordination with the appropriate FEMA Regional Office, shall determine whether a proposed use is allowable and consistent with the deed restrictions, grant agreement, this guidance, and floodplain management requirements.

The generally allowable land uses of acquired open space are:

- ◆ Vegetative site stabilization, natural dune restoration, agricultural cultivation, and grazing
- ◆ Public picnic shelters, pavilions, and gazebos with associated foundations, provided the structures do not have walls

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- ◆ Public restrooms
 - ◆ Small-scale recreational courts, ball fields, golf courses, and bike and walking paths
 - ◆ Campgrounds if adequate warning will be provided to allow for evacuation
 - ◆ Installation of signs when designed not to trap debris
 - ◆ Unimproved, unpaved parking areas consistent with open space uses
 - ◆ Unpaved access roads, driveways, and camping pads limited to those necessary to serve the acceptable uses on acquired property (existing paved roads can be reused for these purposes)
 - ◆ Small boat ramps, docks, and piers to serve a public recreational use
 - ◆ Drainage facilities intended to service onsite needs
 - ◆ Construction activities, excavation, and other localized flood control structures necessary to create areas for water detention/retention, including wetlands restoration or restoration of natural floodplain floodwater storage functions
 - ◆ Sewer, water, and power to serve the allowable uses and sewer, water, and power line crossings where there is no floodwater obstruction created and there are no other readily available locations for these systems
 - ◆ Simple structures used exclusively for agricultural purposes in connection with the production, harvesting, storage, drying, or raising of certain agricultural commodities, including livestock, such as a pole-frame building (any such structure cannot be constructed so as to make it eligible for NFIP insurance), and steel grain bins and steel-frame corn cribs
 - ◆ Reuse of existing paved surfaces for recreational uses on the acquired property consistent with allowable uses is generally acceptable, but paved surfaces beyond those directly required for such uses should be removed. Communities shall use unpaved surfaces allowing for natural floodplain functions, where feasible, for allowable uses such as trails. Examples of unpaved surfaces are grass, hard-packed earth, and graded gravel.
 - ◆ Communities may creatively salvage pre-existing structures on the acquired property. In some cases the complete demolition of a structure is not necessary and converting a closed-in structure with walls, such as a house, into an open picnic pavilion with a concrete slab floor and posts supporting the roof is possible.

A.6.1.1 Allowable Uses of Open Space in Coastal Barrier Resources System

Allowable land uses for acquired open space in CBRS units are limited to the following:

- ◆ Vegetative site stabilization for the management, protection, and enhancement of fish, wildlife, plants, and their habitats
- ◆ Bike and walking paths that are consistent with the conservation purposes of the acquisition

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- ◆ Installation of signs when designed not to trap debris
 - ◆ Unpaved access roads and driveways limited to those necessary to serve the conservation purposes of the acquisition (existing paved roads can be reused for these purposes); all roads must be on natural grade
 - ◆ Small boat ramps, docks, and piers to serve a use that is related to the study, management, protection, and enhancement of fish, wildlife, plants, and their habitats
 - ◆ Minor construction activities, excavation, and other flood control structures necessary for wetlands restoration or restoration of natural floodplain floodwater storage functions

A.6.2 Non-allowable Land Uses of Open Space

The land uses of acquired open space that are not generally allowed are:

- ◆ Hydraulic fracturing/HDD
- ◆ Construction of flood damage reduction levees, dikes, berms, or floodwalls
- ◆ Walled buildings or manufactured homes, except public restrooms (reuse of pre-existing structures is not allowed unless all walls are removed)
- ◆ Fences and all other obstructions in the floodway; fences outside the floodway must be designed to minimize trapping debris
- ◆ Storage of inventory supporting a commercial operation or governmental facility, including wheeled vehicles or movable equipment
- ◆ Cemeteries, landfills, storage of any hazardous or toxic materials, or other uses that are considered environmentally contaminating, dangerous, or a safety hazard
- ◆ Pumping and switching stations
- ◆ Above- or below-ground storage tanks
- ◆ Paved roads, highways, bridges, and paved parking areas that include asphalt, concrete, oil-treated soil, or other material that inhibits floodplain functions
- ◆ Placement of fill except where necessary to avoid affecting onsite archeological resources
- ◆ Installation of septic systems or reuse of pre-existing septic systems except to service a permissible restroom

A.6.2.1 Non-allowable Uses of Open Space in the Coastal Barrier Resources System

For projects in CBRS units, the following land uses of acquired open space are generally not allowed:

- ◆ Any use FEMA determines is inconsistent with the allowable land uses identified above

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- ◆ Any uses determined by the Recipient and/or FEMA as inconsistent with the regulations, this guidance, or deed restrictions
 - ◆ Paved surfaces

Communities may creatively salvage pre-existing structures on the acquired property. In some cases, the complete demolition of a structure may not be necessary; converting a closed-in structure with walls, such as a house, into an open picnic pavilion with a concrete slab floor and posts supporting the roof is possible.

A.6.3 Statement of Assurances

Subapplications for assistance for property acquisition and structure demolition or relocation must include the FEMA Statement of Assurances. The FEMA Statement of Assurances must be signed by the subapplicant's authorized agent. The Statement of Assurances must provide acknowledgement of, and agreement to, the requirements in the model Statement of Assurances, which is available at <http://www.fema.gov/media-library/assets/documents/28695>.

Subapplications that do not include a signed FEMA Statement of Assurances are incomplete and will not be considered for funding.

A.6.4 Deed Restriction Language

The subapplication must include a sample of the deed restriction (not including property-specific details) that the subapplicant intends to record with each property deed. The sample must be consistent with the FEMA Model Deed Restriction, which is available on the FEMA website at <http://www.fema.gov/media-library/assets/documents/28496>.

If the subapplicant makes any changes to the language in the Model Deed Restriction, the subapplicant must seek approval from the FEMA Office of Chief Counsel, through the FEMA Regional Office, for the changes. Changes may be made to comply with local requirements, but changes to substantive, programmatic provisions will not be approved.

The subapplicant must follow the procedure described in the previous two paragraphs for acquisitions for open space in CBRS units. The subapplication must include a sample of the deed restriction for review and approval by the FEMA Office of Chief Counsel, through the Regional Office, to ensure compliance with all deed restriction requirements specific to these areas.

A.6.5 Property Owner Documentation

Documentation of the property owner's voluntary interest and certification that the property owner is a National of the United States or qualified alien must be submitted during the application process. See Addendum Part A.6.9.2 for definitions of a National of the United States and qualified alien.

A.6.5.1 Voluntary Interest Documentation

Participation in property acquisition and structure demolition or relocation projects by property owners is voluntary. Prospective participants must be informed in writing that participation in the program is voluntary and that the subapplicant will not use its eminent domain authority to acquire their property for the project purposes if negotiations fail and the property owner chooses not to participate.

Documentation of voluntary interest must be signed by each property owner and should be obtained as early in the project development as possible. The documentation must be submitted as specified in 44 CFR Section 80.13.

A Notice of Voluntary Interest can be documented using individually signed statements or a group sign-up sheet. An Example Notice of Voluntary Interest is available at <https://www.fema.gov/media-library/assets/documents/15689?id=3596>.

The documentation must include the name and signature of the interested property owners associated with each property and clear acknowledgement by every property owner of the following language:

This project for open space acquisition is voluntary and neither the [Applicant] nor the [subapplicant] will use its eminent domain authority to acquire the property for open space purposes should negotiations fail and the property owner chooses not to participate.

During project implementation, the subrecipient must execute a more formal Statement of Voluntary Participation with the owner of each property identified in the subapplication SOW (see Addendum Part A.3.1).

A.6.5.2 Certification of Owner Status for Pre-event Value

Before the property owner can receive a pre-event value for the property, the subrecipient must provide certification obtained from the property owner that the property owner is a National of the United States or a qualified alien (see Addendum Part A.6.9.2). For property owners who are not Nationals of the United States or qualified aliens, or who refuse to provide certification, the subrecipient will offer no more than the appraised current market value for the property.

A.6.6 Consultation Regarding Other Ongoing Federal Activities

Because properties acquired under HMA programs must be permanently converted to open space and will be unavailable for future development, subapplicants must coordinate with the appropriate Federal agency or agencies in accordance with 44 CFR Section 80.13 to ensure that other Federal actions are not anticipated that would affect the parcels under consideration for acquisition for open space.

If other Federal activities are planned in the proposed project area, the subapplicant will need to forego an open space acquisition project and pursue other mitigation project options. If the subapplicant decides to proceed with the acquisition project, the subapplicant must include documentation of its coordination under this section in the subapplication.

Consultation with the USACE, Department of Transportation (DOT), and other Federal agencies is discussed below.

A.6.6.1 U.S. Army Corps of Engineers

The allowed uses of open space that have been created as a result of an acquisition project do not include flood levee systems, and subapplicants will be required to reject consideration of such use if they accept FEMA assistance to convert a property to permanent open space. The subapplicant must demonstrate in the subapplication that it has consulted with USACE regarding each subject property's potential use for the construction of a flood levee system (including berms, floodwalls, and dikes). FEMA will not award funds for any property without this documentation. This restriction does not generally apply to structures for ecosystem preservation, restoration, or enhancement.

If the initial consultation with the subapplicant indicates that the local government wishes to consider a flood damage reduction levee in the area, the subapplicant or local government must undertake an expanded consultation with the Applicant, FEMA, and USACE. The consultation will involve the identification and full consideration of future potential land use conflicts to enable the local government to make an informed decision regarding how it should proceed. The local government may be able to pursue open space acquisition and flood damage reduction levee projects in the same community when there are no land use conflicts (i.e., the levee would not cross acquired land). However, if the local government determines that a conflict exists and that it cannot be resolved and chooses to pursue the USACE flood damage reduction levee, the local government must notify FEMA, through the Applicant, that it will not submit a subapplication for FEMA mitigation award funding for property acquisition and structure demolition or relocation.

If, after the consultation, the local government decides to pursue a FEMA-funded property acquisition and structure demolition or relocation project, the subapplication must include an assurance, resolution, or equivalent document adopted by the governing body of the local government that indicates the following:

- ◆ In consultation with USACE, the local government has identified and considered the future potential use of acquired land for the construction of flood damage reduction levees and has chosen to proceed with acquisition of permanent open space.
- ◆ The local government understands that land acquired for open space purposes under the relevant mitigation grant program will be restricted in perpetuity to open space uses and will be unavailable for any use that is incompatible with the open space and floodplain purposes

designated for the property, including the construction of flood damage reduction levees, paved roads, and other development.

A.6.6.2 Department of Transportation

The subapplicant must demonstrate in the subapplication that it has coordinated with the relevant State DOT to ensure that future plans do not contain any improvements or enhancements to Federal aid systems or other State transportation projects that would affect the proposed project area under consideration. The construction of such transportation improvements, enhancements, or projects on open space land is incompatible with open space uses and, therefore, is not allowed.

A.6.6.3 Other Federal Agencies

The Applicant and subapplicant must demonstrate in the application and subapplication, respectively, that they have consulted with other Federal agencies, as appropriate, regarding other program requirements and/or activities and have identified the relationship between the requirements and activities to FEMA mitigation grant activities and funding. Other Federal agency requirements may apply to mitigation grant activities if other agency funds are used for activities related to the project in the community or for matching the mitigation grant funding, such as Community Development Block Grant funds.

Other Federal agency funds may be used to contribute to the non-Federal share of a FEMA-funded mitigation project if the requirements of both programs apply to the project. The Applicant is responsible for coordinating with the programs that are available in the State. The coordination should include local program representatives and approaches and schedules. The objective should be to make the process as simple and consistent as possible for subapplicants and property owners.

A.6.6.4 Consultation Regarding Properties in the Coastal Barrier Resources System

For any proposed action that involves the acquisition of a structure for open space purposes that is within or attached to the CBRs, the FEMA Regional Administrator, as required by Section 6 of the CBRA, consults with the designated representative of the U.S. Department of the Interior (DOI) at the regional level before approving the action.

The request for consultation is in the form of a memorandum to the DOI representative that contains the following:

- ◆ Identification of the CBRs unit
- ◆ Description of the structure and the property to be acquired and demolished or relocated, including the identification of the structure as an exception under Section 6 of CBRA and full justification of its status as an exception

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- ◆ Amount of proposed Federal funding
 - ◆ Any additional required mitigation measures
 - ◆ A determination of the action's consistency with the purposes of the CBRA, in accordance with 44 CFR Section 206.349

Pursuant to FEMA's understanding with the DOI, the DOI representative provides technical information, an opinion as to whether the proposed action meets the criteria for a CBRA exception, and an opinion as to whether the action is consistent with the purposes of CBRA, if consistency is required. DOI is expected to respond in a timely manner from the date of the FEMA request for consultation. If a written response is not received in a timely manner, the FEMA Regional Administrator will contact the DOI representative to determine whether the request for consultation was received.

When the opinion of the regional DOI representative is that the proposed action should not be taken and the issue cannot be resolved at the regional level, the FEMA Regional Administrator submits the issue to the Director, Office of Environmental Planning and Historic Preservation, Federal Insurance and Mitigation Administration for review. Consultation is accomplished at FEMA Headquarters with the DOI consultation officer and the Office of Environmental Planning and Historic Preservation, Federal Insurance and Mitigation Administration in coordination with the FEMA Office of Chief Counsel. The Director, Office of Environmental Planning and Historic Preservation, Federal Insurance and Mitigation Administration, then approves or does not approve the proposed action.

A.6.7 Relocation and Removal of Existing Buildings

Existing buildings that are part of an open space acquisition and demolition or relocation project must be removed and disposed of in accordance with applicable laws within 90 days of closing and settlement of the property acquisition transaction. The Recipient and subrecipient are responsible for the removal and disposal.

Even if numerous properties are purchased on different dates, the Recipient and subrecipient are still responsible for structure disposal or removal within 90 days of settlement for each property. The FEMA Regional Administrator may grant an exception in accordance with 44 CFR Section 80.17(d) for multiple properties in a single project when the properties are individually identified and the need for an exception is justified, in accordance with the regulations.

All relocated structures in open space acquisition and relocation projects must be placed on a site outside an SFHA, outside any regulatory erosion zones at a distance at least 60 times the average annual erosion rate measured from an appropriate "erosion reference feature," and outside any other identified hazard areas. The owner is responsible for ensuring that the building is brought into compliance with all applicable laws and regulations.

Existing buildings that are part of an open space acquisition and demolition project must be demolished (resulting in the permanent destruction of each structure) and disposed of in accordance with applicable laws.

After a disaster, the demolition and debris removal of acquired structures may be eligible for reimbursement under the FEMA Public Assistance (PA) Program if the structures represent a health and safety hazard as a result of the disaster. States/Recipients and subrecipients should coordinate with the appropriate FEMA Regional Office to determine whether these costs are eligible under the PA Program. If the costs of demolition do not qualify for PA Program funding, they are eligible project costs under the relevant mitigation grant program. If any parts of the structure are sold for salvage value, the total cost of the project will be reduced by the salvage value before cost shares are calculated.

A.6.8 Hazardous Materials

In accordance with 44 CFR Section 80.11(e), properties that are contaminated with hazardous materials are not eligible for acquisition. The subrecipient must ensure that a property with past or present commercial or industrial use and any adjacent properties suspected of having hazardous materials at the site are not contaminated when the project application is approved. If the subapplication is selected for further review by FEMA, the subrecipient must meet the requirements of the Environmental Protection Agency's "all appropriate inquiries" rule, 40 CFR Part 312, including contracting with an appropriate qualified environmental professional to perform a Phase I Environmental Site Assessment (ESA), as defined by the rule. Any assessment must be in accordance with the procedures of ASTM International Standard E1527-05 or E2247-08. The costs for meeting these requirements are considered eligible project costs if such costs are included in the project budget.

In accordance with these criteria and 44 CFR Section 80.17(a), the subrecipient shall:

- ◆ Conduct interviews with past and present owners, operators, and occupants
- ◆ Search for recorded environmental cleanup liens
- ◆ Review Federal, federally-recognized tribal, State, and local government records
- ◆ Conduct visual inspections of the facility and of adjoining properties

The purpose of the ESA is to identify conditions that are indicative of releases and threatened releases of hazardous substances, pollutants, contaminants, petroleum and petroleum products, and controlled substances on, at, in, or to the subject property by gathering the following types of information about the subject property:

- ◆ Current and past property uses and occupancies
- ◆ Current and past uses of hazardous substances

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- ◆ Waste management and disposal activities that could have caused releases or threatened releases of hazardous substances
 - ◆ Current and past corrective actions and response activities undertaken to address past and ongoing releases of hazardous substances
 - ◆ Engineering controls
 - ◆ Institutional controls
 - ◆ Properties adjoining or near the subject property that have environmental circumstances that could have resulted in conditions indicative of releases or threatened releases of hazardous substances to the subject property

The subrecipient must seek to gather all information that is publicly available, obtainable from its source within reasonable time and cost constraints, and that can practicably be reviewed.

If the Phase I ESA “all appropriate inquiries” report identifies the presence of hazardous substances, pollutants, contaminants, petroleum and petroleum products, or controlled substances on, at, or in the subject property, the subrecipient shall require the owner to remove the materials or remediate the property in accordance with any applicable Federal, State, federally-recognized tribal, or local requirements. If a Phase II ESA (to evaluate suspected areas and to identify the nature and extent of contamination on, at, in, or to the property) is required, the costs of this study are not eligible mitigation grant project costs. Additionally, the cost of a Phase III ESA (to determine remediation plans, cleanup, and certification of the property) are not eligible mitigation grant project costs.

