



**Strategic Partnerships and
Floodplain Buyouts:**
An Opportunity for Wetland Restoration



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Flooding, storms, and other hazardous conditions are likely to occur more frequently as an effect of climate change, resulting in disaster damages costs for at-risk communities. Hazard mitigation attempts to break the cycle of disaster damage, reconstruction, and repeated damage in anticipation of such events. Historically, flood hazard mitigation strategies have primarily focused on building flood control works, such as dams, seawalls, and levees, and designing and applying building construction practices for residential, commercial, and industrial structures. While this approach surely reduced the severity of many impacts, the failure of such engineered solutions in the Great Mississippi River Flood of 1993 prompted recognition of the important natural hazard mitigation functions of wetlands and natural habitats. More recently, increased emphasis has been placed on non-structural hazard mitigation solutions, including the restoration of natural habitats, as cost-effective alternatives for flood hazard mitigation that also help achieve conservation goals like maintaining biodiversity.

Since 1993, FEMA's Hazard Mitigation Grant Program has funded the acquisition of over 38,000 properties prone to disaster damage. Under FEMA's acquisition programs, once properties are purchased, existing structures must be removed and the land must be dedicated to open space, recreational, or wetland management uses. As buyouts target these flood-prone areas, they usually occur in floodplains and other areas that may be suitable for wetland restoration.

Although some buyout properties are converted to parks or restored to natural habitats, many of these properties remain underutilized, empty lots. **Thus, communities often miss the opportunity to leverage the potential benefits** of these properties for multiple values. Managing acquired parcels to restore wetland habitats can provide numerous services to surrounding communities, including:

- Natural buffer zones for future flood events (e.g., erosion prevention),
- Habitat connectivity for the preservation of biodiversity,
- Bioremediation for water quality,
- Aesthetic value, and
- Recreational and educational opportunities.

Local governments typically oversee these floodplain buyouts, but take on the ownership of these sites with little or no funding for restoration or management and minimal guidance on long-term or community benefits. Wetland and wildlife management agencies, watershed groups, conservation organizations, and land trusts can play important roles in helping to make the most of buyout properties, including planning management activities, fundraising, restoring sites, providing long-term management and maintenance, and helping to plan for future acquisitions.

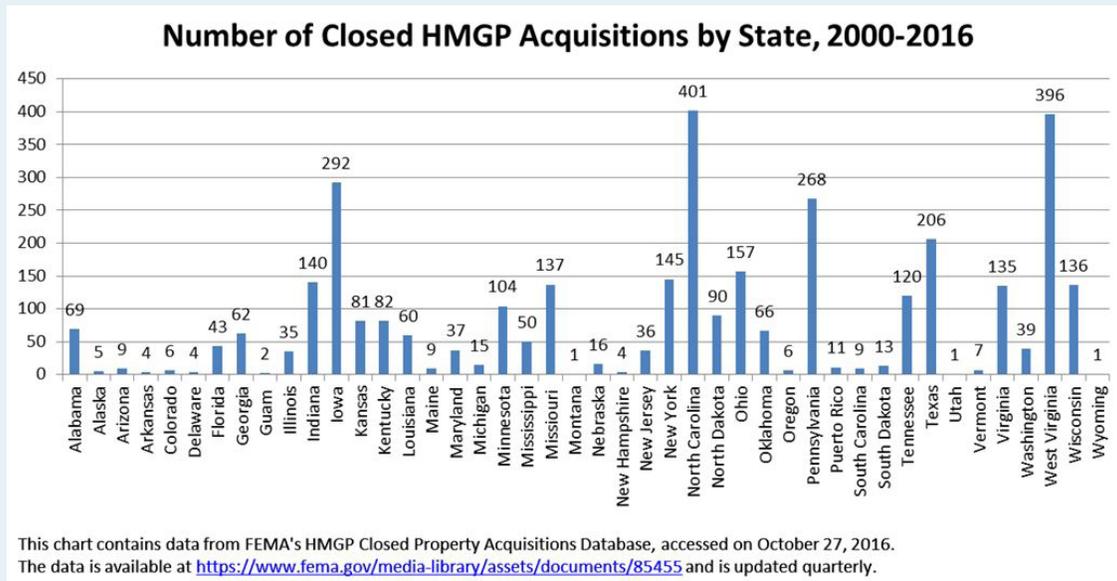
How does the Hazard Mitigation Grant Program (HMGP) work for floodplain buyouts?