A contaminated property must be “certified clean,” per 44 CFR Section 80.17(a). Certified clean, in this case, is a letter from the appropriate local, State, federally-recognized tribal, or Federal entity determining that no further remedial action is required to protect human health or the environment. A contaminated property must be certified clean before any interest in the property is purchased. The seller must also agree to indemnify the Recipient, FEMA, and the subrecipient for any liability arising from previous contamination of the property.

A.6.9 Purchase Offer: Value of the Property

For each property identified for acquisition, the subrecipient shall establish and document a property value based on market value, which is defined as:

The amount in cash, or on terms reasonably equivalent to cash, for which in all probability the property would have sold on the effective date of the valuation, after a reasonable exposure time on the open competitive market, from a willing and reasonably knowledgeable seller to a willing and reasonably knowledgeable buyer, with neither acting under any compulsion to buy or sell, giving due consideration to all available economic uses of the property at the time of the valuation.

Current market value reflects the property value at the time of the final Mitigation Offer. Pre-event market value is defined as the market value of the property immediately before the relevant event affecting the property. For the Hazard Mitigation Grant Program (**HMGP**), the relevant event for assistance is the major disaster under which funds are available. For the Pre-Disaster Mitigation (**PDM**) Program, pre-event market value is the value before the most recent declared Presidential major disaster; however, if the project is occurring separate from or more than 12 months after a disaster event, the current market value may be more appropriate. For the Flood Mitigation Assistance (**FMA**) Program, the pre-event market value is defined as the value of the property immediately before the most recent flood event resulting in an NFIP claim of at least \$5,000.

The relevant event may vary under the HMA programs, but the pre-event market value or current market value may be used at the Applicant's discretion for all HMA programs. The Recipient should coordinate with the subrecipient to determine whether the valuation should be based on the pre-event market value or current market value. The current market value may be the most efficient method if no damage has occurred to the property or if a reasonable amount of time has elapsed since the event.

The benefit of the pre-event market value is available only to owners who owned the property during the event and are Nationals of the United States or qualified aliens. If the current property owner purchased or took possession of the disaster-damaged property after the major relevant event or is not a National of the United States or qualified alien, the subrecipient may not offer the owner more than the current market value.

FEMA generally does not include subsurface mineral valuations in the current market value. However, there is no legal or regulatory requirement to exclude those values. Costs associated with surface or subsurface land appraisal are considered part of the overall cost-effectiveness evaluation of any acquisition project.

Typically, property acquisition and structure demolition or relocation projects require the valuation of the property (land and structures as a whole). When an eligible entity already owns the property and wants to deed-restrict it, valuation is for the structure and development rights instead of for the land. Relocation projects require the valuation of land only.

A.6.9.1 Valuation Methodology

The following appraisal methodology must be used to determine property value:

- ◆ The appraisal must be conducted by an appraiser in accordance with the *Uniform Standards of Professional Appraisal Practice*
- ◆ The appraiser must comply with relevant State laws and requirements and have the appropriate certification, qualifications, and competencies based on the type of property being appraised

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- ◆ The subrecipient must coordinate with the Recipient to determine the assumptions that will be used in the appraisal (i.e., current or pre-event market value), and the assumptions must be applied consistently throughout the project area for all properties to be acquired
 - ◆ When determining the value for a large number of structures, the subrecipient may conduct appraisals to establish a statistical sampling of property values and develop an adjustment factor to apply to tax-assessed values so that they reasonably reflect each property's market value

Potential deductions from and additions to the purchase offer must also be considered (see Addendum Parts A.6.9.3 and A.6.9.4, respectively).

A.6.9.2 Purchase Offer and Nationality

A property owner who is not a National of the United States or a qualified alien is not eligible for a pre-event market value determination of property value. The property value must be based on the current market value.

“National of the United States” is defined in 8 U.S.C. 1101 as a citizen of the United States or a person who is not a citizen but who owes permanent allegiance to the United States. “Qualified alien” is defined in 8 U.S.C. 1641 as:

[A]n alien who, at the time the alien applies for, receives, or attempts to receive a Federal public benefit, is –

- 1. an alien who is lawfully admitted for permanent residence under the Immigration and Nationality Act [8 U.S.C. 1101 et seq.],*
- 2. an alien who is granted asylum under section 208 of such Act [8 U.S.C. 1158],*
- 3. a refugee who is admitted to the United States under section 207 of such Act [8 U.S.C. 1157],*
- 4. an alien who is paroled into the United States under section 212(d)(5) of such Act [8 U.S.C. 1182 (d)(5)] for a period of at least 1 year,*
- 5. an alien whose deportation is being withheld under section 243(h) of such Act [8 U.S.C. Part 1253] (as in effect immediately before the effective date of section 307 of division C of Public Law 104-208) or section 241(b)(3) of such Act [8 U.S.C. 1231(b)(3)] (as amended by section 305(a) of division C of Public Law 104-208),*
- 6. an alien who is granted conditional entry pursuant to section 203(a)(7) of such Act [8 U.S.C. 1153 (a)(7)] as in effect prior to April 1, 1980; or*
- 7. an alien who is a Cuban and/or Haitian entrant (as defined in section 501(e) of the Refugee Education Assistance Act of 1980).*

Prior to the award or final approval, subrecipients will ask all property acquisition and structure demolition or relocation project participants (property owners) to certify that they are a National of the United States or a qualified alien. Subrecipients will offer participants who refuse to

provide such certification, or who are not Nationals of the United States or qualified aliens, no more than the appraised current market value for their property. Participants who refuse to certify, or who are not Nationals of the United States or qualified aliens, may not receive supplemental housing payments.

Subrecipients may use FEMA Form 009-0-3, *Declaration and Release* (available at <http://www.fema.gov/pdf/assistance/process/00903.pdf>), as certification of the nationality of participating property owners. At the time of certification, the subrecipient will ask the property owner to show a form of identification (any government-issued identification displaying the signer's name is sufficient). If the property owner has applied for FEMA disaster assistance, Form 009-0-3 will already be on file at FEMA, and the subrecipient will instead request verification from FEMA through the Recipient that a certification is on file.

A.6.9.3 Deductions from the Purchase Offer

The Recipient, subrecipient, and property owner must identify any potential DOB. FEMA deducts benefits from other sources from the purchase offer. Repair assistance that has been used for its intended purpose is generally not deducted if documentation of the use is provided. Examples of when DOB may occur in a property acquisition and structure demolition or relocation project are as follows:

- ◆ The subrecipient offers the full pre-event market value to the property owner, but the property owner cannot provide documentation to demonstrate that assistance such as insurance, loans, repair grants, compensation in compliance with a court order, or other such assistance has been used for its intended purpose. This is because payment of the full pre-event market value compensates the owner for the loss of value that has occurred.
- ◆ The subrecipient offers the full pre-event market value to the property owner, but legal claims are appropriate or legal obligations arise in connection to the property that may provide a benefit to the property owner. The parties involved in pending legal disputes must take reasonable steps to recover benefits available to them.
- ◆ Relocated tenants receive relocation assistance and rental assistance but have received payments for the same purpose as part of the disaster assistance provided by any agency or payments from any other source. Any acquisition-related assistance provided to tenants must be reduced accordingly. However, tenant-related DOB deductions do not affect amounts available to the property owner.

For property valuations based on the pre-event market value, the following procedures can help prevent mitigation grant funds from duplicating benefits available from other sources:

- ◆ The subrecipient establishes the purchase offer property value as of a certain date.

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- ◆ The subrecipient provides the Recipient with a list of property owners participating in the property acquisition and structure demolition or relocation project, and a list of tenants who may be affected by the acquisition.
 - ◆ The Recipient and FEMA inform the subrecipient of the amount of repair or replacement assistance available to each property owner and rental or relocation assistance available to tenants. FEMA provides NFIP coverage information to the Recipient and subrecipient, including the amount paid on a claim and the amount of coverage available.
 - ◆ The subrecipient coordinates with property owners who must disclose all funding received for the same purpose, as described above, including repair or replacement assistance received, all insurance benefits available to them under an existing policy (whether or not they submitted a claim), and any potential recovery of funds based on litigation or other legal obligations. The property owner must take reasonable steps to recover such amounts. The subrecipient must coordinate with tenants who must disclose any amounts received from rental or relocation assistance.
 - ◆ Property owners who have a Small Business Administration loan are required to repay the loan or roll it over to a new property at closing.
 - ◆ The subrecipient identifies any other potential sources of benefits to the subrecipient, property owner, or tenant.

The subrecipient shall reduce the purchase offer by the amount of any DOB. Deductions are not taken for any amounts the owner can verify with receipts that were expended on repairs or cleanup. Subrecipients may not credit property owners for their own labor hours for repair work.

For insurance payments made for which the purpose is unspecified, property owners may submit (1) an affidavit stating that the unspecified settlement will be used for personal property replacement or (2) documentation from the insurance company specifying the type of losses covered by the previously unspecified settlement. If the property owner submits an affidavit, upon receipt of the affidavit, the Recipient and subrecipient will treat the payment as a personal property settlement that is not subject to a DOB deduction.

A.6.9.4 Additions to the Purchase Offer

If the purchase offer for a property is less than the amount the property owner must pay to purchase a comparable replacement dwelling in a non-hazard-prone site in the same community, the Recipient and subrecipient may choose to make available to the property owner a supplemental payment of up to \$31,000 that would be applied to the difference. Subrecipients should consider the cost of relocating to a permanent residence that is of comparable value and that is functionally equivalent.

In order for the property owner to receive a supplemental payment, the Recipient and subrecipient must demonstrate that the following circumstances exist:

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- ◆ Funds cannot be secured from other more appropriate sources, such as housing agencies or voluntary groups.
 - ◆ Decent, safe, and sanitary housing of comparable size and capacity is not available in non-hazard-prone sites within the community at the anticipated acquisition price of the property being vacated.
 - ◆ The project would otherwise have a disproportionately high adverse effect on low-income or minority populations because project participants in these populations would not be able to secure comparable decent, safe, and sanitary housing.

For **HMGP**, the Recipient has the option of allowing subrecipients to provide a credit to property owners who have flood insurance. The subrecipient provides an incentive payment that is equal to up to 5 years of flood insurance premiums actually paid by the current property owner for an NFIP policy for structure coverage.

A.6.10 Tenants

Although the property owner must voluntarily agree to participate in an open space project, participation is not voluntary for residential and business tenants and owners of mobile homes who rent homedpads (homedpad tenants) and who must relocate as a result of acquisition of their housing. Therefore, these tenants are entitled to assistance as required by the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (URA), as amended (42 U.S.C. 4601 et seq.). The implementing Federal regulations are in 49 CFR Part 24. Property owners participating in FEMA-funded property acquisition and structure demolition or relocation projects are not entitled to relocation benefits because the voluntary program meets URA exceptions.

URA regulations define “tenant” as a person who has the temporary use and occupancy of real property that is owned by another.

URA relocation benefits to displaced tenants include moving expenses, replacement housing rental payments, and relocation assistance advisory services. Displaced tenants include owners of manufactured homes who lease a pad site.

The amount of assistance the subrecipient must pay the tenant is provided in 49 CFR Part 24, Subpart E. An eligible displaced tenant is entitled to:

- ◆ Reasonable out-of-pocket (or fixed schedule) moving expenses
- ◆ Compensation for a reasonable increase in rent and utility costs incurred in connection with the relocation in certain circumstances

Relocation assistance payments for tenants are intended to ensure that these individuals are able to relocate to decent, safe, and sanitary comparable replacement dwellings outside the floodplain or hazard area. If a tenant chooses to purchase a replacement dwelling, the tenant may apply the

amount of rental assistance to which he or she would be entitled toward the down payment. Similarly, if a mobile home owner who rents a homepad chooses to purchase a replacement pad or lot, the mobile home owner may apply the amount of rental assistance to which he or she would be entitled toward the down payment.

An alien who is not lawfully present in the United States is not eligible to receive URA relocation benefits or relocation advisory services. FEMA may approve exceptions if unusual hardship to the alien's spouse, parent, or child who *is* a U.S. citizen or an alien admitted for permanent residence would otherwise result. Subrecipients will ask tenants who are potential recipients of URA assistance to certify that they are a U.S. citizen or are lawfully present in the United States. Subrecipients will not provide URA assistance to participants who refuse to certify that they are, or who are not a U.S. citizen or lawfully present.

Refer to 49 CFR Part 24 for instructions on implementing URA requirements. Subrecipients must coordinate closely with the Recipient and FEMA when implementing URA requirements. The State DOT is often a good resource in determining how to calculate the appropriate URA payment because the Federal Highway Administration oversees the applicability of the URA.

A.6.10.1 Rental Increase Payment

A tenant displaced from a dwelling as a result of a federally funded property acquisition and structure demolition or relocation project is entitled to a rental increase payment if:

- ◆ The tenant rents or purchases and occupies a decent, safe, and sanitary replacement dwelling within 1 year after the date he or she moves out of the original dwelling, and
- ◆ The tenant occupied the displacement dwelling for the 90 days preceding the initiation of negotiations for acquisition of the property.

The initiation of negotiations is defined as the first formal indication that the subrecipient wants to purchase a particular property. Any tenant who occupied the dwelling before a disaster event is usually eligible. The exception is if the project negotiations are unrelated to the disaster event or begin so long after the event that the event is no longer a relevant factor. If the dwelling is re-inhabited after the event, former tenants are generally not eligible. A signed lease is preferable for proving tenancy, but other documentation, such as utility bills, may be used to prove tenancy if a signed lease is not available because of the disaster event.

Compensation for a rent increase is 42 times the amount that is obtained by subtracting the “base monthly rent” for the displacement dwelling from the monthly rent and average monthly cost of utilities for a comparable replacement dwelling, or the decent, safe, and sanitary replacement dwelling now occupied by the displaced person.

The “base monthly rent” for the displacement dwelling is the lesser of the average monthly cost for utilities plus the rent at the displacement dwelling as determined by FEMA, or 30 percent of

the tenant's average gross household income. The rental increase payment may not exceed a total of \$7,200.

Subrecipients may exceed the limits identified in the URA regulations in extraordinary circumstances if necessary to ensure that a displaced tenant will be able to obtain and retain a comparable unit that is decent, safe, and sanitary (as defined at 49 CFR Section 24.2(a)(8)) outside a high-hazard area. A rental assistance payment may, at the subrecipient's discretion, be disbursed in a lump sum or in installments. If any U.S. Department of Housing and Urban Development programs are providing partial funding for the project, the subrecipient should verify the program requirements to ensure proper coordination with mitigation grant program requirements.

A.6.10.2 Rental Assistance for Homepad Tenants

Mobile home owners who lease a homepad and who must relocate to a new homepad as the result of acquisition of their pre-disaster homepad are entitled to URA relocation benefits and/or replacement housing payments. Payments to mobile home owners may not duplicate insurance payments or payments made by other Federal, State, local, or voluntary agencies. Complex situations involving FEMA mobile homes that have been donated to a State or local government and then sold to the mobile home owner should be directed to the appropriate FEMA Regional Office for eligibility determination and calculation of benefits.

Displaced mobile home owners who rent their homepads are entitled to assistance as described below. In some cases, the combination of the two types of URA assistance may exceed URA's statutory maximum replacement housing differential of \$31,000.

The displaced mobile home owner/homepad tenant is entitled to compensation for rental and utility increases resulting from renting a comparable homepad and moving expenses as described in this section. Compensation for homepad rent increase is 42 times the amount that is obtained by subtracting the "base monthly rent" for the displacement homepad from the monthly rent and the average monthly cost of utilities for a comparable replacement homepad. The rental increase payment may not exceed a total of \$7,200.

Displaced mobile home owners may also be entitled to the following:

- ◆ **Replacement Housing Assistance:** For URA purposes, the mobile home owner is considered to be involuntarily displaced from his or her residence as a result of the homepad owner (landlord) selling the property. In addition, if the mobile home is also purchased, the displaced mobile home owner is entitled to replacement housing assistance to compensate for his or her need to find replacement housing. Compensation for mobile home replacement is equivalent to the amount that is obtained by subtracting the value of the purchased mobile home from the cost of a new replacement mobile home.

In some cases, it may not be possible to secure a comparably located site for a replaced/displaced mobile home; thus, the site on which the home is ultimately placed is called "last resort

housing.” The cost to find and/or obtain such a site may exceed the statutory maximum differential replacement housing payment of \$31,000. Last resort housing cases can result when the subapplicant has not adequately planned for the relocation of mobile homepad tenants. If a comparable location for a replacement mobile home cannot be found, the homepad tenant may be eligible for replacement housing payments up to the cost of a traditionally constructed home that is comparably located.

A.6.10.3 Requirements for Applications Involving Mobile Home Owners

Subapplicants seeking funds for mobile home park acquisitions must demonstrate capacity to administer the subaward within the project cost estimate. To demonstrate capacity, the subapplication should include:

- ◆ An estimate of the number of mobile homes that will be involuntarily displaced
- ◆ Identification of in-house URA experience or an estimate of the cost of obtaining URA expertise shown as a line item in the project budget
- ◆ A preliminary relocation analysis discussing whether an adequate stock of potential replacement sites and/or dwellings is available

A.6.10.4 Tenant Businesses

Tenant businesses that are involuntarily relocated as a result of a FEMA-funded property acquisition and structure demolition or relocation project are entitled to URA benefits. Assistance provided to a tenant business cannot duplicate payments from insurance or any other source. Thus, Small Business Administration loans and other types of financial assistance received after the disaster must be subtracted from benefits received under the URA. The Recipient and subrecipient should seek assistance from the appropriate FEMA Regional Office in determining benefits for tenant businesses. The State DOT can be a good resource for determining benefits for tenants because the Federal Highway Administration oversees the applicability of the URA.

B. Wildfire Mitigation

Part B of the Addendum supplements the information provided in Parts I through IX of the HMA Guidance. The project-specific guidance in this section does not provide all of the information necessary to apply for funding through an HMA program and must be read in conjunction with all other relevant sections of this guidance.

B.1 Overview

Wildfire mitigation projects are any actions undertaken to decrease the risk of damage or loss of life from wildfires. FEMA wildfire mitigation activities can be funded by **HMGP** and **PDM**. Funding under these programs is not available for wildfire mitigation beyond the parameters described in this guidance and Addendum.

B.2 Additional Project Eligibility Requirements

This section addresses project eligibility requirements and lists the types of projects that FEMA will fund.

B.2.1 Feasibility and Effectiveness Requirement

As with any HMA-funded project, wildfire mitigation projects must be technically feasible, effective at reducing risk, and designed and implemented in conformance with all local, State, and Federal requirements, including local and State building codes and land use restrictions. FEMA urges the community or any entity implementing wildfire mitigation to use the materials and technologies that are in accordance with International Code Council (ICC), FEMA, U.S. Fire Administration, and the National Fire Protection Association (NFPA) Firewise recommendations, whenever applicable.

Eligible wildfire mitigation projects must clearly demonstrate mitigation of the risk from wildfire to residential and non-residential buildings and structures, including public and commercial facilities. Projects must be located in a Wildland-Urban Interface, must be adjacent to or intermingled with the built environment, and must provide protection to life and the built environment from future wildfires.

B.2.2 Eligible Activities

FEMA will only fund specific wildfire mitigation activities and FEMA funding will only be considered for clearly defined vulnerable buildings and structure. The eligible activities are:

- ◆ **Defensible space measures** – The creation of perimeters around residential and non-residential buildings and structures through the removal or reduction of flammable vegetation

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- ◆ **Ignition-resistant construction** – The application of non-combustible building envelope assemblies, the use of ignition-resistant materials, and the use of proper retrofit techniques in new and existing structures
 - ◆ **Hazardous fuels reduction** – Vegetation management to reduce hazardous fuels, vegetation thinning, and the reduction of flammable materials to protect life and property beyond defensible space perimeters but proximate to at-risk structures

FEMA may fund above-code projects in communities with fire-related codes and may also fund activities that meet or exceed codes currently in effect for buildings and structures that were constructed or activities that were completed prior to the establishment of the local building codes.

B.2.3 Ineligible Wildfire Mitigation Activities

The following project activities and their associated costs are not eligible for FEMA funding:

- ◆ Projects that do not protect homes, neighborhoods, structures, or infrastructure
- ◆ Projects on federally owned land and land adjacent to Federal lands when the proposed project falls under the primary or specific authority of another Federal agency
- ◆ Projects for hazardous fuels reduction in excess of 2 miles from structures
- ◆ Projects to address ecological or agricultural issues related to land and forest management (e.g., insects, diseases, infestations, damage from extreme weather events affecting the forest-wide health)
- ◆ Irrigation of vegetation to avoid disease or drought-related infestation
- ◆ Projects to protect the environment or watersheds
- ◆ Projects for prescribed burning or clear-cutting activities
- ◆ Projects for maintenance activities, deferred or future, without an increase in the level of protection
- ◆ Projects for the purchase of fire-related equipment (e.g., vehicles, fire trucks) or communications equipment
- ◆ Projects for the creation and maintenance of fire breaks, access roads, and staging areas
- ◆ Purchase of equipment to accomplish eligible work (e.g., chainsaws, chippers)
- ◆ Projects for vegetation irrigation systems installed on the ground and designed to moisten the surface
- ◆ Development or enhancement of fire-suppression capability through the purchase of equipment or resources (e.g., water supply or sources, dry hydrants, cisterns not related to water hydration systems, dip ponds)

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- ◆ Activities intended solely to remedy a code violation without an increase in the level of protection
 - ◆ Activities on Federal land

B.2.4 Duplication of Programs

Before submitting a grant application, the Applicant must ensure that Duplication of Programs (DOP) between Federal agencies will not occur. FEMA will not provide assistance for activities for which it determines the specific authority lies with another Federal agency or program.

Wildfire mitigation is addressed by the Federal government through a comprehensive legislative framework. FEMA recognizes that other Federal departments and agencies, such as the U.S. Department of Agriculture (USDA), U.S. Forest Service, Natural Resources Conservation Service (NRCS), U.S. Fish and Wildlife Service, National Park Service, Bureau of Land Management, and the Bureau of Indian Affairs, have primary wildland fire management responsibilities. These departments and agencies also have the primary responsibility for addressing ongoing forest management conditions, such as those caused by forest age, disease, and pest infestation spreading to and from the Federal lands onto adjacent non-Federal lands.

While these and other Federal agencies have the specific authority to protect the watersheds, forests, soils, and timber resources and address forest management conditions, they also have authority to address wildfire hazard reduction, including hazardous fuels reduction, with primary attention on areas that are on or near Federal lands. They may also assist State and local jurisdictions in efforts to protect the built environment in fire-prone areas of forests, ranges, and grasslands.

If projects proposed for FEMA HMA hazardous fuels reduction are located in a Wildland-Urban Interface area, the Applicant can check for potential duplication by contacting a local office of the USDA and DOI for information. HMA applicants are expected to be aware of any current or proposed hazardous fuels reduction projects under the DOI or USDA Forest Service and should provide an assurance to FEMA that there is no DOP. If a project is already under consideration for funding by another agency, the community should await the outcome of that decision before applying for an HMA grant. If an agreement is already in place with another agency to perform hazardous fuels reduction but there is a delay in funding, HMA funds cannot be made available to substitute or replace other assistance. If Congress has specifically authorized another Federal agency to perform a project, there is a DOP and HMA funds cannot be used regardless of whether there is a current appropriation.

FEMA does not have authority to fund projects on Federal land owned by another Federal entity or projects with the purpose of addressing forest health conditions or ecological or agricultural issues related to land and forest management (e.g., insects, diseases, damage from extreme weather events affecting the forest-wide health, pest infestations). FEMA mitigation authority targets at-risk buildings and structures without regard to the benefits to Federal land and

activities in areas outside the primary focus of other Federal agency wildfire risk reduction programs. FEMA hazard mitigation assistance for wildfires is focused on cost-effective, functional mitigation actions taken to reduce the risk to specific properties or buildings and structures from future wildfires. FEMA's goal of reducing the risk from wildfire hazards to human life and property, including loss of function to critical facilities, is intended to complement, and not duplicate, the programs of numerous other Federal agencies, such as the U.S. Forest Service or Bureau of Land Management, that fund wildfire risk reduction on non-Federal lands.

B.3 Wildfire Mitigation Project Application Package

Wildfire mitigation projects can be funded by **HMGP** or **PDM** funds. If an Applicant would like to have a subapplication considered under multiple HMA programs, the Applicant must submit the subapplication to each HMA program separately.

In addition to the application requirements addressed in Part IV of the HMA Guidance, the following information must be included in a wildfire mitigation application:

- ◆ A description of the wildfire mitigation activities and the method used to accomplish the activities
- ◆ Map(s) showing the project area (e.g., property address, polygon, quadrangle) and the relationship of the structures to the Wildland-Urban Interface or forested, range, or grassland area
- ◆ Property-level rating of wildfire risk for each home or community and the scale used to measure the rating levels (if applicable)
- ◆ Documentation that demonstrates that no DOP will occur, that other Federal programs have been investigated, and that the Applicant has coordinated with other appropriate Federal agencies
- ◆ A statement acknowledging that a final Operations and Maintenance (O&M) Plan will be submitted to FEMA before project closeout

B.4 Implementation

Project implementation entails putting the planned activities for wildfire mitigation into practice. All projects should be implemented using all current codes and best practices. This section addresses applicable codes and best practices for the FEMA-approved mitigation project types and provides additional resources for further information.

B.4.1 Defensible Space

Creating defensible space involves creating a perimeter around a residential or non-residential building or structure by removing or reducing the volume of flammable vegetation, including

clearing tree branches, vertically and horizontally. The volume of vegetation is minimized, flammable vegetation is replaced with less flammable species, and combustibles are cleared in accordance with all applicable codes and best practices. A description of the proposed defensible space activities must be provided for each property. FEMA recommends that ingress and egress to the building be maintained.

FEMA recognizes the importance of creating defensible space for residential and non-residential buildings and structures in accordance with local fire codes; standards and design criteria provided by ICC, FEMA, the U.S. Fire Administration, and the NFPA; well-established and proven techniques; and Firewise practices.

The required radius of defensible space around a building is related to the degree of the hazard, and the radius that is needed for an effective defensible space may, therefore, vary from one jurisdiction or building to another. In addition, the topography, specifically slope steepness and direction, and the arrangement, amount, and flammability of the vegetation may require extending the perimeter. When the proposed perimeter extends beyond what is required, the effectiveness of the proposed defensible space must be demonstrated in the project application.

Defensible space projects for residential structures, commercial buildings, public facilities, and infrastructure must be implemented in conformance with local code requirements for defensible space. FEMA recommends that projects use the design guidance in FEMA P-737, *Homebuilder's Guide to Construction in Wildfire Zones* (2008), or FEMA P-754, *Wildfire Hazard Mitigation Handbook for Public Facilities* (2008) if the latter presents a stricter standard.

B.4.2 Structural Protection through Ignition-Resistant Construction

Structural protection through ignition-resistant construction involves the use of noncombustible materials, technologies, and assemblies on new and existing buildings and structures. FEMA will consider a subapplication for an ignition-resistant construction project only when:

- ◆ The property owner has previously created defensible space and agrees to maintain the defensible space in accordance with this guidance. The subapplicant must include documentation describing the defensible space for each property in the application. FEMA will provide funding for ignition-resistant construction projects only after the subapplicant has demonstrated that the defensible space activity is complete and has provided documentation (i.e., photographs and description of the defensible space); or
- ◆ The subapplication includes both the defensible space and ignition-resistant construction projects as part of the same subapplication. The subapplicant must include a description of the defensible space for each property in the subapplication, and each property owner must agree to maintain the defensible space in accordance with this guidance.

Protection of homes, structures, and critical facilities through the use of ignition-resistant construction techniques or non-combustible building materials must be implemented in

conformance with the local fire-related codes and standards. FEMA recommends that projects use FEMA P-737 or FEMA P-754 as appropriate.

FEMA may fund above-code projects in communities if the project is cost effective and in conformance with all applicable eligibility criteria. Eligible activities include:

- ◆ **Roof assemblies:** Installation of roof coverings; roof sheathing; roof flashing; roof skylights; roof, attic, and wall vents; and roof eaves and gutters that conform to any of the following ignition-resistant construction standards: (1) construction materials are fire-resistant in accordance with nationally recognized testing standards, (2) construction materials are noncombustible, and (3) construction materials constitute an assembly that has a minimum 1-hour fire-resistant rating
- ◆ **Wall components:** Installation of wall components, such as the fascia, windows, window glazing, doors, window frames, and insulation that conform to any of the following ignition-resistant construction standards: (1) construction materials are fire-resistant in accordance with nationally recognized testing standards, (2) construction materials are noncombustible, and (3) construction materials constitute an assembly that has a minimum 1-hour fire-resistant rating
- ◆ **Protection of fuel tanks:** Protection of propane tanks or other external fuel sources
- ◆ **External water hydration and thermal insulation systems:** Purchase and installation of external, structure-specific water hydration and thermal insulation systems (foam, fire-retardant, and water sprinkler systems) with a dedicated delivery system and dedicated self-contained foam or retardant in sufficient volume to protect the structure. For water sprinklers, a cistern is acceptable if a dry hydrant with a fire department connection or other water source (e.g., lake, river, swimming pool) is available. FEMA will only consider the project when assurance is provided in the O&M plan that a system (e.g., geographic information system) will be maintained to identify property addresses with wildfire sprinkler systems and will be made available to the appropriate fire department.

B.4.3 Hazardous Fuels Reduction

Hazardous fuels reduction involves the removal or modification of vegetative fuels proximate to the at-risk buildings or structures that, if ignited, pose a significant threat to human life and property, especially critical facilities. Hazardous fuels reduction includes thinning vegetation, removing ladder fuels, reducing flammable vegetative materials, and replacing flammable vegetation with fire-resistant vegetation for the protection of life and property. Vegetation may include excess fuels or flammable vegetation.

Hazardous fuels reduction projects are implemented at the community level and extend beyond defensible space perimeters. However, FEMA will consider funding hazardous fuels reduction projects only if they are within 2 miles of homes and other structures that meet or exceed

applicable fire-related codes and standards and the risk reduction for the target community or buildings is demonstrated.

Hazardous fuels reduction projects will be designed to moderate fire behavior and reduce the risk of damage to life and property in the target area for mitigation. The natural variation in vegetation, topography, and climate does not lend itself to a national design standard for hazardous fuels reduction activities. Hazardous fuels reduction projects will be designed and implemented in accordance with local and State codes and standards and best practices. The project design should include consideration of the landscape and intended function of the project, and the location and orientation of the project site should be designed with consideration of the likely direction and severity of a wildfire.

Hazardous fuels reduction may be accomplished using community-owned, rental, or contract resources and equipment for mechanical treatments, such as disking, mowing, and chopping. Chopping equipment may include chippers and saws. The equipment may not pose a risk of fire ignition (e.g., spark arrestor).

Eligible activities include community-level vegetation management, vegetation removal, vegetation clearing and/or thinning, slash removal, and vertical and horizontal clearance of tree branches to reduce the threat to human life and structures from future wildfires. Such activities must be no farther than 2 miles from structures and may include the following techniques:

- ◆ Chemical treatments, including herbicide applications with appropriate safeguards to ensure protection of human life, the environment, and watersheds
- ◆ Grazing or biomass conversion
- ◆ Mechanical treatments, such as disking, mulching, grinding, mowing, chopping, and removal of such material; material left onsite must meet appropriate depth practices in accordance with applicable codes and best practices
- ◆ Biomass removal, including clearing straw, removing dead or dry vegetation, thinning, removal of brush and pine straw, or removing blown-down timber from wind throw, ice, or a combination
- ◆ Other industry-accepted techniques with FEMA's approval

B.4.4 Additional Wildfire Mitigation Resources

The NFPA Firewise program provides resources for communities and property owners to use in the creation of defensible space and in making building modifications. The resources are available at www.firewise.org and www.nfpa.org. Additional resources for wildfire projects are as follows:

- ◆ *International Wildland-Urban Interface Code (IWUIC)*
- ◆ *Standard for Reducing Structure Ignition Hazards from Wildland Fire (NFPA 1144)*

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- ◆ *Standard for Fire Protection Infrastructure for Land Development in Suburban and Rural Areas* (NFPA 1141)
 - ◆ *Standard for Fire-Retardant Treated Wood and Fire-Retardant Coatings for Building Materials* (NFPA 703)
 - ◆ *Code for Fire Protection of Historic Structures* (NFPA 914)
 - ◆ *Homebuilder's Guide to Construction in Wildfire Zones* (FEMA P-737)
 - ◆ *Wildfire Hazard Mitigation Handbook for Public Facilities* (FEMA P-754)

B.5 Wildfire Mitigation Closeout

In addition to the typical HMA closeout process, closeout of wildfire mitigation projects includes the submittal of an O&M plan to FEMA for review prior to project closeout. In the O&M plan, the Recipient must confirm that the plan is consistent with this guidance, meets or exceeds local codes, and is in conformance with appropriate fire-related codes.

At a minimum, the O&M plan must include all of the following information:

- ◆ Information demonstrating that the requested wildfire project will be maintained to achieve the proposed hazard mitigation
- ◆ A description of the maintenance activities in the mitigation project (e.g., defensible space, hazardous fuels reduction, ignition-resistant construction)
- ◆ The period of time the community is committing to maintain the area and/or project site, which must be consistent with the project useful life in the Benefit-Cost Analysis
- ◆ A discussion of the post-closeout activities that will be undertaken to maintain the area and/or project site for the duration of the project useful life
- ◆ The schedule for implementation of the maintenance activities

C. Safe Rooms

Part C of the Addendum supplements the information provided in Parts I through IX of the HMA Guidance. The project-specific guidance in this section does not provide all of the information necessary to apply for funding through an HMA program and must be read in conjunction with all other relevant sections of this guidance.

This section is applicable to **HMGP** and **PDM** and supersedes the following:

- ◆ FEMA Mitigation Policy MRR-2-07-01, *Hazard Mitigation Assistance for Safe Rooms*
- ◆ FEMA Interim Policy MRR-2-09-1, *Hazard Mitigation Assistance for Safe Rooms*
- ◆ FEMA Memorandum, *Waiver of Two Provisions of Mitigation Interim Policy MRR-2-09-1, Hazard Mitigation Assistance for Safe Rooms*

C.1 Overview

In extreme wind events, such as tornadoes, there may be little or no warning to allow the general population to leave the area of immediate impact, and they must, therefore, seek immediate life-safety protection. Little or no warning limits the potential occupancy of tornado residential and community safe rooms to the people who are onsite or nearby.