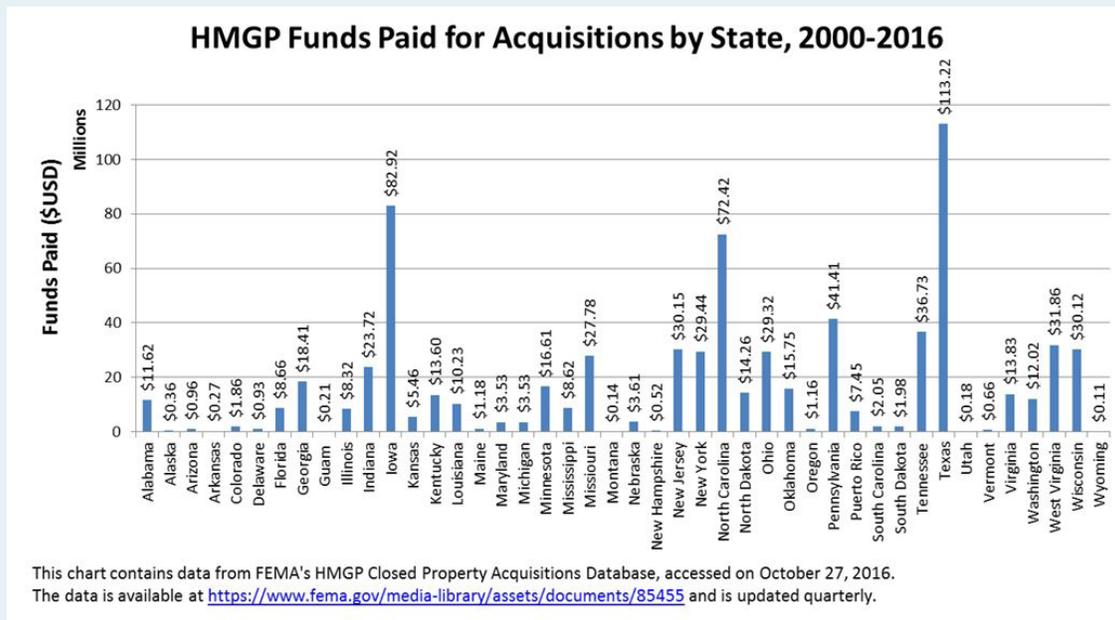
The HMGP is the largest among various federal programs that finance property acquisitions (“floodplain buyouts”). Other programs include the Pre-Disaster Mitigation (PDM) Program and Flood Mitigation Assistance (FMA) Program, which are administered by FEMA, and the Community Development Block Grant (CDBG) program, which is administered by the U.S. Department for Housing and Urban Development. The HMGP funds projects that protect either public or private property in accordance with priorities set out in state, tribal, or local hazard mitigation plans (See Figure 1 for the key steps in the HMGP approval process). Participation in the program is strictly voluntary. While HMGP grants support a variety of cost-effective (See Box B for details on Benefit-Cost Analysis for HMGP projects) mitigation measures such as flood-proofing, elevation, reconstruction and retrofits, the Program has continued to prioritize property acquisitions (for more information, see “Consideration of Environmental Benefits in the Evaluation of Acquisition Projects under the Hazard Mitigation Assistance (HMA) Programs” and FEMA’s Mitigation Policy – FP-108-024-01, available at www.fema.gov).

According to FEMA data, more than 3500 buyouts were completed between January 2000- October 2016 for a total of \$743 million and a median payout of \$84,300 (See Box A; FEMA’S HMGP Closed Property Acquisitions Database is updated quarterly and available at www.fema.gov).