When there is sufficient warning time in extreme wind events, such as hurricanes, the general population can be expected to leave the area of anticipated immediate impact and seek shelter outside of the impacted area. However, first responders and those who are physically unable to leave the area remain in harm's way. Therefore, for hurricane threats, FEMA considers funding only for extreme wind mitigation projects that are designed for populations that cannot remove themselves from harm's way during a land-falling hurricane.

Safe room construction projects are designed to provide immediate life-safety protection for a limited population that cannot evacuate out of harm's way before an event. These mitigation activities are available for public and private structures for severe wind events, such as tornadoes and hurricanes. For the purposes of **PDM** and **HMGP**, "safe room" applies only to the following:

- ◆ Extreme wind (combined tornado and hurricane) residential safe rooms
- ◆ Extreme wind (combined tornado and hurricane) community safe rooms
- ◆ Tornado community safe rooms
- ◆ Hurricane community safe rooms

Safe room construction projects include retrofits of existing facilities and new safe room construction and apply to both single- and multi-use facilities.

This section provides information on HMA-funded safe room construction projects, including eligible parameters, design standards, flood hazard siting limitations, protected populations, period of protection, eligible costs, O&M plans, cost-effectiveness, and compliance with EHP regulations.

PDM and **HMGP** funds may only be used for safe room projects designed to achieve “near-absolute protection” as described in the current editions of FEMA P-320, *Taking Shelter From the Storm: Building a Safe Room For Your Home or Small Business* (2014), and FEMA P-361, *Safe Rooms for Tornadoes and Hurricanes: Guidance for Community and Residential Safe Rooms* (2015). Any lower threshold of protection exposes safe room occupants to a greater degree of risk than is acceptable. To provide this acceptable level of hazard mitigation protection during extreme wind events, a structure has to meet design criteria intended for this specific purpose. Some of these projects also provide some ancillary level of structural and building envelope protection to reduce or eliminate damage to the structure and its contents and to ensure continuation of facility function.

PDM and **HMGP** funds are not available for general population shelters, including evacuation and recovery shelters. Safe rooms and general population shelters are different in two ways. First, shelters are generally not intended to withstand extreme wind events and are, therefore, not required to satisfy the higher design criteria of near-absolute protection consistent with hazard mitigation residential, non-residential, and community safe rooms as established in FEMA P-320 and P-361. Second, shelters are intended to provide longer term services and housing for people who have left the anticipated impact area of an extreme wind event or because their homes have been damaged or destroyed by extreme wind, wildfire, flooding, or other disaster event; safe rooms are intended to provide protection for only approximately 2 hours in tornado events and 24 hours in hurricane events.

The planning and operation of **PDM** and **HMGP** safe rooms should not conflict with State and/or local evacuation plans. **PDM** and **HMGP** safe room projects should not be used as a substitute for, or as an option for individuals to ignore, local community and/or State evacuation plans or any other law or ordinance.

C.2 Additional Project Eligibility Requirements

This section discusses application requirements for safe rooms, recognized design standards, cost-effectiveness of safe rooms, and flood hazard siting limitations.

C.2.1 Application Requirements for Safe Rooms

To be eligible for FEMA grant funding, safe room applications and subapplications must include:

- ◆ Documentation that demonstrates compliance with relevant **HMGP** and **PDM** guidance requirements

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- ◆ Documentation that demonstrates compliance with local planning, zoning, building, and other applicable codes
 - ◆ Identification of the impacted population as follows
 - Documentation on the composition, size, and rationale for including each group designated as a disproportionately impacted population
 - For tornado residential and community safe rooms, documentation that demonstrates how the designated population would reach the safe room within the prescribed time limit after notification
 - For hurricane safe rooms, documentation that demonstrates that each group composing the affected population belongs to one of the categories specified in this guidance
 - ◆ Travel limitations
 - For tornado community safe rooms, travel limits are 5 minutes for the occupants who will be walking or a maximum distance of 0.5 mile from the safe room for those driving. This means that the potential occupants of the safe room must reside or work in buildings that are no more than 0.5 mile away from the safe room.
 - For hurricane safe rooms, travel times are not limited
 - ◆ A cost-effectiveness analysis using approved FEMA methodology
 - ◆ Description of the approach the subapplicant will use in preparing the O&M plan
 - ◆ Safe Room Project Closeout requirements
 - Final signed O&M Plan
 - Photos of the project site before and after construction
 - Latitude/longitude of the project site
 - Vicinity map and map of the SFHA if applicable
 - Certification from a licensed Professional Engineer or a Registered Architect that the safe room and all items that contribute to the operation of the safe room have been constructed to meet or exceed operation FEMA P-320 (if following a prescriptive design found in P-320) or FEMA P-361 (for all other designs not following the designs in P-320), including, but not limited to, the foundation and safe room anchoring requirements, doors, windows, exterior aboveground generators and attendant fuel sources, electrical or passive ventilation, communications equipment, signage, steps, stairs, elevators, lifts, and eligible below-ground electrical lines
 - Any structural and non-structural design peer review reports as required by FEMA P-361

More information on each required item can be found in the remainder of this section.

FEMA will consider an extreme wind event mitigation activity, consisting of the retrofit or construction of a residential or community safe room (single- or multi-use), to be an eligible project type for **PDM** and **HMGP** if:

- ◆ The safe room project provides immediate life-safety protection in the projected impact area of a hurricane and/or tornado.
- ◆ The safe room project is constructed with criteria recognized by FEMA to afford near-absolute protection and is verified by a licensed design professional. See Addendum Part C.2.2.
- ◆ The safe room project is not located in certain high-hazard areas where flood waters have the potential to endanger occupants of the safe room. See Addendum Part C.2.4.
- ◆ The safe room is designed and sized only to the extent necessary for the limited population that must remain in the impact strike area during an extreme wind event. The safe room is also designed only to the extent necessary for the limited time period that a hurricane and/or tornado event is occurring. Therefore, safe rooms must be sized according to the defined population that will use the facility during a storm event, and the design is to accommodate this population for a limited period. See Addendum Part C.3.1.1.
- ◆ Allowable safe room project costs are directly related to and necessary for the hazard mitigation purpose of providing immediate life-safety protection by means of the structure and the building envelope for the limited population required to remain in the impact area during an extreme wind event. See Addendum Part C.3.1.
- ◆ Community safe room projects have or will have an O&M plan developed. At a minimum, the process to include O&M plans includes the following:
 - Descriptive statement of the O&M plan at the time of the application along with a Statement of Assurances that the O&M plan will be developed during project implementation
 - Final O&M Plan prior to project closeout. See Addendum Part C.5.1.
- ◆ The safe room project demonstrates cost-effectiveness. See Addendum Part C.2.3.
- ◆ The safe room project complies with all relevant EHP regulations. See Addendum Part C.4.1.
- ◆ The safe room project adheres to other program conditions as described in this guidance. See Addendum Parts C.4.1 and C.4.2.

C.2.2 Recognized Design Standards

To qualify for **PDM** or **HMGP** funding, a safe room must provide near-absolute protection. It does so when it complies with FEMA-recognized design and construction criteria, codes, or standards. A safe room that is designed to lower design criteria provides a lower level of

protection, resulting in a greater degree of risk than is acceptable to FEMA and, therefore, is not eligible for **PDM** or **HMGP** funding. FEMA recognizes acceptable life-safety protection for safe room occupants if the project application documentation shows that the safe room project meets or exceeds the criteria set forth in FEMA P-361. Residential, site-built safe rooms may be considered to meet the criteria in FEMA P-361 if they conform to the prescriptive solutions provided in FEMA P-320. Safe rooms constructed in small businesses are considered community safe rooms and must meet the additional requirements for community safe rooms as provided in FEMA P-361.

In addition, the *ICC/NSSA Standard for the Design and Construction of Storm Shelters* (ICC 500), 2014 edition, is a consensus standard from ICC and is incorporated into the 2009, 2012, and 2015 model I-Codes. The 2014 edition of ICC 500 is acceptable for use in designing **PDM** and **HMGP** safe rooms only when incorporating the recommended criteria in FEMA P-320 and P-361. ICC 500-2014 is very similar to FEMA P-361 in design criteria; however, FEMA has identified certain design criteria in FEMA P-361 to be more conservative than the criteria in ICC 500-2014 because of emergency management and near-absolute protection considerations. See Appendix D of FEMA P-361 for a list of all differences between ICC 500-2014 and FEMA P-361.

C.2.3 Cost-Effectiveness of Safe Rooms

PDM and **HMGP** safe room project applications must demonstrate project cost-effectiveness through an acceptable BCA. This section discusses the total project costs required to demonstrate compliance with cost-effectiveness requirements. The total project cost for BCA purposes is the sum of all eligible costs necessary to achieve life-safety protection. Applicants and subapplicants should refer to Addendum Part C.4.4 to identify the full range of components that make up these necessary costs. As identified in Addendum Part C.4.4, eligible project costs generally include:

- ◆ Design activities
- ◆ Site preparation and building foundation materials and construction
- ◆ Structural systems capable of resisting the design wind loads (including roof decking and roof support structures)
- ◆ Protective envelope components such as
 - Walls, ceiling/roof systems, and doors
 - Other retrofit hardening activities that meet FEMA-approved performance criteria
- ◆ Functional components such as
 - Permanent electrical lighting, heating, ventilation, air conditioning, and toilets and hand-washing facilities consistent with FEMA-approved performance criteria

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- Fire suppression sprinkler systems
 - Signage, emergency communications equipment, and backup power generation for the safe area
- ◆ O&M plan development
 - ◆ Costs associated with the acquisition of land

In some cases, the total project cost of a safe room for a large community may exceed **HMGP** or **PDM** funding limits. In these cases, the actual total project cost must be used in the BCA. The program funding limit (which would be less than the actual project cost) may not be used as the total project cost entered into the BCA.

Similarly, some applications may not request **PDM** or **HMGP** funds up to the available Federal cost share. In these cases, the BCA must still use the sum of all required (not just requested) costs necessary to achieve the hazard mitigation purpose of immediate life-safety protection.

C.2.4 Flood Hazard Siting Limitations

To be considered for funding, **PDM** and **HMGP** safe room projects must include maps or other documentation that identify the project location relative to the floodplain. FEMA does not support the placement of safe rooms where floodwaters have the potential to endanger occupants. FEMA P-320 and P-361 include flood hazard siting limitations. FEMA will only consider safe rooms that are located outside the high-hazard areas as detailed in FEMA P-361 for both community and residential siting restrictions.

Where the 1-percent- and/or 0.2-percent-annual-chance flood elevations have not been determined by a flood hazard study but are applicable to the safe room elevation criteria as established in FEMA P-361, those elevations should be obtained from the authority having jurisdiction to calculate the elevations.

C.3 Safe Room Project Application Package

The following sections provide detail on specific components of the application package. Further information on these topics, including commentary and discussion on safe room sizing criteria, susceptible populations, and reasonable considerations for travel time can be found in FEMA P-361. A statement acknowledging the requirement for an O&M plan for the community safe room must be included in the application; this requirement is discussed in detail in Addendum Part C.5.1.1.

C.3.1 Populations Served by the Safe Room

FEMA will only consider **PDM** and **HMGP** applications for safe room projects that identify the safe room population that must remain behind or will not have time to leave and must face an imminent threat of a tornado or hurricane or both. The Applicant will identify and quantify this

population so the size of the safe room can be verified during the application review process. The size of the safe room is demonstrated by risk assessment information, such as information that is developed as part of a mitigation plan or evacuation plan.

As discussed earlier, Applicants and subapplicants should be mindful that **PDM** and **HMGP** funds are not available for general population shelters, including evacuation and recovery shelters. The emergency management measures necessary to afford protection to thousands of occupants of large, public venues, such as stadiums or amphitheaters, are beyond the scope of **PDM** and **HMGP** community safe rooms; therefore, shelters are not eligible for **PDM** or **HMGP** funding. Applicants and subapplicants must identify the hazard mitigation population to be protected; otherwise, the application review may be delayed or the application may be rejected.

This implementation guidance provides details to help Applicants and subapplicants identify, quantify, and document eligible populations needing hazard mitigation life-safety protection during extreme wind events. Addendum Parts C.3.1.2 and C.3.1.3 address hurricane and tornado hazards, respectively, and how susceptible populations are affected by them. This section further describes categories of populations that are affected by tornadoes, hurricanes, or both.

At a minimum the Applicant will demonstrate consideration of the following components in determining the eligible safe room population:

- ◆ Population to be protected within the area of impact by tornado and/or hurricane hazards
- ◆ Warning capabilities, logistics, and operation components that support basic safe room functions
- ◆ Travel times and routes for the population to be protected to reach the safe room so that people are not exposed to additional risk when moving to the protected area
- ◆ Hazard mitigation time of protection: approximately 2 hours for tornado and 24 hours for hurricane
- ◆ Relationship of the population to be protected by the safe room to State or local emergency evacuation requirements
- ◆ Effective and accessible warnings (alerts) that address the needs of individuals with access and functional needs and/or individuals who have limited English proficiency. See the FEMA Integrated Public Alert and Warning System document, *Alerting the Whole Community: Removing Barriers to Alerting Accessibility* (2013).

Community safe rooms are intended for a limited population, but the criteria for tornadoes and hurricanes differ in certain applications. When the limited population for tornadoes and hurricanes is identified, the respective mitigation activities should be considered separately and then combined (if both exist) using the most restrictive requirements between the two. This means that a combined safe room will be required to comply with the larger square footage area

per person and longer protection time, but will also have to comply with the more stringent debris impact protection. Characteristics such as the size of the targeted area, the warning time before the impact, and the duration of the storm affect the population requiring protection differently; therefore, the impacted population must be determined for each type of event.

The following sections identify issues to consider when applying for funding for a hurricane, tornado, or combined hazard community safe room. Applicants and subapplicants should select the most appropriate population for their safe room project using the steps described in the following sections:

- ◆ Addendum Part C.3.1.2, Population impacted by hurricanes
- ◆ Addendum Part C.3.1.3, Population impacted by tornadoes

C.3.1.1 Safe Room Sizing Criteria

The identified population directly affects the proposed safe room design size and is verified during the grant review process. **PDM** and **HMGP** funding is not provided for safe rooms that are larger than the size that is required to accommodate the identified population. **PDM** and **HMGP** safe room project applications are subject to usable floor area per occupant space requirements and size limitations identified in the design criteria noted in this section. **Table 2** identifies the minimum required usable floor area per safe room occupant consistent with FEMA-recognized design criteria.

Table 2: HMA-Funded Safe Room Minimum Usable Floor Area per Safe Room Occupant

Type of Safe Room	Occupant	Minimum Usable Floor Area per Occupant* (square feet)
Tornado community safe room	Standing or seated	5
	Wheelchair User	10
	Medical Bed User	30
Hurricane community safe room	Standing or seated	20
	Wheelchair User	20
	Medical Beds User	40

* At least one wheelchair user-sized space is required for every 200 occupants or portion thereof.

In addition to the square footage requirement per person, Applicants and subapplicants must take into account the normal functional use of the area. The type of durable medical equipment and furniture in the dual purpose safe room will determine how to calculate the net usable area. The net usable area is the available area to be used by the occupants after reducing non-usable area from the gross area.

For example, a community may decide to build a multi-use facility that includes a tornado safe room function in a community center. The new facility may include an assembly or multi-purpose room that has 1,185 square feet. In order to use the space as a community tornado safe room, the gross square footage must be reduced to account for egress circulation, partitions, interior columns, furnishings, finishes, equipment, and other features. The calculation may be exact or estimated using the methodology in FEMA P-361. For this example, the area is considered an open floor plan, and only 85 percent of the gross area can be considered net usable area for the occupants seeking shelter. Using 85 percent of the gross square footage as usable square footage, the 1,185 square feet is reduced to 1,007 usable square feet:

$$1,185 (0.85) = 1,007 \text{ square feet}$$

Per FEMA P-361 design criteria, a minimum of 5 square feet per safe room occupant must be provided in a tornado community safe room (see **Table 2**). In this example, safe room designers must also account for the use of durable medical equipment, for example wheel chairs, walkers, or hospital beds, as well as consider individuals who are handlers of service animals.

A community safe room should be sized to accommodate a minimum of one wheelchair space (at 10 square feet) for every 200 occupants or portion thereof. Therefore, the 1,007-square-foot usable floor area would provide enough space for the protection of 200 occupants (see **Table 3**) and would be eligible for **HMGP** and **PDM** funding. It would not be reasonable for an application in this example to include a request for usable square footage of 2,000 square feet because that amount of space has not been demonstrated as being necessary for an identified at-risk population of 200 occupants.

Table 3: Example Community Safe Room Size

Occupants	Required Square Feet per Person	Total Square Footage
199 occupants	5	995
1 occupant in a wheelchair	10	10
Total 200 occupants	—	1,005

Applicants and subapplicants should refer to FEMA P-361 for further guidance on sizing criteria.

C.3.1.2 Population Impacted by Hurricanes

This section provides information to help Applicants and subapplicants identify and define the population impacted by hurricanes and identify who may require a safe room facility.

C.3.1.2.1 Information Sources

Determining the hurricane safe room population depends on the assumptions used in the evacuation or emergency response plans and policies being administered by local, State, and

Federal (if applicable) emergency management organizations. Therefore, Applicants and subapplicants are encouraged to coordinate with the relevant agency in the jurisdiction that developed the plans. In addition, local or federally-recognized tribal mitigation plans are required to include a risk assessment that defines the hazard characteristics within an area and the specific needs for the affected population. Evacuation plans are likely to be more specific in terms of population, but the risk assessment in a community's existing mitigation plan may also be a source for this information. Documentation to support the determination of the impacted population may be directly related to the planning tools mentioned above and should be included in the application.

C.3.1.2.2 Hurricane Population Categories

Generally, two broad categories of potential hurricane safe room occupants may be identified as part of the limited population in need of life-safety protection: (1) first responders, critical and essential services personnel, and facility occupants and (2) those that cannot evacuate because of limitations.

The impacted population should be accommodated within the safe room for a minimum of 24 hours (the FEMA P-361 minimum design occupancy time for hurricane safe rooms). Applicants and subapplicants are encouraged to use verifiable information, such as emergency evacuation plans and local emergency management plans (or other applicable sources), to identify potential safe room occupants from the categories listed below:

Category 1: First Responders, Critical and Essential Services Personnel, and Facility Occupants

The civilian personnel of emergency response services, also known as first responders, may be required to remain in harm's way. First responders include, but are not limited to, fire and police department personnel, rescue squads, Emergency Operations Center (EOC) personnel, emergency medical and ambulance service providers, search and rescue teams, and similar personnel whom a local community may depend upon for a successful response to an extreme wind event.

In many cases, other critical services personnel may be required to remain in harm's way to facilitate the continued operation of certain critical facilities, including material storage facilities, communications and data centers, and others that a local community may depend on for a successful response to an extreme wind event.

Category 2: Individuals that Cannot Evacuate

This category may include occupants of facilities, such as patients in hospitals, residents of long-term care facilities, and other occupants for which evacuation would be detrimental to their well-being. This category also could include jail/inmates who are unable to be evacuated safely.

Documentation

Applicants and subapplicants must provide documentation to support the identified population for the safe room and must also submit adequate documentation in support of their risk assessments to allow grant program reviewers to determine whether the proposed safe room size is appropriate for the identified population. The documentation should be sufficiently detailed to be verified during the grant review process. Applicant and subapplicant coordination with the local, State, or Federal (if applicable) agency responsible for developing emergency evacuation plans is critical.

Each grant program identifies documentation requirements, but in general, documents that can be used to quantify the disproportionately impacted population, such as evacuation plans, emergency response plans, and meeting notes, are acceptable. For example, the population categories listed above may be part of the affected population identified in an emergency evacuation plan.

In all cases, planning and operation of **PDM** and **HMGP** safe rooms, including the identification of the population to be protected, should not conflict with State and/or local evacuation plans. **PDM** and **HMGP** safe room activities should not be used as a substitute for, or as an option for individuals to ignore, local community and/or State evacuation plans or any other law or ordinance.

Travel Time Considerations

The issues to consider in estimating travel time to the safe room facility include local emergency management and law enforcement requirements, mandatory evacuations, evacuation times from the anticipated area of impact, and any other plans that affect the movement of at-risk populations. Further guidance is provided in FEMA P-361.

Warning Capabilities

In addition to design and construction criteria, an accessible and effective warning system must be in place to notify prospective community safe room occupants when they should evacuate to the safe room facility. Occupants of homes (residences) with a residential safe room that meets the siting and elevation requirements in FEMA P-361 are assumed to use that room and require no evacuation and only minimal travel time. Applicants and subapplicants for community safe room projects must demonstrate that the population can be properly notified to allow sufficient travel time to the community safe room.

Period of Protection

As identified in FEMA P-361, the hazard mitigation time of protection for safe rooms is a minimum of 24 hours for hurricane events. Therefore, any ancillary equipment required to operate during an event for the safe room must also be properly sized and protected to the same level as the safe room.

C.3.1.3 Population Impacted by Tornadoes

This section provides information to help identify and define the population impacted by tornadoes.

Populations impacted by tornadoes are generally limited to the family or group of families who live in the dwelling or dwellings served by the safe room, workers who have access to a safe room at their place of business, and individuals who have access to an onsite community safe room. In addition, because of the short period between tornado identification and impact, these at-risk populations must be close to the safe room in order to benefit from it.

Tornado safe room populations are determined based on limited warning times (minutes, not days) and the maximum reasonable travel time for potential safe room occupants to reach the safety of the facility. These populations that cannot reach the safe room within a reasonable time are not considered as potential occupants of the safe room.

Tornadoes strike without timely warning, often depriving the affected population sufficient time to seek safety. Only about 20 minutes (or less) of warning time may be provided before a tornado strikes. For a limited or no-warning storm event, at-risk individuals have various degrees of susceptibility.

The following two aspects of higher risk should be considered when identifying and quantifying the population impacted by a tornado:

- ◆ The physical characteristics of the built environment (buildings or other structures) in which the population resides. Because buildings differ in their susceptibility to damage from a tornado, building occupants are exposed to varying risks of injury or death. Individuals living in non-engineered housing, older housing, and manufactured housing are more susceptible to catastrophic damage from a tornado.
- ◆ The ability of the population to mobilize to the safe room during a tornado, irrespective of where they are located. A 20-minute warning may not be sufficient time for all to get access to the safe room. Children and adults with disabilities and others with access and functional needs may require a greater level of assistance, time to mobilize, and attention during an emergency. These considerations should be factored into planning.

C.3.1.3.1 Documentation

Applicants and subapplicants must provide documentation to support the identified population for the safe room and must also submit adequate documentation in support of their risk assessments to allow grant program reviewers to determine whether the proposed safe room size is appropriate for the identified population. The documentation should be sufficiently detailed to be verified during the grant review process. Applicant and subapplicant coordination with the local, State, or Federal (if applicable) agency responsible for developing emergency action plans is critical.

Each grant program identifies documentation requirements, but in general, emergency response plans, area maps, building construction drawings, and meeting notes that can be used to quantify the population are acceptable. In addition, local or federally-recognized tribal mitigation plans are required to describe the susceptibility of the community and structures, in particular high-risk populations, and may also be sources for this information. Applicants and subapplicants must provide this information; otherwise, the application review may be delayed or the application may be rejected.

C.3.1.3.2 Travel Time Considerations

The two aspects of higher risk listed above will facilitate identifying and targeting high concentrations of impacted populations. The most effective tornado safe rooms minimize occupant travel time. Consequently, onsite community safe rooms, built either as integral parts of a building or as separate structures, offer the greatest level of protection to occupants. Community safe rooms in hospitals, schools, long-term care centers, and other facilities that house highly susceptible populations are the most successful in minimizing the risks. These safe rooms may be designed to serve the community at large in addition to onsite residents. In such cases, the population of the safe room is limited by the proximity of potential occupants to the safe room, which is defined by the maximum allowed travel time and/or the maximum distance to the safe room.

The distance from the safe room for the at-risk population is based on a maximum walking travel time of 5 minutes or a maximum driving travel distance of approximately 0.5 mile. When considering a single- or multi-use community safe room, the 5-minute walk time or the equivalent 0.5-mile driving distance must be calculated by the actual travel route or pathway that a pedestrian or a driver will be required to follow. The pathway should not be restricted, bottlenecked, or obstructed by barriers such as multi-lane highways, railroad tracks, bridges, or similar facilities or by topographic features. Traffic congestion (including parking constraints) during the movement of the potential affected population to the safe room once a storm watch/warning notification is issued should be considered when defining the limited population for the community safe room. In either case, whether walking or driving, prospective safe room occupants must be able to safely reach the facility within 5 minutes of receiving a tornado warning or notice to seek shelter.

C.3.1.3.3 Period of Protection

As identified in FEMA P-361, the hazard mitigation time of protection for safe rooms is a minimum of 2 hours for tornado events. Therefore, any ancillary equipment required to operate during an event for the safe room must also be properly sized and protected to the same level as the safe room.

C.3.2 Cost Estimates

Applications for safe room projects must include detailed, line-item costs in the project cost estimates. Well-documented project cost estimates contain quantities, unit costs, and a source for each unit cost. In contrast, lump-sum cost estimates do not provide quantities and unit costs required to evaluate the accuracy of the project cost estimate. Lump-sum cost estimates are not acceptable.

Under **HMGP** and **PDM**, project cost estimates include unit costs related to the proposed square footage of the protected area or areas of the safe room (see Addendum Part C.3.1.1 for safe room sizing criteria). Unit costs may also be related to the protected population (occupants) of the safe room.

C.3.2.1 Program Funding Limits

Potential Applicants and subapplicants should understand that **HMGP** or **PDM** funding for safe room projects is subject to all program-specific rules and regulations, including any pre-determined limitations on the Federal share of project costs. Detailed information on funding program limits is provided in Part I, B of the HMA Guidance. Potential Applicants and subapplicants should also consult the appropriate State Hazard Mitigation Officer for details on funding limitations.

C.4 Implementation

The implementation guidance in this section is intended to ensure that Applicants and subapplicants pursuing **PDM** or **HMGP** funds for safe room projects adequately understand and address all of the requirements that are unique to this type of mitigation.

C.4.1 Environmental Planning and Historic Preservation Review and Compliance

Safe room project designs must take into consideration potential impacts on a wide variety of EHP resources, such as wetlands, floodplains, historic structures, and archaeological sites.

To assist with the EHP review, FEMA has prepared a Programmatic Environmental Assessment to help project application developers and reviewers streamline the evaluation of potential impacts to the human environment resulting from the construction of residential and non-residential (individual) safe rooms and community safe rooms that are proposed for **HMGP** or **PDM** funding. The Programmatic Environmental Assessment provides the public and decision-makers with helpful information necessary to understand and evaluate the potential environmental consequences of these hazard mitigation actions and helps streamline the National Environmental Policy Act (NEPA) review process. Additional EHP review, aside from compliance with NEPA, may still be required.

C.4.2 Americans with Disabilities Act Compliance for Residential and Community Safe Rooms

The needs of the whole community requiring safe room space must be considered. Safe room construction should integrate considerations for:

- ◆ Proximity of location to affected populations
- ◆ The size of the safe room
- ◆ Egress/ingress of the safe room to accommodate the affected populations
- ◆ Ensuring facilities within the safe room comply with Americans with Disabilities Act (ADA) regulations
- ◆ Accessible alerts and warnings

The appropriate access for persons with disabilities must be provided in accordance with all Federal, State, and local ADA requirements and ordinances.

C.4.3 Eligible and Ineligible Components of Residential and Community Safe Rooms

Safe room cost estimates contained in applications and subapplications should include only eligible costs. For examples of eligible and ineligible costs see Addendum Part C.4.4. **Table 4** shows eligible and ineligible components of residential and community safety rooms. This table can be referred to when determining whether a component is an eligible cost of a safe room application. Note that there are differences in what is considered an eligible cost for a residential safe room versus a community safe room because of the different scope of the projects.

Table 4: Eligible and Ineligible Components of Residential and Community Safe Rooms

Building Systems and Components	Residential	Community
Structural systems that directly support or protect the safe room to provide near-absolute, life-safety protection	Yes	Yes
Doors, windows, and opening protection	Yes	Yes
Protection of backup mechanical, electrical, ventilation, and communication equipment necessary to provide life-safety for the safe room	Yes	Yes
Signage	Yes	Yes
Communications, including LAN drops and wiring if used for emergency communication during an event	Yes	Yes
Alternate source of power	Yes	Yes
First aid supplies and equipment	No	Yes
Fire-suppression systems (sprinklers systems and fire extinguishers)	No*	Yes

Building Systems and Components	Residential	Community
Electrical lighting and outlets	Yes	Yes
ADA Requirements	Yes	Yes
Ventilation	Yes	Yes
HVAC used for required ventilation	Yes	Yes
HVAC not used for required ventilation	No	No
Accessible toilets and hand washing stations in safe room	No	Yes*
Planning/engineering/architecture design fees	Yes	Yes
Engineering study to calculate undefined flood elevations	Yes	Yes
Engineering peer review	Yes	Yes
Site preparation	Yes	Yes
Inspections, including special inspections	Yes	Yes
Soil test	No	Yes
Storage room for food, water, and safety equipment	No	Yes
Purchase of land	No	Yes
Safe room maintenance	No	No
Restroom fixtures not required by code or FEMA P-361	No	No
Paint on walls and ceilings of safe room	No	No
Floor coverings – subfloors not required for life safety	No	No
Removal of structures from developed land	No	No
Kitchen cabinets, countertops, and other equipment not required for life safety	No	No
Security cameras and EOC-type equipment	No	No
Landscaping	No	No
Parking and all non-building elements unless required for ADA compliance	No	No
Community-wide, mass notification systems	No	No

* Eligible if required by local codes

LAN = Local Area Network

ADA = Americans with Disabilities Act

HVAC = Heating, ventilation, and air conditioning

EOC = Emergency Operations Center

C.4.4 Eligible and Ineligible Costs

Allowable costs for **PDM** and **HMGP** safe room projects are costs for project components (e.g., design, construction, project administration) that are related directly to and necessary for the hazard mitigation purpose of providing immediate life-safety protection by means of the structure and the building envelope to the limited population that must remain in the impact area during an extreme wind event.

For each structure type, eligible project costs are limited to:

- ◆ **Protection by design components**, including and limited to the safe room portion of the envelope (walls, ceilings, doors, windows, as specified in FEMA P-320, FEMA P-361, ICC 500 and local building codes, such as the 2009 *International Building Code* [IBC], or later editions)
- ◆ **Ancillary components** required by P-361, including standby (backup) power, communications, and emergency electrical lighting limited to the safe room portion of the building, as well as protection of ancillary components to the same degree as the safe room
- ◆ **Design and construction components** for safe room portion only, including engineering fees, permit fees, special inspection fees, and excavation
- ◆ **Required features** necessary for safe room function and habitation, including ventilation, permanent electrical lighting, ADA requirements, and accessible toilets and hand washing stations

Costs associated with providing facilities for any function that is not essential for life-safety protection of occupants are not eligible. If a safe room facility can fulfill its basic function of life-safety protection for occupants during a storm without a building feature or component that provides conveniences or additional comfort, costs associated with that feature or component are not eligible. Examples are flooring, seating, and food preparation facilities. This is a significant issue in multi-use community safe rooms, which are designed to provide other functions.

C.5 Safe Room Closeout

The following information covers the O&M plan, with the final plan required upon project closeout. For more information and guidance on considerations for an O&M plan, see FEMA P-361.

C.5.1 Operations and Maintenance Plans for Community Safe Rooms

To be considered for funding, **PDM** and **HMGP** community safe room project applications must include a written statement acknowledging that the requested community safe room will be operated and maintained in a manner that achieves the proposed hazard mitigation. FEMA will only consider O&M plans that have considered the guidance in FEMA P-361. O&M plans are not required for residential safe rooms.

Community safe rooms are built and operated to provide immediate life-safety protection during extreme wind hazards. To achieve this purpose, community safe rooms must be built to the design criteria specified in Addendum Part C.2.2, and they must admit occupants and provide them with the services they need in a timely manner. Subapplicants must provide an O&M Plan Statement of Assurances with the safe room project application acknowledging that the requested

community safe rooms will be operated and maintained in a manner that achieves the proposed hazard mitigation.

Prior to closeout, the Recipient and FEMA will review the subapplicant's final signed O&M Plan. FEMA will only consider O&M Plans that incorporate FEMA P-361.

The steps in meeting the O&M Plan requirements are as follows:

- Step 1. The subapplicant develops a description of the O&M Plan that includes an assurance that the O&M Plan will be developed during project implementation and includes the description in the application (see Addendum Part C.2.1)
- Step 2. The subapplicant develops the O&M Plan (see Addendum Part C.5.2.3)
- Step 3. The Recipient and FEMA review the Final O&M Plan, which is due before project closeout (see Addendum Part C.5.3)

C.5.1.1 Descriptive Statement of an Operations and Maintenance Plan

A statement acknowledging the requirement for an O&M plan for the community safe room must be included in the application. The statement should include:

- ◆ A description of the maintenance procedures
- ◆ A brief statement about the operation of the safe room when it is in use
- ◆ Basic information about how the safe room will be used, including how use is initiated, the warning system, and basic procedures for opening the doors to the public
- ◆ Key components of the safe room maintenance procedures
- ◆ The office that will be responsible for the operation and maintenance of the safe room
- ◆ Assurance that the O&M Plan will be developed and completed before project closeout

C.5.2 Development of an Operations and Maintenance Plan

The development of an O&M Plan should be coordinated with the appropriate entities using and operating the community safe room and should be signed by the appropriate officials in these organizations.

The O&M Plan may be based on preliminary engineering drawings and should include, at a minimum, the components listed below. FEMA P-361 provides additional information on O&M Plan components.

C.5.2.1 Operations Components

The operations components of an O&M Plan should include the following, at a minimum:

- ◆ Community organization(s) responsible for operating and maintaining the community safe room, such as the local emergency management office and contact information for the relevant office(s)
- ◆ Command and management roles and responsibilities for key individuals, such as the safe room manager and site coordinator, and their essential duties and/or the agency responsible for fulfilling these roles
- ◆ Major tasks that the safe room management team will perform during a *tornado/hurricane watch* issued by the National Weather Service
- ◆ Major tasks that the safe room management team will perform during a *tornado/hurricane warning* issued by the National Weather Service
- ◆ General operation tasks in the community safe room from the time the emergency is announced to the time occupants may safely leave

C.5.2.2 Maintenance Components

The maintenance components of an O&M Plan should include assurance from the organization responsible for operating and maintaining the community safe room of the following during the useful life of the community safe room:

- ◆ Non-mitigation uses will not prohibit the use of the community safe room to perform its hazard mitigation purpose of life-safety protection, i.e., the approved safe room occupancy will be available at all times
- ◆ Regular maintenance will be scheduled and performed by a designated party during the useful life of the community safe room
- ◆ Basic exterior and interior signage will be posted as necessary and appropriate for adequate safe room operations
- ◆ A redundant power source, such as batteries or generators, will be available to provide standby (emergency) power for lighting and ventilation for the community safe room in the event of primary power failure, as required
- ◆ The community safe room inventory will include essential equipment and supplies, such as communications equipment, emergency equipment, first-aid supplies, water, and sanitary supplies

C.5.2.3 Development of a Final Operations and Maintenance Plan

The development of a Final O&M Plan should be coordinated with the appropriate entities that are using and operating the community safe room and should be signed by appropriate officials in these organizations.