Box A

Box A: Closed HMGP Acquisitions and HMGP Funds Paid for Acquisitions by State





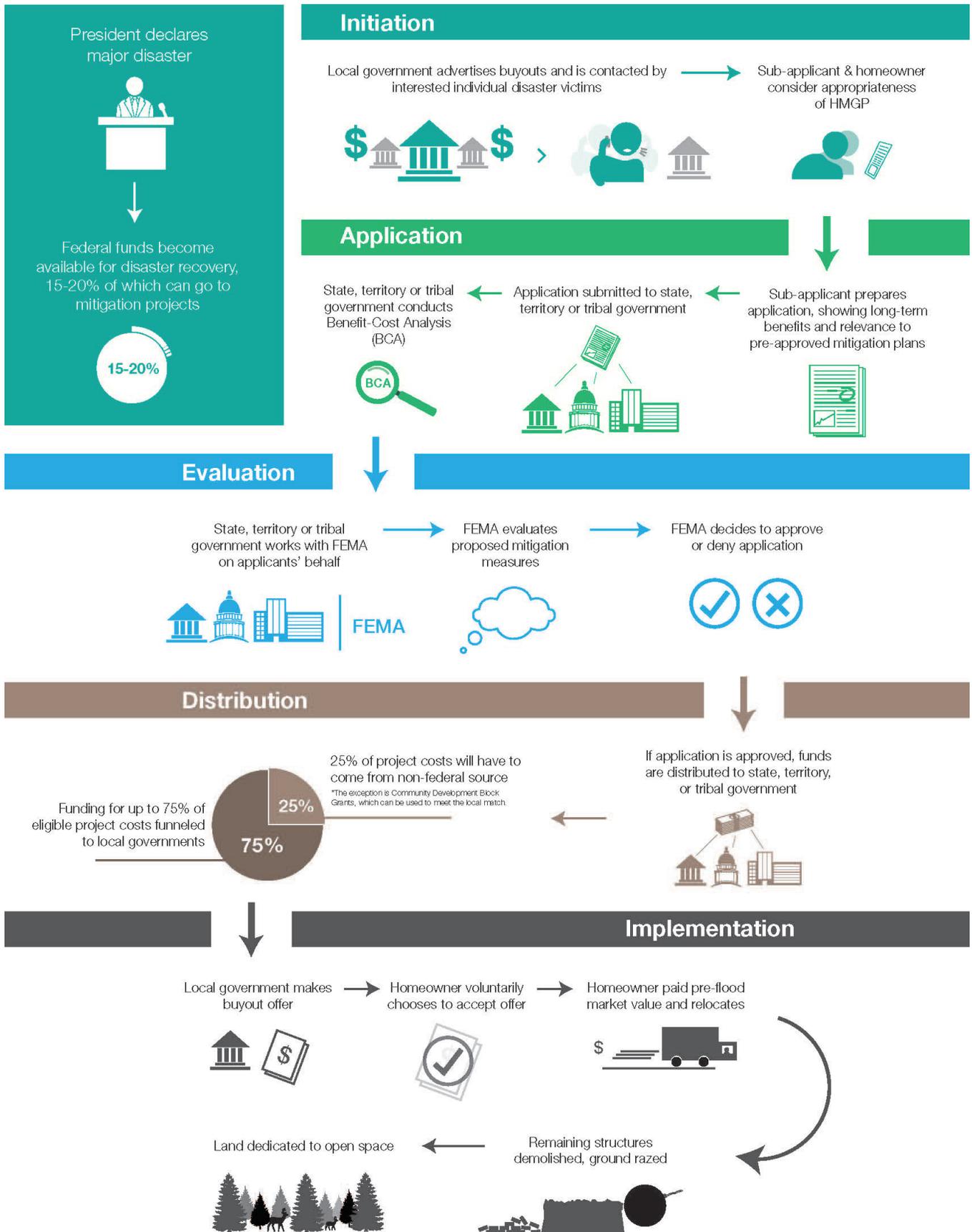
The HMGP grants provide funding to *acquire* the property and remove structures, but not for subsequent *restoration* or ongoing *management* of the sites. Buyout offers made by local governments are generally equivalent to the property's pre-flood market value. Should homeowners accept the voluntary offer, they will relocate and all remaining buildings and structures are demolished and the land is graded. Acquired property must fulfill various criteria:

- Deed restrictions that will effectively mitigate future risk of structural damage must be attached to the property title.
- Land is maintained in perpetuity for uses compatible with open space, recreational, or wetlands management purposes – activities that promote maintaining natural values.
- Acquired property is to be held by the local government or another public entity. Conservation easements, title transfers, and leases may enable other approved entities to take responsibility for subsequent projects such as community gardens or habitat restoration.

Floodplain Buyouts and the Potential for Restoration and Conservation

In many cases to date, newly acquired land is left as empty, unused lots because local officials and managers do not have specific post-acquisition use plans in place or lack funding and/or capacity for restoration or other projects. However, there are opportunities to restore habitat or provide community amenities on buyout sites. The feasibility of different projects depends on the location, adjacent land uses, funding available, and

Figure 1: Key Steps in the HMGP Acquisition Process



Box B

Box B: **Benefit-Cost Analysis (BCA)**

The Stafford Act requires every project funded by HMGP to be cost effective, as demonstrated by a Benefit-Cost Analysis (BCA). BCA involves estimating and comparing the expected costs and future benefits of a project; dividing a project's total net benefits by its total cost results in the benefit-cost ratio (BCR). A project is considered cost-effective when its BCR is greater or equal to 1.0.