A Final O&M Plan is required before project closeout. The Final O&M Plan must include:

- ◆ The O&M components listed in Addendum Part C.5.2
- ◆ The signature of the subrecipient for the approved application
- ◆ The signature of authorized officials from the community organization(s) responsible for operating and maintaining the community safe room, if different from the subrecipient

C.5.3 Recipient Review of Final Operations and Maintenance Plan

FEMA requires that the Recipient affirm that the Final O&M Plan is consistent with FEMA P-361 criteria by:

- ◆ Reviewing the Final O&M Plan to ensure it addresses the O&M components and has the required signatures listed above
- ◆ Coordinating with the subrecipient to address any missing components
- ◆ Transmitting the Final O&M Plan to FEMA with a written statement affirming that it is consistent with FEMA P-361 guidance

C.5.4 FEMA Review of Final Operations and Maintenance Plan

The Recipient is informed in writing once FEMA has determined that the Final O&M Plan has considered the guidance in FEMA P-361. FEMA's comments on the Final O&M Plan must be addressed before FEMA makes a final determination of consistency. Recipients not completing a Final O&M Plan at closeout will be subject to recoupment of award funds as determined by FEMA.

D. Mitigation Reconstruction Projects

Part D of the Addendum supplements the information provided in Parts I through IX of the HMA Guidance. The project-specific guidance in this section does not provide all of the information necessary to apply for funding through an HMA program and must be read in conjunction with all other relevant sections of this guidance. For additional mitigation reconstruction resources, see Part IX, C of the HMA Guidance.

D.1 Overview

Mitigation reconstruction is the construction of an improved, elevated building on the same site where an existing building and/or foundation has been partially or completely demolished or destroyed. These projects include either total or partial demolition of the structure and result in the construction of code-compliant and hazard-resistant structures on elevated foundation systems. Mitigation reconstruction projects are not allowed in the regulatory floodway or Coastal High Hazard Area (Zone V). Mitigation reconstruction projects must be designed using the best available data, including Advisory Base Flood Elevations (ABFEs), if available. Activities that result in the construction of new living space at or above the BFE will only be considered when consistent with the mitigation reconstruction requirements.

D.2 Additional Project Eligibility Requirements

Mitigation reconstruction projects can be funded by FEMA through **HMGP**, **PDM**, and **FMA**. For **FMA** only, all properties included in a subapplication for mitigation reconstruction funding must be NFIP-insured at the time of the application submittal. The flood insurance must be maintained through completion of the mitigation activity and for the life of the structure. Mitigation reconstruction projects cannot be combined with other activity types in the same project subapplication to ensure that the subapplication scope, schedule, and budget adhere to programmatic requirements.

D.2.1 Feasibility and Effectiveness Requirement

The height to which a foundation can be constructed is a key factor in determining feasibility. Assistance in evaluating flood mitigation techniques can be found in FEMA 551, *Selecting Appropriate Mitigation Measures for Floodprone Structures* (2007). All proposed mitigation measures in FEMA 551 must be consistent with other HMA program criteria, such as eligible activities.

FEMA has developed guidance for the design of appropriate foundations based on the requirements of the International Codes and other applicable coastal construction standards. This guidance is included in FEMA P-550, *Recommended Residential Construction for Coastal Areas: Building on Strong and Safe Foundations* (2009), which also includes sample foundation design calculations and drawings and detailed descriptions of the considerations for determining

the feasibility of constructing to the required height. Although FEMA P-550 was developed in response to reconstruction needs after Hurricane Katrina, the design solutions can be used in both coastal and non-coastal flood zones. FEMA P-550 recommends that users choose the appropriate foundation by following the Foundation Selection Decision Tree and that the sample designs be used for a maximum height of 8 feet for a closed foundation and up to 15 feet for an open foundation. A licensed design professional should be consulted to determine feasibility for residential structures with required foundation heights that are greater than 15 feet.

D.2.2 Eligible Activities

Eligible mitigation reconstruction costs are limited to a \$150,000 Federal share per property. Some eligible activities, such as administrative allowances and permitting fees, need not be included in the \$150,000 maximum Federal share. The activities that are eligible as part of a Federal award in mitigation reconstruction are divided into three categories: consultation and project scoping, pre-construction activities, and construction activities. The activities in each category that are eligible to the extent reasonable and necessary to perform the project purpose are identified in **Table 5**.

Table 5: Eligible Mitigation Reconstruction Activities

Eligible Activity	Subject to Federal Share Funding Limit of \$150,000?
1. Project Scoping	
Property verification (e.g., size of pre-existing structure)	No
Preliminary elevation determination	No
Environmental Site Assessment Phase 1	No
Engineering Feasibility Study (e.g., Can an existing structure be elevated? Is mitigation reconstruction feasible?)	No
Benefit-Cost Analysis	No
Title search (e.g., ownership verification)	No
2. Pre-construction Activities	
Site survey (i.e., boundaries, elevation)	No
Soils/geotechnical testing, testing for asbestos and lead-based paint	No
Archeological Assessment Phase 1	No
Local, State, and Federal permitting (e.g., Environmental Planning and Historic Preservation and U.S. Army Corps of Engineers)	No
Architectural / engineering design / plans / specifications	No
Plan review	No
3. Construction Activities	
Permitted disposal of routine asbestos, lead-based paint, and household hazardous wastes incidental to demolition	No

Eligible Activity	Subject to Federal Share Funding Limit of \$150,000?
EHP mitigation	No
Demolition / removal	Yes
Erosion control / grading / drainage	Yes
Utility connections	Yes
Landscaping for site stabilization (e.g., seeding)	Yes
Walkways and driveways	Yes
Elevated foundation construction	Yes
Inspection of foundation system	No
Structural shell	
Framing	Yes
Exterior doors	Yes
Windows (includes protection)	Yes
Access / egress	Yes
Exterior cladding	Yes
Roofing	Yes
Interior partitioning	
Drywall	Yes
Trim	Yes
Painting	Yes
Interior doors	Yes
Insulation	Yes
Utility equipment	
Heating, ventilation, and air conditioning	Yes
Water / wastewater plumbing	Yes
Electrical panel and wiring	Yes
Hot water heater	Yes
Fixtures	
Sinks / toilets / showers	Yes
Lighting	Yes
Cabinets and countertops	Yes
Flooring	Yes
Building inspections	No
Certificate of Occupancy	No
Final Elevation Certificate	No
Owner displacement costs	No

Eligible Activity	Subject to Federal Share Funding Limit of \$150,000?
Tenant displacement costs	No
Prepare and record flood insurance requirement (after construction is finalized)	No

D.2.3 Eligible Demolition/Removal Activities

Mitigation reconstruction projects include either total or partial demolition of the site. All demolition debris shall be removed and taken to an approved landfill. The following must be considered during demolition:

- ◆ Asbestos and lead-based paint must be dealt with appropriately
- ◆ Existing associated structures, garages, and above-grade concrete slabs must be removed
- ◆ Abandoned septic tanks, if not removed, must be emptied and the floors and walls must be cracked or crumbled to prevent the tank from holding water and the tank must be filled with sand or other clean fill
- ◆ All foundation and basement walls not included in the mitigation reconstruction project footprint shall be removed to at least 1 foot below the finished grade of the site or as necessary to construct the new foundations
- ◆ All basements not included in the mitigation reconstruction project footprint shall be filled with compacted clean fill. Prior to filling, basement floors should be provided with a minimum 1-foot diameter hole in the floor to allow for drainage
- ◆ Only trees that restrict the mitigation reconstruction work on any structure may be removed
- ◆ Any abandoned utilities shall be terminated at least 2 feet below the finish grade of the site
- ◆ Any abandoned wells shall be capped and associated components may be removed
- ◆ All disturbed areas must be graded and leveled; the top 12 inches of soil should be capable of supporting vegetation in areas not included in the reconstructed footprint

D.2.4 Ineligible Costs

Some mitigation reconstruction activities and their associated costs are not eligible. Ineligible costs include, but are not limited to, the following:

- ◆ Landscaping for ornamentation (e.g., trees, shrubs)
- ◆ Decks and garages not included as part of the foundation system

-
- ◆ All construction activities not specifically noted in this guidance and not specifically approved by FEMA in advance
 - ◆ Site remediation of hazardous materials

D.3 Mitigation Reconstruction Project Application Package

Subapplicants must indicate in the mitigation activity section of the subapplication why they have chosen mitigation reconstruction instead of the other available activity types.

D.3.1 Scope of Work

The SOW for mitigation reconstruction projects is expected to include the following six general construction-related activities:

- ◆ Pre-construction
- ◆ Site preparation
- ◆ Foundation construction
- ◆ Structural shell construction
- ◆ Interior finishes
- ◆ Construction completion

The activities are discussed further in the sections that follow.

In developing the mitigation reconstruction SOW, the subapplicant should consider:

- ◆ Health issues involved with working with asbestos, mold, and lead-based paint
- ◆ Whether the structure can be safely elevated with a low likelihood of collapse or disintegration of the structure during the process and the need for a registered engineer or architect to ensure that structure elevation is possible
- ◆ The square footage of a resulting structure shall be no more than 10 percent greater than that of the original structure. Breezeways, decks, garages, and other appurtenances are not considered part of the original square footage unless they were situated on the original foundation system. Original square footage must be documented in the subapplication through copies of tax records or other verifiable means.

To facilitate project development and to ensure that all potential costs have been estimated, a conceptual design of proposed activities must be prepared during subapplication development.

D.3.2 Mitigation Reconstruction Project Scoping

Project scoping involves identifying and evaluating all aspects of a mitigation reconstruction project from beginning to end. This includes developing detailed project specifications and a work plan and ensuring the project mitigates future damage to the reconstructed property. During project scoping, consideration should be given to all factors that have the potential to significantly affect project implementation, including work schedule, project location, project cost, and project effectiveness.

Although the construction of each structure will be designed by a licensed professional as part of the implementation of the project, basic design parameters for each structure must be established during project scoping. Some of the design parameters that must be established during project scoping include foundation type, required foundation height, flood hazard conditions, appropriate wind design, project cost, and site conditions. To aid potential subapplicants through the project scoping process, FEMA has developed detailed information regarding project cost estimates (see Part IV, H.4.3 of the HMA Guidance).

All reasonable and necessary costs, including anticipated project costs, direct costs associated with project scoping and project review, changes suggested by a licensed design professional, and costs for the pre-construction and construction activities listed in **Table 5** are eligible project costs. All costs shall be based on the construction of fundamental, code-compliant structures as related to the codes and standards included or referred to in this guidance. Eligible activities must adhere to all Federal, State, and local requirements.

D.3.3 Design Parameters

The primary design parameters that must be considered during project scoping include:

- ◆ **Foundation Type:** A key consideration for scoping mitigation reconstruction projects is the type of foundation that is required. The type of foundation for a specific mitigation reconstruction project is based on the location of the property within a defined flood zone (based on the BFE or ABFE) and the required height of the proposed structure above adjacent grade. During project scoping, the applicable flood zone or flood hazard area for each structure must be identified in addition to the associated foundation design requirements; this will help subapplicants determine the appropriate foundation type. The type of foundation that is selected affects the type and cost of construction and must be identified prior to subapplication submittal. Assistance in evaluating flood mitigation techniques can be found in FEMA 551. Detailed guidance on foundation designs and design parameters can be found in FEMA P-550.
- ◆ **Foundation Height:** The required height to which a foundation must be constructed is a key factor in determining feasibility and cost. Assistance in evaluating flood mitigation techniques can be found in FEMA 551. FEMA has developed guidance for the design of appropriate foundations based on the requirements of the International Codes and other

applicable coastal construction standards. This guidance is included in FEMA P-550, which also includes sample foundation design calculations and drawings. In this document, FEMA recommends sample designs and associated height limitations for various foundation types. For residential structures with required foundation heights greater than these limits, a licensed design professional should be consulted to determine feasibility.

- ◆ **Wind Design Considerations:** All mitigation reconstruction activities must be completed in accordance with the 2009 International Codes, or latest edition, which include the required wind design speed for the project location. An additional consideration is the requirement for the installation of shutters or other protective measures in windborne debris regions, which are defined by areas with a design wind speed of 120 miles per hour or greater. During project scoping, projects located in these areas should be identified, and the associated cost of shutters or protective measures must be included in project costs.
- ◆ **Seismic Considerations:** All mitigation reconstruction activities must be completed in accordance with the 2009 International Codes, or latest edition, which include the required seismic design for the project location. During project scoping, projects located within these areas should be identified and the associated cost of seismic design measures or protection must be included in project costs.
- ◆ **Project Cost:** The requirements and preferences for mitigation reconstruction developed through the parameters described above will significantly affect the cost of proposed activities. Proposed costs must be developed for consideration of mitigation options and completion of the BCA. Detailed guidance on costing procedures is available from the appropriate FEMA Regional Office. In addition to these specific parameters, other considerations may need to be addressed during project scoping, including:
 - Zoning requirements and other local ordinances
 - Soil conditions
 - Site access requirements
 - EHP considerations

Additional resources for mitigation reconstruction projects can be found in Part IX, C of the HMA Guidance.

D.3.4 Codes and Standards

Mitigation reconstruction projects shall be designed and constructed to the minimum standard as established by the requirements of the 2009 International Codes, or latest edition. Structures, including all parts and appurtenances, shall be designed and constructed to safely support all loads, including dead loads, live loads, roof loads, floor loads, wind loads, flood loads, snow loads, seismic loads, and combinations of loads expected to be imposed on the structure as defined in the code and related documents referenced in the codes. The construction of

structures shall result in a system that provides a complete load path capable of transferring all loads from the point of origin through load-resisting elements to the soils supporting the foundations. FEMA has published a document, *Guidance for Applying ASCE 24 Engineering Standards to HMA Flood Retrofitting and Reconstruction Projects* (November 2013), to assist Applicants with the practicalities of how to apply the American Society of Civil Engineers/Structural Engineering Institute [ASCE/SEI] 24-14, *Flood Resistant Design and Construction*, or latest edition, standard to their projects.

One- and two-family dwellings shall be designed and constructed, at a minimum, to meet the requirements of the 2009 *International Residential Code for One- and Two-Family Dwellings* published by ICC, and ASCE 24-14, or latest edition. FEMA encourages communities to use the 2009 or 2012 International Codes with referenced standards. The standards include Appendix G, Flood Resistant Construction, for all occupancies including residential, commercial, and other occupancies. The 2009 International Codes shall be the minimum applicable requirement until and unless a subsequent edition of that code is adopted by the governing jurisdiction.

Multi-family dwellings shall be designed and constructed, at a minimum, to meet the requirements of the 2009 International Codes. These codes shall be the minimum applicable requirement until and unless a subsequent edition of that code is adopted by the governing jurisdiction. For purposes of this program, the absence of an adopted building code in a participating jurisdiction or a jurisdiction's use of a building code that does not meet the requirements of the International Codes shall not relieve the subapplicant from meeting the minimum design and construction requirements.

Installation of manufactured homes must follow regulations and guidance provided by the U.S. Department of Housing and Urban Development and the State Administering Agency. In addition, for installations in the SFHA, the flood provisions in NFPA 225, *Model Manufactured Home Installation Standard* (2009 Edition), shall be the minimum requirement. This document details the standards for preparation of sites and foundations on which manufactured homes are installed and the procedures for onsite installation of homes.

FEMA provides additional guidance, including recommended prescriptive pre-engineered foundation design in FEMA P-85, *Protecting Manufactured Homes from Floods and Other Hazards* (2009). FEMA P-85 has been updated to reflect the requirements of the most current codes and standards and to provide a best-practices approach in reducing damage from natural hazards.

Project construction documents, including design drawings and specifications, shall be signed and sealed by a design professional licensed in the State in which the project is to be constructed and certified for compliance with the codes, standards, and minimum construction requirements specified in this guidance. Construction documents must be produced prior to the start of construction but are not required for submittal as part of an application. The construction documents shall include a statement that the design meets or exceeds the applicable 2009

International Codes or more recent editions. Construction documents based on standard details developed by a manufacturer or material supplier, including framing members, framing connections and roofing, and siding or appurtenance fasteners shall be signed and sealed by a design professional licensed in the State in which the project is constructed.

D.3.5 Cost Estimate

A detailed project cost estimate shall be prepared by, or under the supervision of, the licensed design professional responsible for project design. Details pertaining to the project cost estimate, such as submittal format, cost ranges, preparation requirements, and source documentation, are included in Part IV, H.4 of the HMA Guidance.

Each project requires a project cost estimate as part of the technical and cost-effectiveness evaluation process. The project cost estimate shall include all reasonably anticipated project costs, including direct costs associated with project scoping and construction and closeout activities. The project cost estimate should also be based on standard-grade construction.