Mitigation project "benefits" typically include avoided damage to structures, avoided deaths or injuries, and other quantifiable losses. Historically, ecosystem-wide environmental benefits were not included in the scope of BCA. However, in 2013, FEMA changed its BCA methodology for acquisition projects to facilitate and promote ecosystem-based management. Under the new methodology, environmental benefits can be added to a project's total net benefits if (and only if) the project in question already has a BCR of 0.75 or greater using traditional benefits. In other words, environmental benefits currently may be considered to "tip the scale" in favor of approval.

The environmental benefits of open space are estimated according to rates based on land area: green space is valued at \$2.57/ft²/year; and riparian open space is valued at \$12.29/ft²/year.

Sources: 44 C.F.R. 206.434(c)(5); FEMA, *Benefit-Cost Analysis*, <http://www.fema.gov/benefit-cost-analysis> (March 16, 2015); FEMA, Mitigation Policy FP-108-024-01, Consideration of Environmental Benefits in the Evaluation of Acquisition Projects under the Hazard Mitigation Assistance (HMA) Programs (June 18, 2013), available at: http://www.fema.gov/media-library-data/20130726-1920-25045-4319/environmental_benefits_policy_june_18_2013_mitigation_policy_fp_108_024_01.pdf.

capacity of the local government and/or partner organizations to restore and maintain the property. Another critical factor determining post-buyout opportunities is the layout, or "completeness," of the buyout (See Box C). The individual properties that are acquired using a voluntary hazard mitigation grant might be:

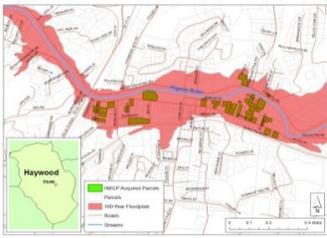
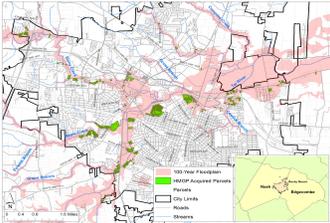
- Dispersed across the landscape (patchwork);
- Moderately connected with a few remaining homes and infrastructure (holdouts);
or
- Contiguous and removed from other buildings and infrastructure (comprehensive).

Habitat restoration on any of these lands, even plots that may be distributed sporadically, can improve the quality and functionality of the broader ecosystem and help preserve native biodiversity. Community resilience to future floods and other environmental factors also improves with the restoration of natural features.

Box C

Box C: Depending on planning and individual participation, acquired parcels might be distributed in a variety of ways

Within a neighborhood or buyout area, properties acquired under voluntary hazard mitigation programs can be dispersed unevenly across the landscape (*Patchwork*), or many adjacent properties may have been acquired but a few remaining property owners may have decided to stay and infrastructure may remain (*Holdout*), or, in some cases, an entire neighborhood may have been acquired (*Comprehensive*). There is no exact distinction among these categories – the distribution depends on the number of residents willing to relocate, the amount of funding available to purchase properties, and the willingness of the local government to participate in the program.

Option 1: Patchwork	Option 2: Holdouts	Option 3: Comprehensive
 <p>Map from the Clyde, NC Case Study. HMGP acquired parcels are labeled in green.</p>	 <p>Detail from the Rocky Mount, NC Case Study. The pink shading shows the location of holdouts among HMGP acquired parcels labeled in green.</p>	 <p>Detail from the East Grand Forks, MN Case Study. The red line delineates one of several contiguous acquisitions.</p>
<p>Option for use: Clyde leases some of the parcels to local neighbors for low-risk uses including community gardens.</p>	<p>Option for use: Rocky Mount has created trails and other amenities, including a dog park and barbeque pavillion on the parts of the buyout that don't interfere with the remaining residents.</p>	<p>Option for use: East Grand Forks has created parks and used portions of the buyout for habitat restoration and connectivity.</p>

Case studies on Clyde, Rocky Mount, and East Grand Forks and ten other municipalities can be found on the Environmental Law Institute's website at <https://www.eli.org/sustainable-use-land/floodplain-buyout-case-studies>.

Use options will involve varying degrees of intensity of management, coordination with neighbors, public planning, and development of management partnerships. For example, community gardens, pollinator habitats, pocket parks, or green infrastructure projects may be appropriate on small – or 'patchwork' – sites. For larger sites (holdout and comprehensive buyout scenarios), there may be more potential to restore larger-scale

Box D

Box D: Using Restoration Sites as Opportunities for Outdoor Education

Restoration of native habitats may present various opportunities with impacts beyond the immediate environmental surroundings.

In St. Charles County, Missouri, where over 1,000 properties were acquired with federal funding between 1993 and 1995, a seven-acre parcel of buyout property became an “outdoor classroom” for biology students at Lindenwood University. According to Professor Daryl Anderson, “We’ve had a chance to do all kinds of outdoor biology. The students take soil samples from the marsh. They observe in a way that teaches biological techniques. Some of these kids are becoming experts in migratory birds and frogs and plants. They’re not just learning about science. They’re learning science, which is a methodical way of thinking and doing things.”

Source: FEMA & State of Missouri Emergency Management Agency, Success Stories from the Missouri Buyout Program at 7 (Aug. 2002).

habitat areas. Several of these opportunities may provide multiple benefits, as illustrated in Box D.

Habitat restoration or management projects can provide new habitat for native species, form new connections among dispersed habitat areas in the region, and provide ecosystem services and resilience benefits. Examples of valuable habitat types that a community might restore include: floodplain/riparian habitat, wetlands habitat, native prairie/grassland habitat, or upland forest habitat. Potential habitat and ecosystem service values will vary significantly depending on the intensity of restoration activities — as will restoration costs, the capacity needed to accomplish the intervention, and ongoing maintenance requirements.

The potential role of wetland agencies & organizations

While restoration projects might not be appropriate or feasible in every buyout area, some areas may provide untapped opportunities to restore floodplain or wetland functions and improve community resilience. Wetland agencies or organizations may already have vested interests, capacity, and ability to procure funding for projects that are compatible with a particular buyout and can guide and support local entities in making the most of floodplain buyouts.

Wetland agencies and organizations can play a role in:

- **Providing information and expertise for restoration projects:** Many wetland and wildlife management agencies and organizations already provide technical assistance for habitat restoration projects in other contexts (e.g., Washington

Box E

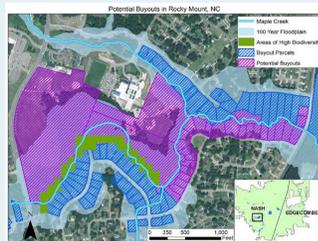
State's Department of Ecology has partnered with the Nature Conservancy to lead the "Floodplains By Design" partnership). Capacity and staff time could be leveraged to assist local governments in determining appropriate uses for acquired properties and for designing restoration projects that are likely to be successful.

- **Identifying the best locations for future buyouts:** Many states and local governments have developed tools to prioritize lands for acquisition or protection for various unrelated conservation or resilience purposes. Most of these are not now integrated with voluntary buyouts, but provide available data that can be accessed for that purpose. For example, the New York Department of

Box E: Mapping the Site in Relation to Surrounding Land Uses

It is important to know where sites are in relation to other potential sites and to other habitat areas. For example, there is a correlation between biodiversity conservation and connections among habitat areas, and mapping can help to identify opportunities to connect habitat areas. Visualizing where the parcels are in relation to existing protected areas and conservation lands or areas identified as priorities for conservation or restoration can provide insight into the type of restoration or management activities that would be most successful. It may also help in identifying the best partners for a project: if many acquired properties are near or adjacent to state-owned land, the state may be able to help with management or funding.

Rocky Mount, NC used GIS to map out homes built in the floodplain since 2000 (outlined in pale blue) and to highlight areas of high biodiversity (in bright green).



Environmental Conservation's Open Space Conservation Plan details evaluation and selection criteria that are used to determine spending priorities for the state's open space program. Local comprehensive plans often also include natural resource protection goals that may identify priorities for habitat conservation and restoration. State and local hazard mitigation plans often identify specific project areas that will improve infrastructure resilience. Mapping an acquisition site in relation to surrounding land uses can also reveal opportunities (see Box E). These policies and plans can form the basis for a set of acquisition priorities that could be applied by communities to plan for acquisitions.

- **Finding and/or providing funds for restoration:** One of the primary obstacles to restoring habitat or natural floodplain functions to acquired properties on a larger scale is lack of funding. Federal

floodplain acquisition programs (e.g., the Hazard Mitigation Grant Program) provide funding to *acquire* the property and remove structures, but not for subsequent *restoration* or ongoing *management* of the sites. Funding for any restoration or development on acquired properties falls on the sub-recipient, often the local government. Therefore, if a community would like to do something on the land like restore habitat or develop community amenities, it must find other sources of funding. Local, state, and federal agencies may be able to provide

funding or partner with local government to pursue funding for restoration projects.

- **Engaging with other community stakeholders:** Community participation is a vital component of any community restoration project, whether it involves site-scale volunteer maintenance of a community garden by neighbors or a community-scale participatory planning process to determine the best use of a site. Engaging community members in the decision-making process should be a key priority for local governments (or other project proponents) planning a project on acquired properties. Wetland management agencies, watershed groups, conservation organizations, local land trusts, and other community or neighborhood groups often have well-established relationships with community members and other stakeholders and may be able to leverage these relationships to ensure the success of floodplain restoration activities on buyout properties.
- **Planning, designing, and implementing projects:** In many cases, local governments do not have the in-house expertise to plan, design, and implement restoration projects, especially larger-scale, more complex restorations. Many wetland and wildlife management agencies and organizations are already actively engaged in restoration projects, and working in these flood-prone areas may help these groups to achieve the agency's strategic goals. Goals may particularly align where buyout properties are adjacent to existing protected areas, where they can be connected with existing protection areas, or where they align with other priorities for restoration or conservation.
- **Taking on the maintenance, management, or monitoring responsibilities for a site:** Currently, management of acquired properties is often the responsibility of a local government agency. In small communities, it may be an elected official or city staff member in charge of all the properties. In other communities, Parks and Recreation or public works departments or planning/zoning or emergency management agencies may be responsible for managing floodplain buyout properties. In some cases these agencies are equipped to manage restored habitats. In other cases, departments holding properties will have neither the capacity nor the funding to monitor and maintain acquired properties. Partnerships can be the key to ensuring long-term success. Box F below details several options for transferring acquired land to a wetland or conservation agency or organization, which solidifies the partner's role and authority in the implementation of a project.

Box F

Box F: Communities or local governments can transfer acquired land to a wetland agency or organization

In some cases, it may be possible and advantageous for a community to lease or transfer titles of buyout properties to another public entity or a non-profit organization with a conservation mission, provided that there be prior approval of the FEMA Regional Administrator (Section A.4.5; 44 CFR Section 80.19(b)). Conservation easements may also be used to transfer interest in the property to a land trust or wetland agency or organization, effectively transferring responsibility to a group that likely already has management protocols for restoration or conservation projects. Both title transfers and easements must maintain the buyout's open space deed restrictions. To be sure, any such projects require thorough consideration and can be sizeable commitments, so a serious evaluation is required to ensure the success of any partnership.

Conservation easements	Title transfers	Property leases
<ul style="list-style-type: none"> • May be used by land trusts or other qualified* conservation groups that serve as stewards or monitors of a property • Allows specialized agency or organization to coordinate necessary efforts 	<ul style="list-style-type: none"> • Under HMGP rules and with FEMA Regional Administrator approval, property interest may be transferred to public entities or conservation non-profits • May help community leverage other sources of funding for a project of interest • Especially useful if adjacent land already belongs to recipient entity 	<ul style="list-style-type: none"> • To a public or private entity or individual • Community can retain ownership while other entity uses it, but potential new user may feel more secure in right to use property and willing to invest resources • Use must still be consistent with open space deed restrictions • Owner does not need to receive market value for lease

*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 sub-applicant, 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.

See the Action Guide for more information about possible mechanisms for transferring property interest to different entities.

Conclusion

Properties acquired under voluntary hazard mitigation programs can be small and dispersed across the landscape, but undertaking habitat restoration projects can improve the quality and functionality of local ecosystems and help preserve native biodiversity – in addition to providing community resilience benefits. Partnering with local governments, wetland agencies, conservation groups, watershed groups, community organizations, and land trusts can provide information, technical assistance, and funding to help a community restore buyout sites, target future acquisitions, and make the most of floodplain acquisitions.

Further information

The Action Guide produced by the Environmental Law Institute and the University of North Carolina's Institute for the Environment can serve as a resource with additional information about working towards both conservation and community resilience goals with hazard mitigation and land acquisitions. You can find the Action Guide, a series of case studies about floodplain buyouts, and more information about the Hazard Mitigation Grant Program at www.eli.org/land-biodiversity/floodplain-buyouts.

FEMA's Hazard Mitigation Grant Program website provides general information about the Hazard Mitigation Grant Program application, funding process, and project management. You can find these resources at www.fema.gov/hazard-mitigation-grant-program.