Federal share funding will be estimated and obligated on a per-square-foot basis; reimbursement will be in a manner consistent with standard Recipient procedures. Based on the foundation type and required elevation height, a square-foot cost for each potential combination of structure characteristics will be developed. All structures of the same type within a subapplication will have costs allocated at the same square-foot rate. Subapplicants will identify the type and number of structures of each possible combination to be included in the proposed project.

For cost-estimating purposes, the breakdown of structure types is based on the following structure and foundation characteristics:

- ◆ Structure type
 - One-story
 - Two-story
- ◆ Structure area
 - 800 to 3,200 square feet (one-story)
 - 1,200 to 3,600 square feet (two-story)
- ◆ Foundation type
 - Open foundation
 - Closed foundation
- ◆ Foundation height
 - 0 to 5 feet
 - 5 to 10 feet

-
- 10 to 15 feet
 - Over 15 feet

To facilitate the application development process, FEMA will provide square-foot cost estimates for combinations of the above structure characteristics with respect to the appropriate geographic region of the Recipient. The square-foot costs will be developed with the understanding that the costs of eligible construction activities can vary based on the quality and type of construction materials and finishing work. Mitigation reconstruction costs will be based on materials, service equipment, and standard-grade construction practices, with basic exterior ornamentation and interior refinements consistent with an average quality of construction as defined in a commercially available cost guide. Any costs incurred above and beyond the square-foot costs as allocated by FEMA will not be the responsibility of FEMA and will not be included in the determination of the Federal share or non-Federal cost share. Only actual costs incurred for eligible activities will be reimbursed by the Recipient.

Subapplicants may contact their Applicant to obtain the FEMA-provided square-foot cost estimates and may use these values without submitting additional documentation. However, an Applicant may provide a specific cost estimate for each combination of structure characteristics on a square-foot basis. FEMA will review cost estimates submitted to ensure they are reasonable and valid for the type of construction and the geographic area. Cost information will be maintained and updated by FEMA to keep the reference cost range information as current as possible. Additional dollars-per-square-foot information provided by subapplicants may be used by FEMA to manage the changing dynamic of construction cost variances.

For Applicants not using the square-foot costs provided by FEMA, documentation of the source of all cost estimates must be provided. Costs must be provided in dollars-per-square-foot format. The costs shall be based on the construction of fundamental, code-compliant structures with essential appurtenances as described. This will allow a comparative review of projects of varying types within a Region and will ensure that reasonable construction costs have been submitted.

D.4 Implementation

Project implementation includes everything needed to actually complete the project. Implementation includes the pre-construction activities of plan review and inspection, site preparation, and all construction activities, including building the foundation and structural shell, completing the interior finishes, as well as obtaining all builder certifications.

D.4.1 Pre-construction Activities

Pre-construction activities for each structure include project design, analysis, and permitting required to meet the requirements for funding.

Project design will be performed by, or under the direct supervision of, a licensed design professional (i.e., a Registered Architect or Professional Engineer in the State of the project). The design must include all calculations, analysis, and research necessary to determine the forces expected to act on the project structure. The design must account for all attachments and appurtenances. The selected structural framing members must be sufficient to provide a load path for all load-bearing members so as to transfer design loads to the foundations. The design must also account for the connections required to transfer loads from one member to another in accordance with the design concept.

Assistance in evaluating flood mitigation techniques can be found in FEMA 551. Design and construction techniques for building foundations can be found in FEMA P-550, which describes in detail the considerations for determining the feasibility of constructing to the required height. Although FEMA P-550 was developed in response to the reconstruction needs after Hurricane Katrina, the design solutions provided can be used in both coastal and non-coastal flood zones.

The design process must also include any testing required to establish site-specific design parameters, such as soil borings conducted as part of a geotechnical exploration, to determine foundation requirements.

Prior to construction, each subapplicant must obtain all applicable permits and pay all required permitting fees. Applicable permits are expected to include, but not be limited to:

- ◆ Zoning or land use approvals
- ◆ Environmental permits or required certifications
- ◆ Historic preservation approvals
- ◆ Building permits

D.4.1.1 Plan Review and Inspections

Construction drawings and specifications shall be reviewed by the local jurisdiction prior to the start of construction. As defined by Section 103 of the IBC, the required review of the construction drawings and specifications shall be conducted by the local jurisdiction's building official. If the local jurisdiction has not established a building department, the reviews must be conducted by an independent licensed design professional retained by the jurisdiction to conduct such reviews. The reviewing design professional shall be licensed in the State. Payment of the reviewing design professional is an allowable cost. Construction inspections must be conducted to verify that the project was constructed in full accordance with the approved design and the applicable International Codes. Construction inspections shall be conducted by the office of the

building official or under the direct supervision of a design professional licensed in the State where the project is located, as applicable.

D.4.1.2 Site Preparation

Site preparation activities include demolition of existing structures, removal and disposal of project debris, site environmental restoration, utility relocation, and site grading required as part of the project. The subrecipient shall conduct an ASTM International's E2247-08 Phase I ESA in accordance with the U.S. Environmental Protection Agency's "all appropriate inquiries" rule (40 CFR Part 312). A clean-site certification from the appropriate Federal or State agency is required for properties that were subject to remedial, removal, response, or corrective actions for hazardous materials. Environmental site remediation costs are not eligible.

D.4.2 Construction Activities

The following information covers the requirements for foundation construction, structural shell construction, interior finishes, construction completion, builder certification, and certificate of occupancy.

D.4.2.1 Foundation Construction

Foundation construction activities include installation, monitoring, and testing (if required) of foundations supporting the structure. Assistance in evaluating flood mitigation techniques can be found in FEMA 551. Design and construction techniques for building foundations can be found in FEMA P-550. FEMA P-550 describes in detail the considerations for determining the feasibility of constructing to the required height. Although FEMA P-550 was developed in response to the reconstruction needs after Hurricane Katrina, the design solutions provided can be used in both coastal and non-coastal flood zones.

Installation of an open foundation system must be monitored to ensure that foundation elements are installed to the depth, and achieve the load capacity, specified in the construction documents. Foundation construction monitoring can be conducted by a building official or his/her designee, the licensed design professional responsible for the project design, or an independent agency.

D.4.2.2 Structural Shell Construction

Structural shell construction activities include all framing, load-carrying elements, attachments, and building envelope components above the foundation. Because rough-in installation of electrical, communications, plumbing, and mechanical systems may require drilling through or making notches in load-carrying elements, such rough-in work is also part of the structural shell construction activities. Structural shell construction activities must include an inspection of the completed shell prior to interior work covering the framing.

A critical element of structural shell construction is an engineering inspection conducted after framing, service rough-in, and building envelope construction are completed, but before the installation of interior walls or coverings. The engineering inspection must verify that the size, location, and materials used in the construction are in conformance with the construction drawings and the applicable International Code.

The results of an engineering inspection by, or under the direct supervision of, the responsible licensed design professional or an independent agency must be presented in a written report signed and sealed by the licensed design professional in charge of the monitoring. The engineering inspections must be conducted by a building official or his/her designee. The licensed design professional responsible for the project design may inspect the structure for quality control reasons.

D.4.2.3 Interior Finishes

Interior finish activities include installation of interior walls, flooring, wiring/lighting fixtures, insulation, plumbing and mechanical fixtures, kitchen/bath counters, cabinets, sinks, toilets, tub/shower, and heating, ventilation, and air conditioning (HVAC). Inspections of these interior finishes must be conducted in accordance with the requirements of the applicable ICC building code.

D.4.2.4 Construction Completion

Construction completion activities consist of conducting final inspections, preparing a Final Elevation Certificate (including digital photographs), issuing a Certificate of Occupancy for the structure, and assembling the documentation necessary to verify the project's conformance with program requirements.

D.4.2.5 Builder Certification

At a minimum, all work must be performed by contractors licensed or registered in the State where they are working and who maintain appropriate insurance coverage. In addition, contractors must adhere to more stringent local requirements, where applicable.

D.4.2.6 Certificate of Occupancy

Projects funded under this program shall not be occupied, or the occupancy category changed, without prior issuance of a Certificate of Occupancy by the governing local jurisdiction. In jurisdictions that have adopted the International Codes, the Certificate of Occupancy shall be issued only after the building official inspects the structure and finds no violations of the provisions of applicable codes or other laws enforced by the building department, as well as the provisions and requirements of this guidance.

In the absence of an adopted building code in a participating jurisdiction, or the absence of a designated building official, the required inspections shall be conducted by, or under the direct supervision of, a design professional licensed in the State where the project is located. In communities that have not adopted the International Codes, the State Building Commission shall determine the education, training, and experience requirements for inspectors responsible for conducting inspections.

Inspections required prior to the issuance of a Certificate of Occupancy include, but are not limited to, the following:

- ◆ **Demolition Inspection:** Inspections shall be made after all utility connections have been disconnected and secured in such manner that no unsafe or unsanitary conditions exist on the site during or after demolition operations.
- ◆ **Foundation Inspection:** Inspections shall be made during foundation construction to verify that the foundations have been installed to the depth and capacity specified in the construction documents.
- ◆ **Floodplain Inspection:** Inspections shall be made for properties located in the SFHA, upon placement of the lowest floor, and prior to subsequent vertical construction. Documentation of the elevation of the lowest floor shall be provided by a land surveyor, engineer, or architect authorized by law to certify elevation information in the State where the project is located. Handheld Global Positioning System–derived ground elevations are not acceptable to meet this requirement. In addition, setbacks and distances from water courses, the regulatory floodway, Zone V, and the mapped limit of the 1.5-foot breaking wave zone should be checked prior to construction.
- ◆ **Framing Inspection:** Inspections shall be made after the roof is in place, including all framing and bracing, and after the plumbing, mechanical, and electrical rough-ins are complete. The framing inspections shall be made to verify that framing members are of the type, size, and grade indicated on the construction documents and the connections and fasteners have been installed in accordance with the applicable codes and construction documents.
- ◆ **Sheathing Inspection:** Inspections shall be conducted after all roof and wall sheathing and fasteners are complete and, at a minimum, shall include inspection of the roof sheathing, wall sheathing, sheathing fasteners, and roof/wall dry-in.
- ◆ **Final Inspection:** A final inspection should be completed to document compliance with all requirements of the International Codes, local floodplain ordinances, and any other State or local regulations.

A comprehensive list of all required inspections, permits, and certifications is included in the International Codes. Additional information on flood-related inspections can be found in the ICC’s *Reducing Flood Losses through the International Codes*. A sample inspection checklist is

available at <https://www.fema.gov/media-library/assets/documents/96634>. See Appendix D of the referenced document for the sample checklist.

D.5 Mitigation Reconstruction Closeout

In addition to the typical HMA grant closeout processes, closeout of mitigation reconstruction projects generally includes the following:

- ◆ A Certificate of Occupancy and Final Elevation Certificate for each structure in the project to certify that the structure is code-compliant. A copy of a recorded deed for each property, including mitigation reconstruction project deed requirements, must also be submitted to the Recipient.
- ◆ A certification from a building official or licensed design professional verifying that the structure was designed and constructed to the minimum standard of the 2009 International Codes, or latest edition. These documents must be submitted before closeout can be completed. If a subrecipient fails to provide these documents, FEMA has the authority to recoup award funds provided for the project.
- ◆ Verification that final square footage is within 10 percent of original structure square footage at the time of closeout
- ◆ Verification of insurance for each structure
- ◆ Update of the property site information in the eGrants and National Emergency Management Information System (NEMIS) database for each structure

E. Structure Elevation

Part E of the Addendum supplements the information provided in Parts I through IX of the HMA Guidance. The project-specific guidance in this section does not provide all of the information necessary to apply for funding through an HMA program and must be read in conjunction with all other relevant sections of this guidance. See Part IX, C of the HMA Guidance for additional resources on structure elevation.

E.1 Overview

Structure elevation activities generally involve physically raising an existing structure to an elevation at the BFE or higher if required by FEMA or local ordinance. Structure elevation may be achieved through a variety of methods, including elevating on continuous foundation walls; elevating on open foundations, such as piles, piers, posts, or columns; and elevating on fill. Foundations must be designed to properly address all loads and be appropriately connected to the floor structure above, and utilities must also be properly elevated. Buildings proposed for elevation must be structurally sound and capable of being elevated safely.

E.2 Additional Project Eligibility Requirements

At a minimum, FEMA requires Applicants and subapplicants to design all structure elevation projects in accordance with the NFIP standards in 44 CFR Part 60. For additional information about the NFIP and structure elevation projects, see Part III, E.7 of the HMA Guidance.

FEMA requires Applicants and subapplicants to design all structure elevation projects in accordance with ASCE 24-14, or latest edition, or its equivalent as minimum design criteria.

E.2.1 Eligible Design Standards

Buildings proposed for structure elevation must be structurally sound and capable of being elevated safely. Important design considerations for structure elevations consistent with 44 CFR Part 60 are as follows:

- ◆ The lowest floor of the structure must be elevated to the BFE or to the elevation specified in the local ordinance if higher. Upon completion of the elevation work, an Elevation Certificate (FEMA Form 81-31) verifying “as built” elevations must be completed to ensure that the structure complies with the local floodplain ordinance and NFIP floodplain management and HMA requirements.
- ◆ Elevation projects must be designed and adequately anchored to prevent flotation, collapse, and lateral movement of the structure due to hydrodynamic and hydrostatic loads, including the effects of buoyancy. It is recommended that an engineer certify that the design elevation will withstand the depth and velocity of 100-year flood events (hydrostatic and hydrodynamic loads), any potential increase in wind load, or any other relevant load factors.

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- ◆ For elevation projects in Zone V with open foundations (piles, piers, posts, or columns), the space below the lowest floor must be free of obstructions or constructed with non-supporting breakaway walls, open wood lattice-work, or screening intended to collapse under wind and water loads without causing collapse, displacement, or other structural damage to the elevated portion of the building or supporting foundation system. Guidance on free-of-obstruction and breakaway wall requirements is available in FEMA Technical Bulletin (TB) 5, *Free-of-Obstruction Requirements* (2008), and FEMA TB-9, *Design and Construction Guidance for Breakaway Walls Below Elevated Coastal Buildings* (2008).
 - ◆ For elevation projects on continuous foundation walls with fully enclosed areas below the lowest floor, the area must be used solely for parking of vehicles, building access, or storage as identified in 44 CFR Section 60.3(c)(5).
 - ◆ Elevation projects on continuous foundation walls must be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs to meet these criteria must be certified by a registered Professional Engineer or meet or exceed the criteria in 44 CFR Section 60.3(c)(5). Guidance on meeting this requirement can be found in FEMA TB-1, *Openings in Foundation Walls and Walls of Enclosures* (2008).

E.3 Elevation Project Application Package

In addition to the items identified in Part IV, H of the HMA Guidance, the following data are required for each structure:

- ◆ Physical address and property owner's name
- ◆ Estimated cost to elevate each structure
- ◆ Name and location of flooding source (e.g., creek, river, watershed, or location of stormwater ponding) and location on the applicable Flood Insurance Rate Map
- ◆ The proposed elevation of the lowest floor for each structure to be mitigated, the BFE, and the current elevation of the lowest finished floor
- ◆ Type of existing foundation (slab-on-grade, crawl space, basement, or open foundation) and the proposed elevation method and standard to be used
- ◆ A statement that the project will be designed in compliance with NFIP standards in 44 CFR Part 60

E.4 Implementation

Elevation project implementation entails pre-construction activities, construction, inspection of the completed foundation and engineering certification, and obtaining a Certificate of Occupancy. Before construction of the foundation begins, it is very important to conduct an inspection of the condition of the structure, survey the site, and complete a soil inspection to make sure the proposed elevation project is feasible on the site.

E.4.1 Elevation Methods

Standard structure elevation methods are identified in FEMA P-312, *Homeowner's Guide to Retrofitting – Third Edition* (2014), and FEMA P-347, *Above the Flood: Elevating Your Floodprone House* (2000). In addition, FEMA has developed guidance for the design of appropriate foundations based on the requirements of the International Codes and other applicable standards. This guidance is provided in FEMA P-550, and is available for use with HMA structure elevation projects. Furthermore, FEMA requires Applicants and subapplicants to design all structure elevation projects in accordance with ASCE 24-14, or latest edition.

Available elevation methods, which are thoroughly described in FEMA P-312, Chapter 5, and FEMA P-347 include:

- ◆ Elevating the existing structure on piles, posts, or piers
- ◆ Filling in the basement and replacing it with an elevated floor
- ◆ Elevating by vertically extending the foundation walls of the home

Activities that result in the construction of new living space at or above the BFE are considered only when they are consistent with mitigation reconstruction requirements described in Addendum Part E.2.1. Activities include structure elevations that abandon a lower enclosed area and add a second story above the BFE to an existing structure.

The method that is selected for elevating a house depends on factors such as:

- ◆ Foundation type
- ◆ Condition of the house
- ◆ Applicable State and local building codes
- ◆ Soil type and bearing capacity
- ◆ Weight of the house and lateral forces on the house from water and other natural hazards, such as winds and earthquakes
- ◆ Height of proposed elevation above the grade level
- ◆ Number of additions to the original structure

The most common foundation types are:

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- ◆ Crawl space on foundation walls
 - ◆ Slab-on-grade
 - ◆ Open type foundation – piles and posts or piers

Additional details to consider when constructing an elevation project can be found in the following publications:

- ◆ FEMA P-55, *Coastal Construction Manual*, Fourth Edition (2011)
- ◆ FEMA P-259, *Engineering Principles and Practices of Retrofitting Floodprone Structures* (2012)
- ◆ FEMA P-499, *Home Builders Guide to Coastal Construction Technical Fact Sheet Series* (2010)
- ◆ ASCE 24-14, *Flood Resistant Design and Construction* (2014), or latest edition

This list is not a comprehensive list of publications on retrofitting and elevations. More documents are available at <http://www.fema.gov/building-science-publications>.

E.4.2 Eligible Structure Elevation Costs

Allowable costs are costs that are necessary and reasonable for the proper and efficient performance and administration of the Federal award. The following costs associated with structure elevation projects are generally allowable:

- ◆ Engineering services for design, structural feasibility analysis, and cost estimate preparation
- ◆ Surveying, soil sampling, completion of Elevation Certificate, title search, deed recordation fees, legal and/or permitting fees, project administration, and construction management
- ◆ Disconnection of all utilities
- ◆ Building of a foundation so that the lowest floor is at the BFE or higher if required by local ordinance or FEMA
- ◆ Physical elevation of the structure and subsequent lowering and attachment of the structure onto a new foundation
- ◆ Construction of a floor system that meets minimum building code requirements when the existing floor system cannot be elevated or is not appropriate for the new foundation
- ◆ Reconnecting utilities and extending lines and pipes as necessary and elevating all utilities and service equipment
- ◆ Debris disposal and erosion control
- ◆ Costs for repair of lawns, landscaping, sidewalks, and driveways if damaged by elevation activities

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- ◆ Construction of a utility room above the BFE only if there is no existing space within the house for this purpose or there is no alternative cost-effective way to elevate the utilities
 - ◆ Elevation of existing decks, porches, or stairs
 - ◆ Construction of new stairs, landings, and railings to access the elevated living space per minimum code or local ordinance
 - ◆ Construction of ADA-compliant access facilities or ramps when an owner or a member of the owner's family has a permanent disability and a physician's written certification. An ADA-compliant access to ingress/egress is allowable for funding unless specified otherwise in applicable State or local codes (for more information on ADA, see <http://www.ada.gov>). If ramps are not technically feasible, a mechanical chair lift may be installed.
 - ◆ Documented reasonable living expenses (except food and personal transportation) that are incurred while the owner is displaced by the elevation construction
 - ◆ Abatement of asbestos and lead-based paint
 - ◆ Filling basements with compacted clean fill

E.4.3 Ineligible Structure Elevation Costs

Certain structure elevation activities and their associated costs are not eligible. Ineligible costs for structure elevation include, but are not limited to, the following:

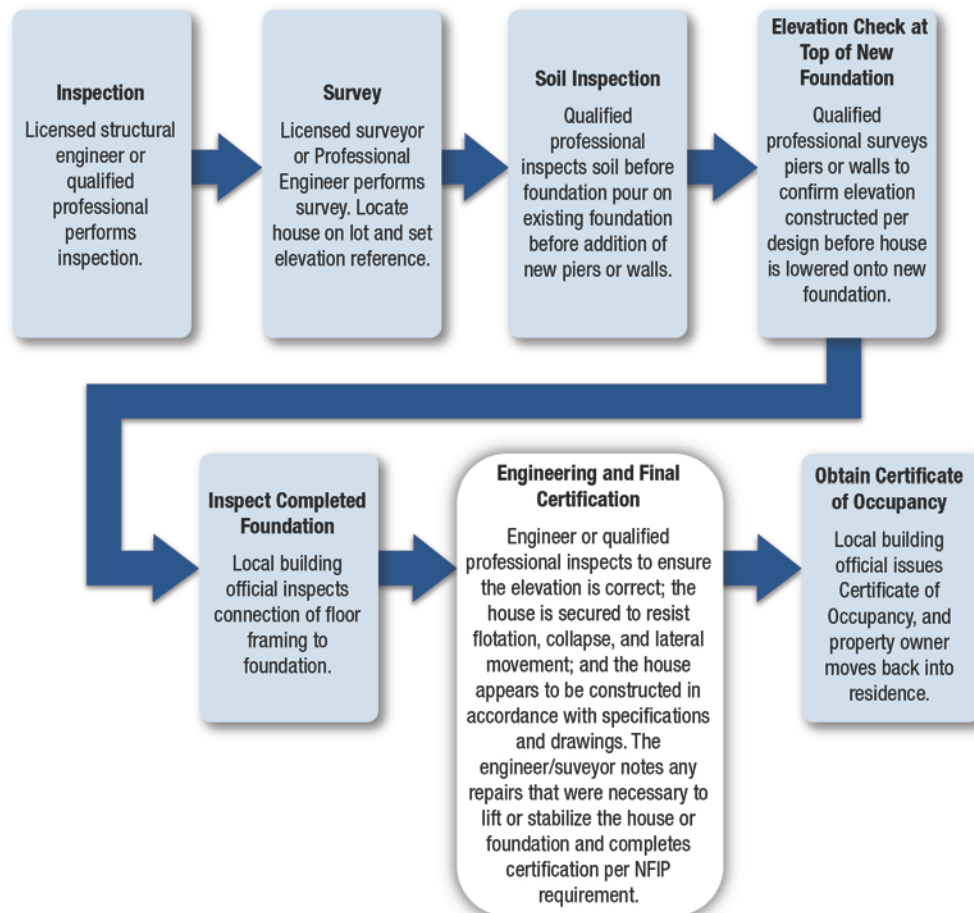
- ◆ Elevating structures that were not in compliance with current NFIP standards at the time of construction
- ◆ Costs related to building additions or auxiliary structures
- ◆ Construction of new decks or porches
- ◆ Any improvements for purely aesthetic reasons, unless required by the EHP compliance review
- ◆ Costs to replace or repair utility service components that are undersized, inadequately designed, or unsafe, unless required by code (except utility rooms noted as eligible costs)
- ◆ Exterior finish on the exposed foundation of the elevated building, unless required by EHP compliance review and or local code
- ◆ Additional landscaping for ornamentation beyond what existed on the site prior to construction of the project (e.g., trees, shrubs)

E.4.4 Survey and Inspection Considerations

Surveying and inspections are encouraged throughout the construction process. Certifications of the surveys ensure that the work has been performed in compliance with the structure-specific plans and specifications, applicable codes and standards, and minimum NFIP requirements.

Figure 1 identifies important inspection and survey considerations.

Figure 1: Inspection and Survey Considerations



E.5 Elevation Closeout

In addition to the typical HMA closeout procedures, closeout of structural elevation projects generally includes:

- ◆ Update of the property site information in the respective HMA system (i.e., eGrants or NEMIS) database for each structure
- ◆ A Certificate of Occupancy for each structure in the project to certify that the structure is code-compliant

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- ◆ A Final Elevation Certificate (FEMA Form 81-31) for each structure to ensure the structure has been elevated to the proper elevation
 - ◆ A copy of the recorded deed amendment for each property as required by Part III, E.7.1 of the HMA Guidance
 - ◆ Certification by an engineer, floodplain manager, or senior local official that the completed structure elevation is in compliance with local ordinances and NFIP regulations, including all applicable NFIP Technical Bulletins
 - ◆ A front, rear, and side photograph of the final elevated structure
 - ◆ Verification of flood insurance for each structure

F. Supplemental Guidance

Part F of the Addendum supplements the information provided in Parts I through IX of the HMA Guidance. This section addresses flood risk reduction projects, DOP, and use of ASCE 24-14 for certain flood mitigation projects.

F.1 Flood Risk Reduction Projects

This section discusses localized and non-localized flood risk reduction projects.

F.1.1 Localized Flood Risk Reduction Projects

Localized flood risk reduction projects are eligible for funding under **HMGP**, **PDM**, and **FMA**. Eligible localized flood risk reduction efforts include measures that reduce flood losses for single structures or facilities, groups of structures, or whole neighborhoods within an isolated or confined drainage area that is not hydraulically linked to another area.

Examples of localized flood risk reduction efforts include, but are not limited to:

- ◆ Stormwater management projects, including the construction, installation, or improvement of culverts, drain pipes, pumping stations, floodgates, and detention or retention basins
- ◆ Flood protection measures for water and sanitary sewer systems or other utility systems
- ◆ Slope stabilization or grading to direct flood waters away from homes, schools, businesses, utilities, or governmental facilities
- ◆ Vegetation management for shoreline stabilization (coastal, riverine, riparian, and other littoral zones)
- ◆ Flood protection and stabilization measures for roads and bridges

F.1.2 Non-localized Flood Risk Reduction Projects

Non-localized flood risk reduction projects are eligible for funding under **HMGP** and **PDM** only. Therefore, any long-term non-localized flood risk reduction projects that are cost-effective, feasible, and designed to substantially reduce risk of future damage and loss of life from flooding are eligible for consideration under **HMGP** and **PDM**.

Non-localized flood risk reduction projects are ineligible activities under **FMA** because such projects are prohibited by **FMA** authorizing legislation and implementing regulations (Section 1366 of the National Flood Insurance Act of 1968, as amended, 42 U.S.C. 4104c(e)(5)(D) and 44 CFR Section 79.6(c)(2)(vi), respectively).

Examples of non-localized flood risk reduction projects include, but are not limited to, the construction, demolition, or rehabilitation of:

- ◆ Dams
- ◆ Dikes
- ◆ Levees
- ◆ Floodwalls
- ◆ Seawalls
- ◆ Groins
- ◆ Jetties
- ◆ Breakwaters
- ◆ Stabilized sand dunes
- ◆ Large-scale channelization of a waterway

For complex flood risk reduction projects, subapplicants are strongly encouraged to use a phased project approach (HMA Guidance, Part VIII, A.13).

F.2 Duplication of Programs Considerations

Federal law and FEMA HMA regulations prohibit DOP unless, in a post-disaster situation, there is an extraordinary threat to lives, public health or safety, or improved property (44 CFR Section 206.434(f)). For certain non-localized flood risk reduction projects, FEMA's authority to fund the project may overlap with USACE's or the NRCS's authority to fund a similar project. To avoid a DOP concerning a non-localized flood risk reduction project, Recipients and subrecipients should consult their local USACE or NRCS office prior to developing an HMA application for the project. In general, DOP should be evaluated at the project and site level. For more information on DOP, visit <http://www.fema.gov/media-library/assets/documents/96140>. Select the document titled *Eligibility of Flood Risk Reduction Measures under the Hazard Mitigation Assistance (HMA) Programs* then see the section titled *Clarification Concerning the Prohibition against DOP*.

The following represent the most common DOP situations with respect to non-localized flood risk reduction projects:

- ◆ If the USACE or NRCS is authorized to complete a specific structural flood risk reduction project, FEMA may not fund a structural flood risk reduction project of a similar nature in the area identified in the USACE or NRCS project plan. A DOP exists regardless of whether funds have been appropriated for the project.

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- ◆ If the USACE or the NRCS is authorized to perform a flood risk reduction study with the goal of exploring options for structural flood protection systems in a specified area, FEMA generally may not provide HMA funds for projects of a similar nature in the same area. When the other Federal agency has completed the study and selected a project alternative—as indicated by a public record of decision—the study no longer presents a DOP. At that point, generally only the selected project elements indicated in the public record of decision represent a DOP.
 - ◆ Generally, no DOP is presented by FEMA performing property acquisition for open space, elevation, or localized flood risk reduction measures within a USACE or NRCS flood risk reduction project or study area. However, FEMA regulations require subrecipients to coordinate with USACE to ensure that no levee projects are planned in areas proposed for HMA property acquisition for open space activities (44 CFR Section 80.13(b)).
 - ◆ FEMA may not use HMA funds to mitigate a portion of structure/facility owned or operated by another Federal agency. However, the structure/facility is only regulated by another Federal agency for a purpose other than flood risk reduction; mitigation of the structure is still eligible for consideration under HMA. For example, dams regulated by the U.S. Environmental Protection Agency for water quality may be eligible for **HMGP** and **PDM** flood protection improvements.
 - ◆ FEMA may not fund a project in an area if a statute states that another Federal agency has exclusive jurisdiction to construct flood risk reduction structures in that specific area of the United States.

F.3 Use of ASCE 24-14 as Minimum Design Requirements for Certain Flood Risk Reduction Activities

FEMA will use ASCE 24-14, or latest edition, or its equivalent as the minimum design criteria for all HMA-funded structure elevation, dry floodproofing, and mitigation reconstruction projects in flood hazard areas. ASCE 24-14, or latest edition, establishes minimum requirements for flood-resistant design and construction of structures that are subject to building code requirements and that are located, in whole or in part, in flood hazard areas. The use of the ASCE standard or its equivalent will allow Applicants to better demonstrate the technical feasibility and effectiveness of HMA projects in flood hazard areas and facilitate consistency in implementing HMA-funded projects in flood hazard areas. Subsequent editions of ASCE 24 will also be accepted.

F.3.1 Process for Use during the Grant Life Cycle

In the application development, review, and approval phases (pre-award stage), HMA Applicants and subapplicants will provide an affirmative certification statement (in narrative form) demonstrating their planned use of ASCE 24-14, or latest edition, in implementing the HMA project post-award. Because ASCE 24-14, or latest edition, is designed to guide new

construction as opposed to alterations to the building to achieve a higher level of flood protection, FEMA will consider a commitment by HMA Applicants and subapplicants to utilize ASCE 24-14, or latest edition, to the maximum extent practicable on alterations or alteration portions of projects, as being consistent with and “deemed-to-comply” with ASCE 24-14, or latest edition. *Deemed to comply* provisions must not apply to any new construction on structures or systems during alterations where ASCE 24-14, or latest edition, provisions can be implemented.

In the subsequent grant lifecycle phases (post-award and closeout stages), HMA Recipients shall submit verification and design documentation to demonstrate the project’s conformance with accepted engineering practices, established codes, standards, ordinances, modeling techniques, or best practices, including the utilization of ASCE 24-14, or latest edition, minimum design and construction requirements, or its equivalent.

If applicable, FEMA may require additional documentation to determine conformance with any of the eligibility criteria described above.

F.3.2 Eligible Costs

The costs necessary to design and construct HMA flood risk reduction projects in accordance with ASCE 24-14, or latest edition, are eligible costs. These costs may include:

- ◆ Professional services necessary to the design and implementation of the project
- ◆ Data analyses/investigations directly related to the mitigation project (including geotechnical investigations, engineering reports, and hydraulic analyses)
- ◆ Structure evaluation and inspection, including documentation such as an Elevation Certificate
- ◆ Cost to obtain a copy of the ASCE 24-14, or latest edition, or a publication for an equivalent flood-resistant design and construction standard
- ◆ Project planning and design activities, including construction verification
- ◆ Site preparation and building foundation materials and construction
- ◆ Structural systems capable of resisting the flood loads (including anchorage and connections, structural fill, slabs-on-grade and footings, grade beams, pile caps, piers, posts, columns, share walls, or piles)
- ◆ Other flood-resistant components that meet FEMA-approved performance criteria based on NFIP requirements
- ◆ Measures to avoid or treat adverse effects to historic properties
- ◆ Costs related to complying with local utility requirements

F.3.3 Ineligible Costs

Ineligible costs associated with an HMA project, include, but are not limited to:

- ◆ Project components not directly related to the hazard mitigation purpose of the project as described in this guidance, such as:
 - General geotechnical or hydraulic studies not specifically related to the project site of the proposed mitigation activity
- ◆ Project components not consistent with FEMA-approved performance criteria
- ◆ The cost of any functionality or outfitting not directly required for meeting FEMA-approved performance criteria, such as interior or exterior decorative elements and fixtures and floor treatments

F.3.4 Flood Risk Reduction Closeout

Upon completion of an HMA flood risk reduction project, the authority having jurisdiction over the project must submit to the Recipient a final verification assurance that the HMA flood risk reduction project was constructed as designed and in accordance with the approved SOW. This documentation is included as project closeout documentation and must confirm that the HMA flood risk reduction project provides the intended level of protection. If the HMA flood risk reduction project is located in an SFHA, the Recipient must provide to FEMA documentation of flood insurance for the elevated structure and a copy of the recorded deed amendment. All other HMA closeout requirements must also be addressed.

G. Acronyms and Abbreviations

ABFE	Advisory Base Flood Elevations
ADA	Americans with Disabilities Act
ASCE	American Society of Civil Engineers
BFE	Base Flood Elevation
CBRA	Coastal Barrier Resources Act
CBRS	Coastal Barrier Resources System
CFR	Code of Federal Regulations
DOB	Duplication of Benefits
DOI	U.S. Department of the Interior
DOP	Duplication of Programs
DOT	Department of Transportation
EHP	Environmental Planning and Historic Preservation
EOC	Emergency Operations Center
ESA	Environmental Site Assessment
FEMA	Federal Emergency Management Agency
FMA	Flood Mitigation Assistance
HDD	Horizontal Directional Drilling
HMA	Hazard Mitigation Assistance
HMGP	Hazard Mitigation Grant Program
HVAC	Heating, Ventilation, and Air Conditioning
IBC	International Building Code
ICC	International Code Council
IWUIC	International Wildland Urban Interface Code National
NEMIS	Emergency Management Information System National
NEPA	Environmental Policy Act
NFIP	National Flood Insurance Program
NFPA	National Fire Protection Association
NRCS	Natural Resources Conservation Service
O&M	Operations and Maintenance
PA	Public Assistance

PDM	Pre-Disaster Mitigation
SFHA	Special Flood Hazard Area
SOW	Scope of Work
TB	Technical Bulletin
U.S.C.	United States Code
URA	Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture