

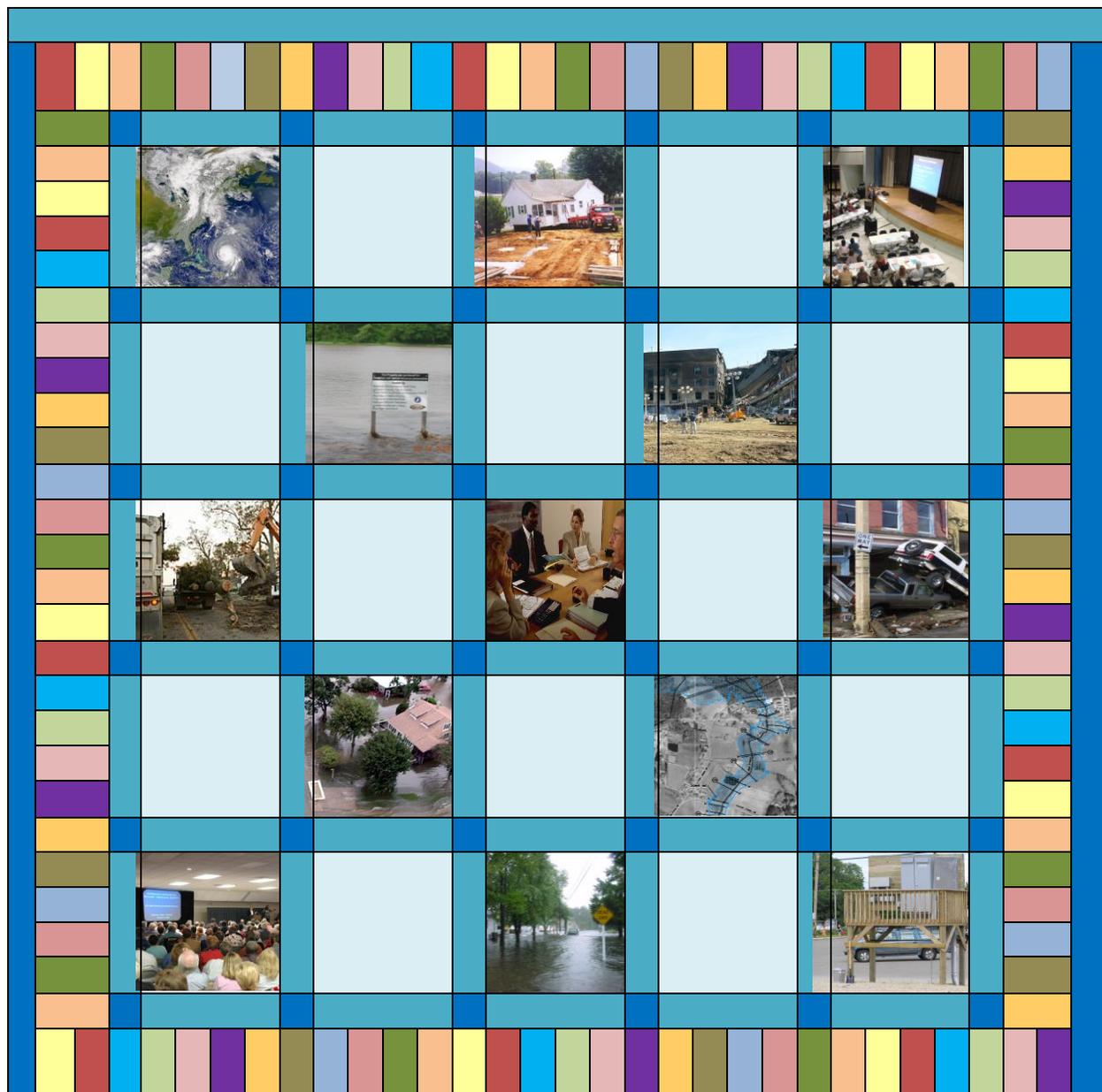
# NHMA

Natural Hazard Mitigation Association

## Planning and Building Livable, Safe & Sustainable Communities

*The Patchwork Quilt Approach*

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*This White Paper is an update of previous documents, updated by Ed Thomas, with the assistance of Jennifer K. Dunn, CFM, the USA CE Silver Jackets Program Manager, and Alessandra Jerolleman, CFM, MPA, the Executive Director of the Natural Hazard Mitigation Association (NHMA) and a Senior Emergency Management and Hazard Mitigation Planner with JEO Consulting Group Inc. This White Paper is especially designed for the United States Army Corps of Engineers Flood Risk Management Program. This document is based in part on a White Paper, entitled "Preventing Human Caused Disasters", developed by Edward A. Thomas and Sarah K. Bowen, CFM with financial assistance from the Michael Baker Company, published by the Association of State Floodplain Managers (ASFPM) in 2009.*

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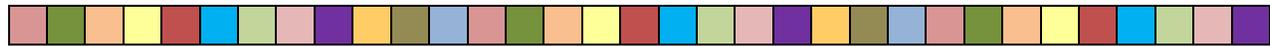
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*This White Paper contains the opinions of the authors, and is not necessarily endorsed by any firm or agency. This White Paper is neither planning nor legal advice.*

*This Edition of Patchwork Quilt is especially dedicated to the city of Joplin, Missouri, in support of the ongoing efforts to incorporate hazard mitigation in the tornado recovery.*

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## I. Introduction



As we consider changes in how we, as a nation, can best reduce the mounting toll of floods and other hazards, we suggest that we always keep foremost in our minds that the best disaster response and recovery comes from proper planning, land use, and building codes that prevent the disaster from ever happening in the first place.

The late, great Dr. Gilbert White famously observed “Floods are acts of Nature; but flood losses are largely acts of man.” Dr. White’s observation is very much supported by the United Nation’s 2009 Global Assessment Report on Disaster Risk Reduction (GAR). That Report indicates that world-wide losses from natural disasters are increasing, as more and more people occupy disaster prone places. The New York Times article concerning this 200 page Report notes that “(e)ducation in local communities is needed to overcome a tendency to accept high disaster tolls as a matter of fate, instead of, for example, lax building codes or warning systems.” Research by Dr. Roger Pielke, Jr as presented at the 2008 Hazards workshop confirms that the United States can expect huge increases in disasters due to current land use practices, irrespective of any additional toll which will be caused by climate change, land subsidence and sea level rise.

We believe that the United States, should take the lead in following the “No Adverse Impact” (NAI) solution to increased flood damage advocated by the Association of State Floodplain Managers (ASFPM); and expand that principle to reduce all forms of human-induced disaster damage caused by ignoring natural hazards. We must make every effort to stop disaster damage before it occurs. We need to reduce or eliminate unnecessary damage caused by human occupancy of hazardous areas. Then, we should look at ways to design and engineer disaster relief and recovery as a fair, efficient, and sustainable process based upon the foundation of recognition of natural disasters and mitigation.

Once a disaster takes place, we need to look for solutions to ensure that humans adapt to natural processes. In one Native American culture, the term *Nania* means “all together”. This is a powerful concept when looking for creative common sense strategies to help individuals and communities cope with the consequences of a flood disaster. For that reason, *Nania* was the name of the 18th annual Association of State Floodplain Managers (ASFPM) conference, held in Oklahoma seventeen years ago. Today in our post-Katrina world this concept has more relevance and need than ever before.

Individuals, residents, business owners, community leaders, and taxpayers are increasingly frustrated with the hardship and costs associated with repeatedly rebuilding structures in areas that suffer natural disasters, especially floods, year after year. Modern advances in the sciences of hydrology and hydraulics, coupled with the National Flood Insurance Program’s (NFIP’s) efforts to create maps of all areas of the United States which are especially prone to flooding, make it possible to have at least a basic understanding of the velocities, depth and future location of floods. Risk MAP (Mapping Assessment, and Planning) is a major effort FEMA is now undertaking to provide increased risk modeling and more comprehensive mapping, particularly in high priority areas, such as coastal and urban environments. This effort will significantly increase our understanding of which areas are most seriously susceptible to flooding and, therefore, help us determine how to live in harmony with the processes of nature, including floods.

We have the building technology to construct safe rooms in structures located within tornado prone areas, and to build structures that can withstand the ground roll associated with earthquakes. The science of modeling and predicting various hazards continues to improve, while the toolbox of available mitigation actions continues to grow, as well. However, disaster losses also continue to grow as building takes place (without the necessary precautions), within areas prone to hazards, such as the wildland urban interface.

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People living in hazardous areas know only too well the high costs and emotional trauma associated with rebuilding, only to face another devastating flood or other disaster.

The costs of rebuilding from repeated disasters, especially floods, that are this nation's most frequent and costly natural disaster, go well beyond the repair of individual structures. There are costs to local governments from responding to crisis situations and repairing roads, bridges, and infrastructure. There are also costs to volunteer agencies, private organizations, and insurance companies as well as their premium payers. Damage to fragile riverine and coastal ecosystems cannot be fully quantified, but affects not only critical habitats, but the natural flood protection capacity and capability of these ecosystems to protect against the next severe weather event. This is particularly true of disasters so large that the President declares them to be "major disasters" pursuant to the Stafford Act. Just think of the horrible, devastating misery caused by the 1993 and 2008 mid-west floods, Hurricanes Andrew, Charlie, Hugo, Ivan, Ike, Katrina or Rita, as well as the devastating effects of tornados, the earthquakes during the last quarter of the twentieth century, and the annual devastation of wildfires. Our future portends even larger disasters that will have even greater strategic significance to our nation.

**In recent years we have seen several horrific disasters, from Hurricanes Katrina and Rita to the tornado outbreaks of 2011. Sadly, they were far from the worst disasters that can and will someday occur in our nation.**

Americans are generous in times of disaster. Time and again we see outpourings of support and donations to people hit by catastrophes and even smaller scale disasters. Communities come together and people help their neighbors. Despite this empathy for the plight of victims, the question is often raised, "why must taxpayers' money subsidize people who live along coastal or river areas that flood again and again and again?" We might expect to hear a similar question following a significant seismic event in a known risk area.

**As a government, we do not ordinarily dictate where people can live, own property, or operate their businesses. We can, however, use sound zoning regulations and natural hazards management programs, along with appropriate building codes and practices, to help ensure that people are encouraged to avoid especially hazardous locations. We can also enact even stricter requirements for critical facilities, such as schools and nursing homes, which house particularly vulnerable populations. This also mitigates potential harm to those that choose to remain in areas which Mother Nature predictably visits with wildfires, earthquakes, storms, and floods, if proper guidelines are followed.**

Nationwide, we are finding that often communities and their residents determine that it makes sense to build, and rebuild, safely and wisely. In extreme cases, this safe rebuilding will include consideration of voluntarily relocating out of the extremely hazardous areas rather than the more traditional approaches of: Firewise® protection of buildings, construction of tornado safe rooms, elevating buildings, or wet or dry floodproofing structures. Wherever people are subject to repeated, devastating visits from the natural processes of our planet: from Aroostook County in Maine, to the Gulf Coast, to communities on the Mississippi, Missouri, and Platte Rivers people are clamoring to find ways to safely reconstruct their homes and businesses, or even relocate away from the natural hazards in their locations.

**Accomplishing this objective is not simple. No single agency or program exists that effectively addresses all the diverse needs in areas impacted by repeated floods and other natural disasters. But by *Nania*, that is all of us working all together, creative strategies can be crafted for individuals and communities and, thus, turn vision into reality. It is critical that communities look beyond just the FEMA programs and utilize broader, more holistic, strategies.**

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We must all work together to bring about a successful safe development and redevelopment. This safe development can involve simple landscaping, elevation, wet or dry floodproofing, relocation, demolition/reconstruction, acquisition/relocation, or some sort of selective voluntary buy-out program for a neighborhood or even an entire community. To achieve this goal of safety, we must utilize what can be called a “Patchwork Quilt” approach. This concept is based on the American idea that scraps of “this and that” can be turned into a useful, warm, and very valuable object, by one or more persons, who possesses a vision of the final product.

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The United States Army Corps of Engineers (USACE) has developed a Flood Risk Management Program (FRMP) to further augment and refine the Corps' long standing efforts to reduce flood losses in this nation. This program was established in May 2006 for the purpose of integrating and synchronizing USACE flood risk management programs and activities, both internally, and with counterpart activities of the Department of Homeland Security (DHS), Federal Emergency Management Agency (FEMA), other Federal agencies, state organizations and regional and local agencies. For more information, please view the program website [www.nfrmp.us](http://www.nfrmp.us).

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## II. The Process



This is not an easy or rapid process: it requires constant attention to what we refer to as the “10 Ps” of Post-Disaster Safe Recovery:

1. **Posterity.** We hold the earth in trust for future generations. We must think long term and broadly, finding creative, sustainable and resilient solutions. Just because something has “never been done that way before” does not mean it will not work now.
2. **People.** Put people first. Gather together and listen to the people, including victims, public officials (who may also be victims of the disaster), subject matter experts, and taxpayers. Establish goals including determining, in a collaborative way, what are the best solutions for the immediate situation and for future generations.
3. **Patchwork.** No single program exists to meet all the needs of the community or each individual. We need to take a bit of “this and that”.
4. **Persistence.** Never give up. Keep talking. Keep negotiating (and never start any discussion with a “no”). Keep searching for the right answers and the right programs to meet specific challenges and needs.
5. **Problems.** Keep focusing on problems. Synergy is important. Bring resources together. Bring stakeholders together. Communicate. Focus. How do allies, partners, and skeptics view the problem? How can differences be resolved and critical needs met?
6. **Prudence.** Focus efforts on achievable goals. Everyone’s time is limited. Do not squander time on roadblocks. Move on and come back later to issues that cannot be easily agreed upon.
7. **Personal Decisions.** Following a disaster, people must make critical decisions about their lives, their families and their futures. Remember that this is a democracy and decisions must be made within a participatory engagement framework involving all who have a stake in the future of a community. Disaster survivors will need resources; and will probably require ~~much~~ additional help and support, such as mitigation counseling, as well as crisis counseling, which is often available, needed, and vital following a disaster.
8. **Pro-Active.** Take the initiative. Seek help. Expand your staff. Take advantage of the limited window of opportunity to create, fund, and complete the programs that will make a difference, long term, in your community.
9. **Patience.** This is a difficult time for everyone: victims, community leaders, and people assisting with the recovery. We need patience, particularly when systems are shattered beyond any possibility of quick repair. We need to maintain calm. Help is available for everyone. Remember that community leaders are often victims themselves. And when the task at hand seems overwhelming, remember to call a time out, whereby you can regroup and come back to the issue with a calm perspective.

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- 10. Plain Common Sense.** We must describe our processes, plans and programs in a straightforward way. The concepts should “sound right.” They should provide logical solutions; that resonate as the “common sense” thing to do.

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### III. Creating the Patchwork Quilt



The analogy of a patchwork quilt is useful in clarifying the process for communities seeking viable, common sense solutions to complex problems. Communities need to know where to start and how to proceed. Assessing needs, accessing help, and identifying funding sources requires creativity, vision, leadership, and time.

#### ***A) The Quilter: Community Leadership with Vision***

Any time is the best time to change development practices from developing in a manner which will cause harm to individuals, businesses, the economy, and the environment to a “No Adverse Impact” Approach, which emphasizes the need for development and a sustainable future. Certainly, as a community picks up the pieces after a disaster and begins to rebuild, there is a window of opportunity. However, the best possible time to develop safely and properly is before natural processes, such as floods, cause devastation, which could have been avoided with proper planning. Any time is the time to fashion a new vision of the future, where people are safe from the fear of devastation caused by human occupancy of hazardous areas, without sufficient attention to land use planning, building codes, emergency preparedness and other steps to deal with the normal and foreseeable processes of Mother Nature.



Gilbert White, the Father of modern floodplain management, captured this thought succinctly:

**“Floods are Acts of Nature; But Flood Losses Are Largely Acts of Man.”**

The quilter must show strong leadership to develop and implement a comprehensive plan that will leave a legacy of hope, and harmony with nature for future generations.

#### ***B) The Pattern: Getting Technical Assistance***

Whether building a house, sewing a quilt, or rebuilding a community, a pattern or plan is needed. Imagine a quilter without a pattern. The quilter could get material and thread and sew the pieces together into a quilt, only to find that there is too much of one type of fabric and not enough of another. Colors and patterns may clash. Thus, time, energy, and money are wasted on trial and error.

The more efficient way to fashion a quilt is to create a design, map out a plan, and measure each piece. Some quilters have the time, energy, and experience to create their own designs. Others turn to proven patterns, but choose their own fabrics and colors. The same is true when fashioning a rebuilding project. Just as quilters look to patterns for guidance, community leaders can turn to a number of resources such as successful plans, building codes, and other materials already developed in other communities, for the technical guidance and ideas needed to develop a successful and sustainable project.

Technical assistance can be provided from a variety of resources: state hazard mitigation and floodplain management programs, the Federal Emergency Management Agency (FEMA), the United States Army Corps of Engineers (USACE), regional planning commissions, councils of governments (COGs), universities, non-governmental organizations, and professional organizations. FEMA, in particular,

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provides valuable assistance because of the agency's statutory role in coordinating the efforts of all federal agencies in disaster recovery. The USACE Floodplain Management Services and Planning Assistance to States programs also offer a broad array of services useful in flood risk management.

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### **C) A Necessary Step to Developing the Pattern: Writing the Hazard Mitigation Plan**

Mitigation Planning is a *process* for state, local, and tribal governments to identify policies, activities, and tools to implement mitigation actions. Mitigation is any sustained action taken to reduce or eliminate long-term risk to life and property from a hazard event. This process has four steps:

1. organizing resources;
2. identifying hazards and assessing risks;
3. developing a mitigation plan; and
4. implementing the plan and monitoring progress.

A FEMA approved Hazard Mitigation Plan is a popular pattern for states and local governments to outline their mitigation strategy. An approved Hazard Mitigation Plan is a prerequisite for five different FEMA funding programs: Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation Program (PDM), Flood Mitigation Assistance (FMA), Repetitive Flood Claims (RFC), and Severe Repetitive Loss (SRL). Funding is not the only reason to choose this pattern. A Hazard Mitigation Plan is a nationally recognized standard; this means that there is no need to “re-invent the wheel.” Any jurisdiction drafting their first plan has examples of approved plans throughout the country to learn from and use as a base. Jurisdictions that already have plans may also learn from each other in the process of completing their required update every five years. There are also numerous FEMA “how-to-guides” and tools to lead jurisdictions through the process of completing their plan. These tools, and the benefits of an approved plan, allow a Hazard Mitigation Plan to serve as a strong pattern for disaster mitigation.

The first decision in developing a Hazard Mitigation Plan is determining the jurisdiction, or combination of jurisdictions, that will participate in the plan and to seek funding to support plan development. Multi-jurisdictional planning can be a way for local governments to save plan development costs. Multi-jurisdiction plans are appropriate for a combination of local governments with similar characteristics, but not for a state plan. Local governments are defined by FEMA as, “any county, municipality, city, town, township, public authority, school district, special district, intrastate district, council of governments (regardless of whether the council of governments is incorporated as a nonprofit corporation under State law), regional or interstate government entity, or agency or instrumentality of a local government; any Indian tribe or authorized tribal organization, or Alaska Native village or organization; and any rural community, unincorporated town or village, or other public entity.” FEMA has based this definition on local government authorities that are listed as communities with floodplain management ordinances within the National Flood Insurance Program (NFIP).

Once the area the plan encompasses has been determined, developing a Hazard Mitigation Plan has six key steps:

1. **Planning Process:** Key stakeholders, including representatives from multiple agencies and levels of government, and the public need to be involved in the process of creating the plan so that the final product will be supported and used by the community. At the beginning of the plan development process, a local planning team, stakeholders committee, or steering committee must be established to lead or assist in holding public meetings, gathering input on local hazard and mitigation measures, reviewing the final plan, and assisting with implementation. The public involvement process must be documented as part of the plan. Stakeholder involvement is critical to ensuring that the plan truly addresses the needs and desires of the community.
2. **Hazard Identification/Risk Analysis:** The process of identifying local hazards must address floods, windstorms, fire, tornadoes, coastal storms and geologic hazards. It is recommended that the plan also address other localized hazards. Some communities also chose to address technological and man-made hazards. The Hazard Identification/Risk Analysis, or HIRA,

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combines hazard history with the possibility that a hazard can strike the area. Hazard information may be researched on-line, through historic records, and by reviewing plans completed by the state or neighboring jurisdictions. A Geographic Information System (GIS) provides a good way to display the location, extent, and severity of the hazards. GIS is also useful in comparing hazards to vulnerable facilities.

3. **Vulnerability Assessment:** A vulnerability assessment involves examining the facilities and populations that are most likely to be impacted by the identified hazards. Listing the buildings that are in the floodplain or likely to be damaged during a windstorm, or other hazard, allows communities to determine what are their most critical facilities to prioritize for mitigation projects. Overlaying the hazard history and probable occurrence shows the areas most vulnerable to hazards. This is often done using an algorithm to weigh and compare vulnerabilities of people, structures and critical infrastructure, to specific hazards, as well as to the overall combination of hazards the state, region or community faces.
4. **Multiple Hazard Mitigation Strategy:** The Vulnerability Assessment results in identification of priority areas for hazard mitigation. For instance, there may be several homes that have been flooded twice in the last decade, a power station that loses capacity in even mild windstorms, or a hospital that's accessibility is challenged by sink holes. The local planning team should lead the process of identifying goals, objectives, and the appropriate mitigation actions or strategies. Mitigation actions may be non-structural such as targeted planning, revision of building codes, or public education; or can be structural, such as wiring for generators, or elevation of flood-prone structures. Mitigation actions must be reviewed by the public and evaluated to determine that they are cost effective and will result in the desired impact.
5. **Maintenance:** The plan must address how it will be monitored, linked to existing plans already in use within the community, implemented, and must involve continued public input. Coordination with other planning efforts is critical to achieving success. It should also provide a schedule for evaluating and updating, at a minimum, every five years.
6. **Approval and Adoption:** Hazard Mitigation Plans are reviewed by States and approved by FEMA. FEMA will provide "approvals pending adoption" that are the notice to proceed for jurisdictions to adopt their plan.

Hazard Mitigation Plans may be developed by local governments with technical assistance from their state, FEMA or a private consultant. Communities choosing to use a consultant should maintain active involvement with the process. This plan will be the community's plan, long after the contract has ended. The pattern must have flexibility to meet local needs; it may just meet the minimum requirements, but it must have the capacity to be robust and address additional local needs. The resulting pattern for mitigation may assist in matching the right combination of resources, or fabric, to make the community safer.

*Source: This section is summary of FEMA's Local Multi-Hazard Mitigation Planning Guidance from July 10, 2008 ([www.fema.gov/library/viewRecord.do?id=3336](http://www.fema.gov/library/viewRecord.do?id=3336)) and Sample Local Mitigation Plan Scope of Work for Mitigation Grant Application ([www.fema.gov/library/viewRecord.do?id=1858](http://www.fema.gov/library/viewRecord.do?id=1858)).*

#### **NOTE:**

State, tribal, and local governments are required to develop a hazard mitigation plan as a condition for receiving certain types of non-emergency disaster assistance, including funding for mitigation projects. The following FEMA Hazard Mitigation Assistance (HMA) grant programs require state and local approved mitigation plans for eligibility:

- [Hazard Mitigation Grant Program \(HMGP\)](#)
- [Pre-Disaster Mitigation Program \(PDM\)](#)
- [Flood Mitigation Assistance \(FMA\)](#)
- [Severe Repetitive Loss \(SRL\)](#)

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All sub-applicants for HMGP, PDM, FMA, and SRL mitigation projects must have a FEMA-approved local mitigation plan by the application deadline and at the time of obligation of grant funds, however there is no local mitigation plan requirement for any HMA program for a planning grant. For HMGP, FEMA may grant an exception to the local or Tribal mitigation plan requirement in extraordinary circumstances, such as small and impoverished communities, when justification is provided. The Repetitive Flood Claims (RFC) program does not currently have a requirement for a local mitigation plan.

Additionally, in order to receive assistance for non-emergency categories of Public Assistance (PA), the State or Indian Tribal government applying to FEMA as a grantee must have in place a FEMA approved State or Tribal Mitigation Plan. Other FEMA grants such as Fire Suppression Assistance also require a State or Tribal Mitigation Plan to be in place or be developed a condition for receiving federal disaster assistance.

A Sample Scope of Work for Mitigation Planning Grants may be downloaded from the FEMA Library. The development or updating of hazard mitigation plans is an eligible project activity under HMGP, PDM and limited FMA funding (for flooding and coastal planning efforts only).

#### ***D) National Disaster Recovery Framework***

The National Disaster Recovery Framework (NDRF) has been released as of September 2011. The document can be found at: [www.fema.gov/recoveryframework/](http://www.fema.gov/recoveryframework/). The NDRF is intended to provide a consistent model for addressing the challenges of the disaster recovery process. It introduces six new Recovery Support Functions:

1. Community Planning and Capacity Building Recovery Support Function
2. Economic Recovery Support Function
3. Housing Recovery Support Function
4. Infrastructure System Recovery Support Function
5. Natural and Cultural Resources Support Function

#### ***E) National Mitigation Framework***

The National Mitigation Framework, published in 2013, is one of the five documents in the suite of National Planning Framework. The Mitigation Framework covers the mitigation mission area within preparedness. It provides a whole community approach to mitigation efforts. The National Mitigation Framework can be found at:

<http://www.fema.gov/national-mitigation-framework>

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## IV. Finding Technical Assistance

Obtaining the knowledge, advice, and experience of those who have been through a major disaster, especially state and local officials, is absolutely critical. Start with your state hazard mitigation officer (SHMO), state National Flood Insurance Program (NFIP) coordinator, state chapter of the Association of State Floodplain Managers (if one exists), regional planning agency, county and state GIS offices, or regional stormwater management authority. The Natural Hazard Mitigation Association's (NHMA's) membership can also be a great asset. In addition, local Universities and consulting firms with planning and engineering expertise are also an excellent possible source of assistance, as well as members

of a state or local planning team or steering committee.



### **A) FEMA ESF-14**

FEMA has established Emergency Support Function (ESF) Long-Term Community Recovery Emergency Support as part of the National Response Plan, that also may be a source of excellent advice. This ESF is known as ESF-14.

“Emergency Support Function (ESF) #14 – Long-Term Community Recovery provides a framework for Federal Government support to State, regional, local, and tribal governments, nongovernmental organizations (NGOs), and the private sector designed to enable community recovery from the long-term consequences of an Incident of National Significance. This support consists of available programs and resources of Federal departments and agencies to enable community recovery, especially long-term community recovery, and to reduce or eliminate risk from future incidents, where feasible.”

The NDRF has largely replaced ESF #14 with the Recovery Support Functions described previously.

*Source: Extract from: National Response Plan, Long-Term Community Recovery Emergency Support Function #14 Annex FEMA December 2005.*

### **B) Long Term Recovery Groups Set Up by Communities and Voluntary Agencies**

States often have long term recovery plans; some locals should have one as well--Eisenhower quote though etc.

Frequently the Voluntary Organizations Active in Disasters (VOAD), and / or its member agencies, will set up some type of Long Term Community Recovery Group. In addition, community agencies and newly established organizations will come into existence to deal with long-term recovery. Work with the VOAD group(s) to promote hazard mitigation in the rebuilding efforts.

It is vital that all the long-term recovery groups work together in harmony for the benefit of the disaster survivors, and the community as a whole.

### **C) State Risk Management Teams or Mitigation Steering Committees**

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States may have standing groups which could be of assistance to the process. These might include a Mitigation Steering Committee or State Risk Management Teams. State facilities offices may also be of assistance and may have some discretionary funding for repairs.

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#### ***D) US Army Corps of Engineers (USACE) Silver Jackets Program***

The life-cycle process for managing major disasters includes the event occurrence, response, recovery, planning, and mitigation/implementation. After implementation, the damages from a future event occurring should be substantially reduced. The National Response Plan, issued in December 2004 by the Department of Homeland Security, provides the framework for collaboration between federal, state, local, and other agencies and entities, in order to prepare for, respond to, and recover from major disasters. The planning and implementation of preventive solutions to these disasters have typically been achieved through individual agency processes and procedures. Even though many agencies and local governments have been successful at maintaining strong partnerships during this part of the cycle, overall interagency collaboration nationally has been intermittent.

The US Army Corps of Engineers (USACE) has initiated a new program called the “Silver Jackets Program”, in order to create a way to apply a more collective and long term approach to link together lessons learned from a major disaster, and then apply them to comprehensive solutions. With this program, USACE, the Federal Emergency Management Agency (FEMA), and other federal agencies create an interagency team at the state level to develop and implement solutions to state natural hazard priorities. The program’s primary goals are to leverage information and resources, improve public risk communication through a united effort, and create a continuous mechanism to collaboratively solve issues and implement initiatives.

Active Silver Jackets teams now serve fifteen states, and discussions are ongoing to develop teams for an additional twenty-eight states. The ultimate goal is to offer a team to every state. However, the intent is not to duplicate or take over similar efforts that may already exist within a state. This program will support existing efforts, strengthen partnerships that need improvement, and help establish relationships where they do not exist. Current teams have succeeded not only in improving communication, but also in leveraging resources and programs between agencies. These teams also serve as an interagency technical resource to the state and local communities to develop strategies for long-term sustainability.

Further information on the Silver Jackets Program, status of team development in each state, and points of contact are available at the website [www.iwr.usace.army.mil/nfrmp/state](http://www.iwr.usace.army.mil/nfrmp/state).

#### ***E) US Army Corps of Engineers (USACE) Flood Plain Management Services (FPMS) Program***

The objective of the Flood Plain Management Services (FPMS) Program is to foster public understanding for dealing with flood hazards and to promote prudent use and management of the nation's floodplains. Upon request, and without charge if funding is available, the US Army Corps of Engineers (USACE) will furnish to states, counties, and local communities floodplain information and technical assistance needed in any aspect of floodplain management planning. Typical studies may include comprehensive floodplain management plans, flood warning/preparedness, or flood hazard evaluations.

#### ***F) US Army Corps of Engineers (USACE) Planning Assistance to States (PAS) Program***

Under the Planning Assistance to State (PAS) Program, the US Army Corps of Engineers (USACE) can provide assistance to states, local governments, and other non-federal entities in the preparation of a wide variety of comprehensive studies to address water resources issues. These studies can include flood damage reduction studies or other related studies. Studies under this program are cost shared on a 50 percent federal and 50 percent non-federal basis.

#### ***G) Pre-Disaster Recovery Plans***

Another option is to consider the development of a Pre-Disaster Recovery Plan. This type of a plan can

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allow communities to plan for safe reconstruction following a natural disaster. The planning process can be an opportunity to pull stakeholders together during normal times, without the pressures of disaster response and recovery. These plans should be tied into the community's Hazard Mitigation Plan and the community's Comprehensive Plan.

### **H) Community Rating System (CRS)**

The National Flood Insurance Program's (NFIP) Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements.

As a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions meeting the three goals of the CRS:

- Reduce flood losses;
- Facilitate accurate insurance rating; and
- Promote the awareness of flood insurance.

For more information: <http://www.fema.gov/business/nfip/crs.shtm>

### **I) No Adverse Impact (NAI)**

While states and localities have an improving system of codes and standards in relation to hazards, most do not adequately address the risk potential that these same states and localities face. We have accomplished a lot in recent years, but we have much more to do to decrease our vulnerability to disaster. "Today, we must not only continue and reinvigorate our successes, but also expand them to include the natural and man-made threats that each of our counties, cities, towns and villages face every day – floods, earthquakes, hurricanes, hazardous material spills, highway accidents, acts of terrorism, and so much more." (FEMA Publication: "America at Risk; America Burning Recommissioned")

Higher standards in relation to flood risk are eloquently found in ASFPM's No Adverse Impact (NAI). The Association of State Floodplain Managers (ASFPM), a respected voice in floodplain management practice and policy in the United States, has spent the last several years coming up with a workable and cost effective solution. No Adverse Impact (NAI) is a concept / policy / strategy that changes one's focus from building within the environment to "do no harm". No Adverse Impact (NAI) is an approach that ensures that the action of any community or property owner, public or private, does not adversely impact the property and rights of others. The true strength of the No Adverse Impact approach is that it encourages local decision making to ensure that future development impacts will be identified, considered on a watershed-wide basis, and mitigated – it is a truly comprehensive strategy for reducing the losses, costs, and human suffering caused by flooding.

The pluses to the NAI Approach are eye-catching:

- Will reduce future flood damages
- Will reduce future suffering
- Will protect the communities natural resources and amenities
- Will improve the quality of life
- Will provide for more sustainable growth within the community
- Will reduce the community's liability

Other potential benefits to the community of utilizing the NAI Approach can include:

- Improved water quality and reductions in non-point pollution impacts
- Green corridors which also serve as additional areas for floodwater storage

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- Improved groundwater recharge
  - Better bank stabilization and better erosion control
  - Possible increased property values near these “green” areas

Communities can begin now to explore the positive results of No Adverse Impact (NAI). They can start by defining “adverse impact” for their community’s unique conditions (this is not a one shoe fits all philosophy). “Adverse impacts” can be defined by evaluating their community’s hazards (especially in or near the floodplain, and more importantly, throughout the entire watershed) and also their community’s programs for addressing those potential hazards. Most importantly, communities can require all adverse impacts to be mitigated at the time that development occurs.

It is important to note that Courts have broadly and consistently upheld performance-oriented floodplain regulations including those that exceed minimum FEMA standards. Regulations that require additional freeboard, establish setbacks, impose tighter floodway restrictions, or very tightly regulate high risk areas, have been found to be consistently upheld by the Courts.

The principles associated with No Adverse Impact (NAI) fit well within a sustainable development framework. Local communities can utilize the No Adverse Impact concepts by, among other techniques, implementing comprehensive watershed-based plans that recognize existing hazards; using environmentally sensitive zoning ordinances; promoting floodplain management regulations that will protect existing and future generations; expanding floodplain, wetlands, and resource mapping; and adopting disaster-resistant building codes.

In many communities, current approaches to land use and development are creating future disasters. Those disasters are, in many cases, predictable, foreseeable, calculable, and measureable with today’s advanced engineering practices. Even if the climate stabilized, and no further climate change were to take place, we would still have millions of people at risk and that risk will be growing on a daily basis, as we ignore the nature of our watersheds and continue to flush water off as though it is garbage. We are flushing water off of our landscape with such a speed, and at such an enormous intensity, that not only are we dynamically increasing the flood risk, but we are also creating a life safety issue. In short, we are turning docile streams into savage killers.

We, as a society, therefore, need to design conservatively, safely, and properly and with a clear, convincing and accepted motive of harm prevention. In short, we must adapt. It’s all a matter of collaboration, coordination and a lot of planning. The change is not going to be quick, painless, or easy, but it must be done to insure the sustainability, the livability, and the survivability of our nation’s communities.

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## **J) Coastal No Adverse Impact (CNAI)**

The Coastal Services Center, National Oceanic and Atmospheric Administration and the Association of State Floodplain Managers (ASFPM) sponsored the Coastal No Adverse Impact (CNAI) Handbook.

The information in this publication demonstrates the application of mitigation strategies for the management of natural hazards occurring along the nation's coasts.

For more information:  
[http://www.floods.org/NoAdverseImpact/CNAI\\_Handbook/CNAI\\_Handbook.pdf](http://www.floods.org/NoAdverseImpact/CNAI_Handbook/CNAI_Handbook.pdf)

## **K) Firewise Communities ®**

Information From: <http://www.firewise.org/information.aspx>

The National Firewise Communities Program is a multi-agency effort designed to reach beyond the fire service by involving homeowners, community leaders, planners, developers, and others in the effort to protect people, property, and natural resources from the risk of wildland fire - before a fire starts. The Firewise Communities approach emphasizes community responsibility for planning in the design of a safe community as well as effective emergency response, and individual responsibility for safer home construction and design, landscaping, and maintenance.

The national Firewise Communities Program is intended to serve as a resource for agencies, tribes, organizations, fire departments, and communities across the U.S. who are working toward a common goal: reduce loss of lives, property, and resources to wildland fire by building and maintaining communities in a way that is compatible with our natural surroundings.

Firewise Communities/USA is a unique opportunity available to America's fire-prone communities. Its goal is to encourage and acknowledge action that minimizes home loss to wildfire. It teaches you to prepare for a fire before it occurs. The program adapts especially well to small communities, developments and residential associations of all types. Firewise Communities/USA is a simple, three-legged template that is easily adapted to different locales. It works in the following way:

- \* Wildland fire staff from federal, state or local agencies provide a community with information about coexisting with wildfire along with mitigation information tailored to that specific area.
- \* The community assesses its risk and creates its own network of cooperating homeowners, agencies and organizations.
- \* The community identifies and implements local solutions.

Further information at: [www.firewise.org/usa](http://www.firewise.org/usa)

## **L) Fire Adapted Communities**

Information from: <http://www.fireadapted.org/resources/what-is-a-fire-adapted-community.aspx>

Fire Adapted Communities use tools, supported by federal and state agencies, to prepare homes, neighborhoods, businesses, infrastructure, natural areas, and surrounding landscape for wildfire. At a minimum, the community's fire adapted actions should include the following plans and programs:

- A Community Wildfire Protection Plan
- Participation in FireWise
- Participation in Ready, Set, Go!

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Funding is available from federal, state, and local agencies as well as from private partners such as insurance companies or businesses.

Further information at: [www.fireadapted.org](http://www.fireadapted.org)

### **M) NOAA StormReady® Program**

Ninety percent of the damages suffered during Presidentially Declared Disasters are weather related. The NOAA StormReady Program gives communities the education and tools necessary to survive severe weather, both before and during the event.



Further Information can be found at:  
<http://www.stormready.noaa.gov/publications.htm>

### **N) Professional Associations**

Professional associations can be great sources of technical knowledge, best practices and other assistance. Professional associations which might be of assistance include:

1. American Society Civil Engineers (ASCE)
2. Association of State Floodplain Managers (ASFPM)
3. Natural Hazard Mitigation Association (NHMA)
4. USDA Extension
5. American Society of Public Administration (ASPA)
6. American Planning Association (APA)
7. American Bar Association (ABA)

### **O) Mitigation Best Practices Portfolio**

In the wake of disasters, people often wonder whether there is a way to protect both people and property from such devastating losses. The answer is a resounding "YES!" Mitigation is the way to provide that protection. Hazard mitigation means taking action to reduce or prevent future damage, preferably before a disaster strikes.

Site includes:

- Best Practices Portfolio
- Case Studies
- Mitigation Best Practices

For more information: <http://www.fema.gov/plan/prevent/bestpractices/index.shtm>

### **P) Building Science**

FEMA's Building Science Branch is a technical services bureau made up of highly skilled subject matter experts. The branch develops and produces technical guidance and tools focused on fostering a disaster resilient built environment. Located within the FEMA Federal Insurance and Mitigation Administration's (FIMA's) Risk Reduction Division, the Building Science Branch supports the directorate's mission to reduce risk to life and property by providing state of the art technical hazard mitigation solutions for buildings.

The Building Science branch develops mitigation guidance that focuses on creating disaster-resilient communities.

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For more information: <http://www.fema.gov/rebuild/buildingscience/index.shtm>

**Q) Further Information**

A truly fabulous cornucopia of information and links to a variety of successful post disaster processes and plans: <http://www.fema.gov/response-recovery>

The Long-Term Community Recovery Planning Process: A Self-Help Guide  
FEMA December 2005 is located on the Web at: <http://www.fema.gov/pdf/rebuild/ltrc/selfhelp.pdf>.

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## V. The Fabric: The Array of Programs



### **A) Introduction**

Just as with any quilt, one size or weight does not fit the individual needs of all. The ultimate appearance depends upon the needs of the person visioning the quilt. Some people need a king sized, heavy quilt for large beds in cold climates; some folks want elaborate quilts of bright fabrics and silk; some folks want a simple and functional small quilt. In the case of hazard mitigation, the materials are the knowledge and skill of all stakeholders, as well as the various programs that provide funding and services that can make the quilter's vision a reality. The quilt size, appearance and quality will be determined by the individual vision of the community, business, and individuals involved who have considered their needs, desires, resources, and vision of the future. The vision must suit the individual desires and the overall needs of the community. To help vision the alternatives and possibilities, the community quilter should seek out technical support and resource materials to obtain the vision and expertise to help develop a plan for a more resilient and sustainable community, much like a patchwork quilter might look at other quilts and patterns before determining what pattern to follow for their own quilt. Fortunately, there are many resource persons, agencies and firms who can supply ideas on processes, and also examples of what others have done. There are many post-disaster plans and resource guides, such as the one developed following the Great Floods of 1993 and 2008 in the Midwest; the four Florida hurricanes of 2004; as well as those developed after Hurricanes Katrina and Rita in Mississippi, Alabama, Louisiana and Texas. Many of the plans and resource guides are listed in the material in Section IV of this article, Finding Technical Assistance, above.

### **B) Safe Rebuilding: Sources of Funds**

#### **1. Voluntary Organizations Active in Disaster (VOAD)**

These agencies include, but are not limited to: the American Red Cross, the Salvation Army, the Mennonites, Catholic Charities, Church World Service, the Later Day Saints, and the Presbyterian Disaster Services. They are key players for supplying organizational skills, materials, funds, and voluntary labor especially for poor, disadvantaged, and elderly disaster survivors. These organizations can also be of assistance in dealing with groups with unique needs, such as children.

The VOAD framework provides the venue for agencies to coordinate, collaborate, communicate, and cooperate on disaster planning, training and response. This occurs at a national (NVOAD), state (VOAD) and community (COAD) levels.

Extremely important are the local non-governmental organizations (NGOs) who may not be connected to VOAD. Other non-government entities, not connected with the VOAD, may also offer a great deal of help. These organizations include groups whose focus may be childcare, the elderly, housing, or community development in non-disaster times. These organizations often do not think of themselves as being part of a post-disaster planning process, yet they are extremely important to that process. Outreach to all stakeholders prior to a disaster is critical, especially to stakeholders who do not realize that they have an important role to play.

The Link to the excellent and informative National Voluntary Organizations Active in Disaster Long-Term Recovery Manual is: <http://www.arvoad.org/NVOADLTRRecovery.php>

#### **2. Hazard Mitigation Grant Program**

[www.fema.gov/government/grant/hmgp/index.shtm](http://www.fema.gov/government/grant/hmgp/index.shtm)

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FEMA's Hazard Mitigation Grant Program (HMGP) provides grants to states, local governments, and Indian tribes for long-term hazard mitigation projects after a major disaster declaration. The purpose of the program is to reduce the loss of life and property in future disasters by funding mitigation measures during the recovery phase of a natural disaster.

HMGP funds can be used to make improvements to public or private property. To be eligible, a project must provide a long-term solution to a specific risk. Examples are:

- Elevating flood-prone homes or businesses. The structure is rebuilt with a higher first floor. The crawl space is equipped with adequate vents per FEMA regulations. This allows floodwater to flow under the house rather than through it. Businesses have the option to floodproof the area below the finished floor, however, the structure must be engineered to withstand hydraulic and hydrostatic forces.
- Acquisition and demolition of flood-prone structures from willing owners and returning the property to open space. The owner receives a check for the sale, and the local government becomes the new owner of the property, which must be maintained as open space in perpetuity.
- Relocation of flood-prone structures to areas outside of the Special Flood Hazard Area (SFHA) if the structure can be safely moved. The owner receives support to acquire the new lot, build the necessary foundation, unhook utilities, transport the structure, and reconnect utilities. The abandoned property is deeded as perpetual open space owned and maintained by the sponsoring local government.
- Retrofitting buildings to minimize damage from high winds, flooding, earthquakes, and other hazards, by strengthening existing buildings, construction of safe rooms, and even constructing new separate shelters. FEMA and other organizations have worked to develop model code requirements and building guides to aid in the process.

The states administer the HMGP program. It is funded through allocation of 15% of eligible federal disaster recovery expenditures obligated within 12 months of the presidential disaster declaration to states with current approved standard Hazard Mitigation Plans. States with enhanced plans receive 20%. There are funding caps for extreme, catastrophic disasters. Immediately following the disaster, FEMA and the state mitigation program establish mitigation priorities for the state to implement HMGP, as well as support other innovative mitigation efforts to support community recovery. This is set forth in a disaster-specific Mitigation Strategy that details the HMGP program priorities, application procedures, and timelines.

Local jurisdictions select projects that could reduce property vulnerability. The local government or sponsoring jurisdiction should use its approved Hazard Mitigation Plan goals and strategies to guide HMGP projects. If the community does not have an approved plan, the FEMA Regional Coordinator can allow a plan to be developed simultaneous to development of an HMGP application, as long as the plan is developed, approved, and adopted within one year of the declaration date.

Total grant funding: For each state, HMGP provides 15 percent to states with approved standard Hazard Mitigation Plans and 20% for states with enhanced Hazard Mitigation Plans of the total Federal funds for the Public Assistance Program (debris management, emergency protective services, road and bridge repair, local and state infrastructure, building and equipment repair or replacement and park and recreation repair) and individual and household grants (called Individual Assistance - IA or Individual and Household Program - IAHP) in the state. Once Public Assistance (PA) and Individual Assistance (IA) program totals are estimated, FEMA can approximate available HMGP funding for each state. However, project planning can begin right away.

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Funding formula: FEMA pays up to 75 percent of the project cost. Either the state, local government applicants, or individual property owners provide the remaining 25 percent match. **In-kind services and materials can be used, as can other sources of funding in certain cases, such as CDBG.**

Using in-kind services can make it much easier for a community to undertake mitigation projects using HMGP funds. These can include staff time and the use of equipment already owned by the jurisdiction.

*Source: Extracted from FEMA Fact Sheet Building Stronger and Safer Hazard Mitigation Grant Program. Emphasis added by author.*

### **3. Flood Mitigation Assistance Program**

[www.fema.gov/government/grant/fma/index.shtm](http://www.fema.gov/government/grant/fma/index.shtm)

“FEMA’s Flood Mitigation Assistance program (FMA) provides funding to States and communities for measures that reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insurable under the National Flood Insurance Program (NFIP). The program provides grants for mitigation planning, projects, and technical assistance, with a goal of reducing claims under the NFIP.

A priority of the FMA Program is to fund flood mitigation activities that reduce the number of repetitive loss structures insured by the NFIP. Repetitive loss structures are those that have sustained two or more losses, each exceeding \$1000, within a ten year period. FEMA encourages States and communities to develop plans that address repetitive loss properties.

The States serve as program administrators.”

*Source: Extract from FEMA’s Fact Sheet.*

### **4. Other FEMA Grant Programs Requiring Approved Hazard Mitigation Plans**

#### **i. Pre-Disaster Mitigation Program (PDM)**

The Pre-Disaster Mitigation (PDM) program provides funds to states, territories, Indian tribal governments, communities, and universities, for hazard mitigation planning and the implementation of structural mitigation projects prior to a disaster event.

Funding these plans and projects reduces overall risk to the population and structures, while also reducing reliance on funding from actual disaster declarations. PDM grants are awarded on a nationally competitive basis with \$550,000 allotted to each state and territory that submits eligible projects. Funding is annual dependant upon Congress annually funding the program.

#### **ii. Flood Mitigation Assistance (FMA)**

[www.fema.gov/government/grant/fma/index.shtm](http://www.fema.gov/government/grant/fma/index.shtm)

FEMA’s Flood Mitigation Assistance program (FMA) provides funding to states and communities for measures that reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insurable under the National Flood Insurance Program

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(NFIP). The program provides grants for mitigation planning and structural projects with a goal of reducing claims under the NFIP.

A priority of the FMA Program is to fund flood mitigation activities that reduce the number of repetitive loss (RL) structures insured by the NFIP. Repetitive loss structures are those that have sustained two or more losses, each exceeding \$1000, within a ten year period. FEMA encourages states and communities to develop Hazard Mitigation Plans that address repetitive loss properties.

The states serve as program administrators and receive an annual allocation based on the number of flood insurance policies in the state. A local match of 25% is required unless the state plan has been amended to address repetitive loss properties. States with a FEMA approved plan amendment receive 90% federal match with 10% state or local match required beginning in FY 2009.

*Source: FEMA's Fact Sheet.*

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### iii. Repetitive Flood Claims (RFC)

The Repetitive Flood Claims (RFC) grant program was authorized by the Bunning-Bereuter-Blumenauer Flood Insurance Reform Act of 2004 (P.L. 108-264), which amended the National Flood Insurance Act (NFIA) of 1968 (42 U.S.C. 4001, et al).

Up to \$10 million is available annually for FEMA to provide RFC funds to assist states and communities reduce flood damages to insured properties that have had one or more claims to the National Flood Insurance Program (NFIP).

Eligible Mitigation Activities:

- Acquisition and demolition flood-prone structures, where the property is deed restricted for open space uses in perpetuity.
- Relocation of flood-prone structures to a new lot with the flood-prone lot deeded as restricted open space.
- Elevations
- Wet or dry flood-proofing of non-residential structures.
- Minor localized flood control projects (funding limited to \$1M per project)

Federal / Non-Federal Cost Share:

FEMA may contribute up to 100 percent of the total amount approved under the RFC grant award to implement approved activities, if the applicant has demonstrated that the proposed activities can not be funded under the due to lack of state or local capacity, which includes either inability to manage the sub-grant or lack of the 25% match.

*From FEMA web site: <http://www.fema.gov/government/grant/rfc/index.shtm>.*

### iv. Severe Repetitive Loss Program

The Severe Repetitive Loss (SRL) grant program was authorized by the Bunning-Bereuter-Blumenauer Flood Insurance Reform Act of 2004, which amended the National Flood Insurance Act (NFIA) of 1968 to provide funding to reduce or eliminate the long-term risk of flood damage to severe repetitive loss (SRL) structures insured under the National Flood Insurance Program (NFIP).

The definition of severe repetitive loss as applied to this program was established in section 1361A of the National Flood Insurance Act, as amended (NFIA), 42 U.S.C. 4102a. An SRL property is defined as a **residential property** that is covered under an NFIP flood insurance policy and:

- (a) That has at least four NFIP claim payments (including building and contents) over \$5,000 each, and the cumulative amount of such claims payments exceeds \$20,000; or
- (b) For which at least two separate claims payments (building payments only) have been made with the cumulative amount of the building portion of such claims exceeding the market value of the building.

For both (a) and (b) above, at least two of the referenced claims must have occurred within any ten-year period, and must be greater than 10 days apart.

The states serve as program administrators and those with at least 70 SRL properties receive an annual allocation based on the number of severe repetitive loss properties in their state. A local match of 25% is required unless the state plan has been amended to address severe repetitive loss properties. States with a FEMA approved plan amendment receive 90% federal match with 10% state or local match required.

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### *Fiscal Year Program Information*

Unified HMA Application Period: The FY-2012 Unified Hazard Mitigation Assistance (HMA) grant application period will open in early June 2011 with applications due to FEMA no later than December 2, 2011.

The most current information on this application cycle and all of FEMA's HMA programs can be found at: <http://www.fema.gov/government/grant/hma/index.shtm>

## **5. FEMA Special Historic Preservation Initiative - Historic Preservation and Cultural Resources Program**

[www.fema.gov/plan/ehp/index.shtm](http://www.fema.gov/plan/ehp/index.shtm)

FEMA's Historic Preservation and Cultural Resources Program integrates historic preservation considerations into FEMA's mission of preparedness, response, recovery, and mitigation. During disaster recovery operations, the agency assesses damages to historic and cultural resources, provides technical assistance to States and local jurisdictions, and ensures compliance with applicable Federal laws and regulations, such as the National Historic Preservation Act.

FEMA works with state and local governments to provide historic preservation expertise to local teams that assess the structural integrity of buildings damaged in disaster events. FEMA provides technical assistance to state and local governments on historic preservation issues, and collaborates with Native American tribes to address any unique cultural concerns they may have. Historic preservation specialists also evaluate the eligibility of buildings and neighborhoods for the National Register of Historic Places.

FEMA's Public Assistance program provides funding for the repair, replacement, or restoration of disaster-damaged, publicly owned facilities and the facilities of certain non-profit (PNP) organizations. The program includes funding for the restoration of collections and items of "exceptionally significant cultural value" located within or on public or private non-profit property. The Federal share is at least 75 percent of the cost. In addition, the Small Business Administration (SBA) provides low-interest loans for home repairs.

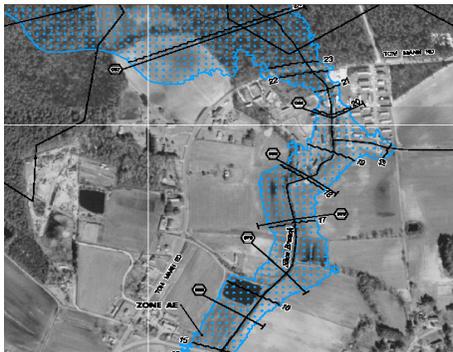
For more information about funding assistance, see *Before and After Disasters: Federal Funding for Cultural Institutions* on the Web at <http://www.heritagepreservation.org/PDFS/Disaster.pdf>.

Find additional resources provided by the National Trust for Historic Preservation at <http://www.preservationnation.org/>

*Source: Extract from FEMA Fact Sheet*

## 6. Flood Map Improvement

FEMA has embarked on a multi-year effort to update and transform flood maps into more reliable, easy-to-use, and readily available digital products. This effort is now called Risk MAP (Mapping, Assessment, and Planning). The vision for Risk MAP is to deliver quality data that increases public awareness and leads to action that reduces risk to life and property. Risk MAP builds on flood hazard data and maps produced during FEMA's Flood Map Modernization (Map Mod) program, and aims to enable communities and citizens across the country to more efficiently obtain flood hazard data, learn their flood risk, and make informed decisions about development, floodplain management, and mitigation projects that will potentially limit damages in future flooding events. As illustrated in the graphic to the right, the Risk MAP life cycle, which begins with Identifying Risk, then Assessing Risk, then Communicating Risk, and finally Mitigating Risk.



Building on the success of Map Mod, FEMA will collaborate with Federal, State and local stakeholders to achieve the following five goals under Risk MAP as articulated in the “Risk MAP Multi-Year Plan: Fiscal Years 2010–2014”:

1. Address gaps in flood hazard data to form a solid foundation for flood risk assessments, floodplain management, and actuarial soundness of the NFIP
2. Ensure that a measurable increase of the public’s awareness and understanding of risk management results in a measurable reduction of current and future vulnerability to flooding
3. Lead and support State, local, and tribal communities to effectively engage in risk-based mitigation planning resulting in sustainable actions that reduce or eliminate risks to life and property from natural hazards
4. Provide an enhanced digital platform that improves management of limited Risk MAP resources, stewards information produced by Risk MAP, and improves communication and sharing of risk data and related products to all levels of government and the public
5. Align risk analysis programs and develop synergies to enhance decision-making capabilities through effective risk communication and management

*Source: FEMA’s Risk Mapping, Assessment, and Planning (Risk MAP), Fiscal Year 2011 Report to Congress, March 15, 2011.*

*Further information at:*

[http://www.fema.gov/plan/prevent/fhm/rm\\_main.shtm](http://www.fema.gov/plan/prevent/fhm/rm_main.shtm)

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## Mapping flood risks

The first step in preventing and reducing flood loss is to obtain reliable information about flood risk. Flood hazard maps, also known as Flood Insurance Rate Maps (FIRMs), indicate areas at risk from flooding.

However, flood risk changes over time and many maps no longer reflect current risks, due to land development (both proper and improper land development), and changes in the environment.

Risk MAP is producing more reliable, up-to-date flood data by using the latest mapping technology, incorporating data into current models, and delivering it in a Geographic Information System (GIS)-based format. Digital maps can be updated easily and at less cost, as flood risks change.

## Flood Hazard Maps and Disasters

FEMA Can Sometimes Approve the Use of Federal Disaster Technical Assistance (Stafford Act) Funds to Assist States and Communities to Better Understand the Nature of a Flood or Other Hazard When There is Outdated Information on the Nature of the Risk

### Learn more about flood hazard maps

Properties located in Special Flood Hazard Areas (SFHAs) – areas along the coast, along rivers, and in other low-lying areas and floodplains – are at the highest risk for flooding, but everyone is at some risk. Current flood maps can be viewed on the FEMA Map Service Center website at <http://msc.fema.gov>. To speak with a FEMA map specialist, call 1-877-336-2627. To learn more about flood insurance, visit [www.FloodSmart.gov](http://www.FloodSmart.gov).”

*Source: Extracted from a FEMA Fact Sheet*

## 7. Tornado Safety Programs and Funding

<http://www.fema.gov/hazard/tornado/index.shtm>

Tornadoes are incredibly violent events and sufficient warning is not always possible. People need to be ready to take shelter immediately. The Federal Emergency Management Agency (FEMA) works with its partners to support initiatives that protect people from severe wind events. The agency assesses building damages and identifies lessons learned after tornadoes; funds research on shelter design and construction standards; develops best practices and technical manuals on safe rooms and community shelters; and produces public education materials on tornado preparedness and response.

FEMA produces technical manuals for engineers, architects, building officials, and prospective shelter owners on the design and construction of safe rooms and community shelters. This information can be found at [www.fema.gov/plan/prevent/saferoom/index.shtm](http://www.fema.gov/plan/prevent/saferoom/index.shtm). A safe room is usually described as a small, “hardened” interior room, such as a bathroom or closet that can provide a high level of protection from severe winds and windborne debris. A community safe room, usually built in public buildings such as schools or hospitals, can protect a larger number of people.

FEMA works with state governments, academia, and professional associations to recommend standards on shelter design and construction. Partners in this effort include the National Storm Shelter Association, the International Code Council (ICC) and the Wind Science and Engineering Research Center at Texas Tech University.

The Federal government makes funds available for the construction of safe rooms and community shelters. Sources include FEMA’s Hazard Mitigation Grant Program and Pre-disaster Mitigation Grant Program (state and local governments), U.S. Department of Housing and Urban Development (HUD) /

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Community Development Block Grants (CDBG) (local governments), and U.S. Small Business Administration (SBA) post-disaster loans (homeowners).

## **8. FEMA Public Assistance Grant Program**

<http://www.fema.gov/government/grant/pa/index.shtm>

“Introduction: The objective of the Federal Emergency Management Agency’s (FEMA) Public Assistance (PA) Grant Program is to provide assistance to states, local governments, and certain non-profit organizations to alleviate suffering and hardship resulting from major disasters or emergencies declared by the President.

Through the PA Program, FEMA provides supplemental federal disaster grant assistance for the repair, replacement, or restoration of disaster-damaged, publicly owned facilities and the facilities of certain Private Non-Profit (PNP) organizations.

The federal share of assistance is not less than 75% of the eligible cost for emergency measures and permanent restoration. The grantee (usually the state) determines how the non-federal share (up to 25%) is split with the sub-grantees (eligible applicants).”

*Source: FEMA Web site: <http://www.fema.gov/government/grant/pa/index.shtm>*

### **Special Considerations**

Section 406 of the Stafford Act provides a funding source for cost-effective hazard mitigation measures that would reduce or eliminate the threat of future damage to a facility damaged during the disaster. The measures must apply only to the damaged elements of a facility rather than to other, undamaged parts of the facility or to the entire system.

For example, if flooding inundates a sanitary sewer and blocks the manholes with sediment, mitigation to prevent the blockage of the damaged manholes in a future event may be considered eligible. However, work to improve undamaged manholes using the same method would not be eligible, even though the manholes are part of the same system. However, other programs can be used for mitigation of undamaged elements.

Hazard mitigation measures restore a facility beyond its pre-disaster design. Section 406 mitigation measures are considered part of the total eligible cost of repair, restoration, reconstruction, or replacement of a facility. They are limited to measures of permanent work, and the Applicant may not apply mitigation funding to alternate projects or improved projects if a new replacement facility is involved. Upgrades required to meet applicable codes and standards are not “mitigation measures” because these measures are part of eligible restoration work.

*Source: FEMA Web site: <http://www.fema.gov/hazard-mitigation-grant-program>*

## **9. National Flood Insurance Program**

The National Flood Insurance Program (NFIP) enables homeowners, business-owners, renters, and governments to purchase flood insurance coverage for financial protection of buildings and contents damaged by floods, mudslides or flood-related erosion. The NFIP reduces Federal disaster expenses and requires wise floodplain management practices. Premium rates are generally lower than standard actuarial rates.

### **What is Covered by Flood Insurance – and What is Not**

Generally, physical damage to your building or personal property “directly” caused by a flood is covered by your flood insurance policy. For example, damages caused by a sewer backup are covered if the backup is a direct result of flooding. However, if the backup is caused by

some other problem, the damages are not covered.



Charts on the FEMA web site below provide general guidance on items covered and not covered by flood insurance. Refer to your policy for the complete list.

Most NFIP Policies include Increased Cost of Compliance (ICC) coverage. This coverage can provide up to \$30,000 of the cost to elevate, demolish, or relocate your home. If your community declares your home “substantially damaged” or “repetitively damaged” by a flood, it will require you to bring your home up to current community standards. The total amount of your building claim and ICC claim cannot exceed the maximum limit for Building Property coverage (\$250,000 for a single-family home).

Source FEMA Web site: <http://www.fema.gov/library/viewRecord.do?id=3011>

### **Biggert-Waters Flood Insurance Reform Act of 2012**

On July 6, 2012, the Biggert-Waters Flood Insurance Reform Act of 2012 was signed into law. In addition to reauthorizing the National Flood Insurance Program (NFIP) through September 30, 2017, the bill brings several substantive changes to the program, including several that alter the way premium rates are calculated.

These changes may mean large increases NFIP premiums. It is critical that people either constructing new buildings, or repairing and rebuilding structures after storms understand these changes so they can make sound and informed decisions about whether or not they want to place additional resources in harm’s way, and so they can understand the financial implications of doing so. These includes not only questions of rebuilding destroyed homes, but repairing them, too. For example, should people replace a damaged water-heater in their basement, or might they want to consider moving it upstairs? (For guidance on recovering at a community level, be sure to see the 9 Steps to Recovery from NHMA and StormSmart at <http://recovery.stormsmart.org/>)

## **10. Loans From The Small Business Administration**

**SBA Business Disaster Loan Program:** Low-interest, long-term loans to businesses to repair or replace damaged property owned by the business, including real estate, machinery and equipment, inventory, and supplies. Businesses of any size are eligible. Nonprofit organizations, such as charities, churches, and private universities, are also eligible. Business loan amounts are limited to \$1,500,000. Applicants must show the ability to repay all loans. Loan amounts may be increased by up to 20 percent for mitigation measures.

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Source: FEMA Web <http://www.sba.gov/services/disasterassistance/index.html>

**SBA Provides Home Disaster Loans To Homeowners And Renters:** During times of disaster, the SBA becomes the “nation’s bank.” Disaster assistance loans from the U.S. Small Business Administration (SBA) are not just for businesses. Homeowners may also qualify for low-interest loans to help rebuild or repair their homes or repair or replace uninsured or underinsured flood damaged personal property. SBA loans are critical to personal disaster recover as they can support repair or clean-up to accessory structures such as sheds, docks, gazebos, etc. that aren’t covered by traditional insurance. SBA loans can help with debris clearing, tree removal, stream and river bank stabilization. Renters may qualify for loans to repair or replace personal property. In fact, the majority of all SBA disaster loans are made to homeowners.

The loan terms are designed to be affordable, with terms extending up to 30 years with interest rates around 3 percent. Loans amounts are based on the actual cost of repairing or rebuilding a flood-damaged home and personal property, minus any insurance reimbursements for the same loss. The SBA can also increase the approved disaster loan by up to 20 percent to cover approved Hazard Mitigation activities, above and beyond compliance with codes and standards. In the, past such approved mitigation activities have included voluntary elevation above flood levels, the construction of safe rooms in areas subject to tornadoes, dry-proofing basements and elevation of utilities in flood areas.

Current loan limits are as follows:

- Homeowners – Up to \$200,000 to repair or rebuild a primary residence to its condition before the disaster.
- Homeowners and renters – Up to \$40,000 to repair/replace personal property such as clothing, furniture and automobiles.

Businesses and non-profit organizations such as charities, churches and private universities may apply for business physical disaster loans up to \$1.5 million to repair or replace property owned by the business, including real estate, plus machinery, equipment, fixtures and inventory not covered by insurance.

**SBA Economic Injury Disaster Loans:** Loans for working capital to small businesses and small agricultural cooperatives to assist them through the recovery period. Assistance is available only to applicants with credit unavailable elsewhere. Applicants must be eligible small businesses according to SBA size standards. Collateral required on loans over \$5,000.

Source: FEMA web: <http://www.sba.gov/services/disasterassistance/index.html>

## 11. IRS Casualty Loss-Special Disaster Provisions

“Taxpayers who have sustained a casualty loss from a declared disaster may deduct that loss on the federal income tax return for the year in which the casualty actually occurred, or elect to deduct the loss on the tax return for the preceding tax year. In order to deduct a casualty loss, the amount of the loss must exceed 10 percent of the adjusted gross income for the tax year by at least \$100. If the loss was sustained from a federally declared disaster, the taxpayer may choose which of those two tax years provides the better tax advantage.

The Internal Revenue Service (IRS) can expedite refunds due to taxpayers in a federally declared disaster area. An expedited refund can be a relatively quick source of cash, does not need to be repaid, and does not need an Individual Assistance (IA) declaration. It is available to any taxpayer in a federally declared disaster area.”

## 12. FEMA Individual Assistance

### i. Individuals and Households Program

The Individuals and Households Program (IHAP) is a combined FEMA and state program. When a major disaster occurs, this program provides money and services to people in the declared area whose property has been damaged or destroyed and whose losses are not covered by insurance. In every case, the disaster victim must register for assistance and establish eligibility. The toll-free telephone registration number is 1-800-621-FEMA (or TTY 1-800-462-7585 for the hearing or speech impaired). FEMA/EPR (or the providing agency) will verify eligibility and need before assistance is offered. Applicants can also register online at [www.fema.gov](http://www.fema.gov). After a disaster, local Disaster Recovery Centers are established to provide support to disaster victims. Either in a stationary facility or a mobile unit, most of these centers now offer the capability for disaster victims to register online.



### ii. What Types of Assistance Are Provided?

The IHAP - Housing Assistance assures that people whose homes are damaged by disaster have a safe place to live. The IHAP - Other Needs Assistance (ONA) provides financial assistance to individuals and households who have other disaster-related necessary expenses or serious needs and do not qualify for a low interest loan from Small Business Administration (SBA). These programs are designed to provide funds for expenses that are not covered by insurance. They are available only to homeowners and renters who are United States citizens, non-citizen nationals, or qualified aliens affected by the disaster. The following is a list of the types of assistance available through this program and what each provides.

- a) Temporary Housing - homeowners and renters receive funds to rent a different place to live or a temporary housing unit when rental properties are not available.
- b) Repair - homeowners receive grants to repair damage from the disaster that is not covered by insurance. The goal is to make the damaged home safe and sanitary.
- c) Replacement - under rare conditions, homeowners receive limited funds to replace their disaster damaged home.
- d) Permanent Housing Construction - homeowners and renters receive direct assistance or a grant for the construction of a new home. This type of assistance occurs only in very unusual situations, in insular areas or remote locations specified by FEMA/EPR where no other type of housing is possible.
- e) Other Needs Assistance (ONA) - applicants receive grants for necessary and serious needs caused by the disaster. This includes medical, dental, funeral, personal property, transportation, moving and storage, and other expenses that FEMA/EPR approves. The homeowner may need to apply for a SBA loan before receiving assistance.”

Source: FEMA Fact Sheet [http://www.fema.gov/pdf/rebuild/recover/dec\\_proc.pdf](http://www.fema.gov/pdf/rebuild/recover/dec_proc.pdf)

Excellent additional Information: [http://www.fema.gov/pdf/assistance/process/help\\_after\\_disaster\\_english.pdf](http://www.fema.gov/pdf/assistance/process/help_after_disaster_english.pdf)

## 13. Agricultural Assistance

- i. “USDA/FSA Conservation Reserve Program: Voluntary program that offers farmers annual rental payments, incentive payments for certain conservation activities, and cost-share assistance to establish approved vegetation on eligible cropland. Available to individual farmers who agree to set aside and enroll environmentally sensitive land into the program for a 10- to 15-year period.

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- ii. **USDA/FSA EM Program (Emergency Loans):** Emergency low-interest loans to family farmers and ranchers to cover production losses and physical damage. Loans can be used for operating expenses and for other expenses necessary to return farming operations to a financially sound basis. Available to individual farmers with qualifying crop losses.
  - iii. **USDA/FSA Emergency Conservation Program:** Cost-share payments to rehabilitate farmlands damaged by natural disasters. Payments are available to individual farmers to perform emergency conservation and rehabilitation measures. Payment from FSA is 64 percent (up to \$62,500); 40 percent (\$62,500 to \$125,000); and 20 percent (\$125,000 to \$200,000); the remainder is paid by the farmer.
  - iv. **USDA/FSA Tree Assistance Program:** Cost-share payments to orchardists, maple sugar producers, greenhouse operators, and vineyard growers who incurred losses due to damaging weather.
  - v. **USDA/RMA Federal Multi-Peril Crop Insurance:** Provides direct payment of insurance claims. Insurance is available to protect producers against unavoidable causes of loss such as adverse weather conditions or other natural disasters beyond the producers' control. For a small administrative fee, individual farmers can get coverage that compensates a producer for losses exceeding 50 percent of their approved yield at a price equal to 60 percent of the commodity's expected market price.
  - vi. **USDA/RMA Noninsured Crop Disaster Assistance Program:** Direct payments to reduce financial losses resulting from a natural disaster that causes production loss or prevents planting of crops grown commercially for food or fiber for which Federal crop insurance is not available. Coverage, comparable to that offered under the Federal Multi-Peril Crop Insurance Program, is available to individual farmers.

#### **14. Economic Revitalization and Community Assistance**

- i. **DOC/EDA Planning Grants:** Grants to States and local governments to fund Economic Development Coordinators who: 1) assess economic injury and facilitate a locally developed, long-term economic recovery planning process for the impacted area; 2) provide a local on-site resource for effective economic development program coordination; and 3) carry out project implementation activities consistent with the long-term economic recovery plan.
- ii. **DOC/EDA Revolving Loan Fund:** Funding for local short-term "gap" financing for business recovery in affected communities. Grantees may provide assistance to businesses that: 1) are declined loans by SBA; or 2) need additional financing beyond SBA's loan limits. Local RLF lenders have the flexibility to provide financing to: 1) supplement traditional lending; 2) setup a local micro-lending program; or 3) develop a local public/private infrastructure lending program to implement local business recovery initiatives.
- iii. **DOC/EDA Technical Assistance Grants:** Grants to State and local governments for strategic recovery planning and implementation. Recovery plans focus on job retention/creation to help offset the economic impacts of disasters. Grants may provide technical assistance to address industry-specific economic dislocations, e.g., marketing/promotional activities to revive the tourism industry, economic development feasibility studies, or professional expertise to assist local communities in recovery efforts.
- iv. **FEMA Community Disaster Loan Program:** Direct loans to local governments to offset the loss of tax or other revenues as a result of a major disaster. The local government must demonstrate a need to maintain local governmental functions such as police and fire protection, or water and sewer services.
- v. **USDA/RBS Business and Industrial Loans:** Direct and guaranteed loans, grants, and rural business enterprise grants to businesses and cooperatives affected by natural disasters. Applicants

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must be in rural areas or in towns with populations under 50,000. Preference is given to applicants in open country, rural communities, and towns of 25,000 population and fewer. Assistance is subject to the availability of funds.

- vi. **USDA/RHS Community Facilities Loans and Grants:** Loans and grants to develop community facilities for public use in rural areas. Towns or incorporated areas with populations under 50,000 are eligible for direct and guaranteed loans, and towns or incorporated areas with populations under 25,000 are eligible for grants. Funds may be used to construct, enlarge, or improve health care, public safety, fire and rescue services, transportation, and public services. All facilities financed shall be for public use.
- vii. **USDA Water and Waste Grants and Loans:** Loans and grants to develop, replace or repair water and waste disposal (including storm drainage) systems in rural areas or in towns with populations of 10,000 or fewer. Funds may not be used to pay interest on loans, operation and maintenance costs, or to acquire or refinance an existing system.
- viii. **USDA/Natural Resource Conservation Service (NRCS) Emergency Watershed Protection Program:** Financial and technical assistance to: 1) safeguard lives and properties, and 2) eliminate or reduce hazards created by natural disasters that suddenly impair a watershed. Technical assistance also includes engineering and design for soil and water conservation structures. Eligible applicants include State agencies, counties, municipalities, towns or townships, soil and water conservation districts, or any other organization with authority to acquire land rights and operate and maintain measures installed.

## 15. Housing Assistance

- i. **Department of Energy (DOE) Technical Assistance Programs:** DOE's Weatherization Assistance Program, Affordable Housing Partnerships, Building America, and Office of Building Technology State and Community Programs provide services to communities for the revitalization of single-family, multifamily, and commercial buildings.
- ii. **FEMA Disaster Housing Assistance:** See description of FEMA Individual Assistance (IA) Programs above).
- iii. **Partnership for Advancing Technology in Housing (PATH):** HUD-directed partnership that brings together various government programs dealing with home building, manufacturing, and insurance and financial industries. PATH designs and constructs examples of housing that include disaster mitigation measures and technology that enhances energy efficiency, environmental performance, and affordability.
- iv. **HUD community Development Block Grant (CDBG) Program:** Grants to develop decent housing, a suitable living environment, and to expand economic opportunities, principally for persons of low- and moderate-income. In a disaster, CDBG grantees may reprogram their funds to assist homeowners who: 1) are declined loans by SBA because they cannot carry any more debt and lack the ability to repay; or 2) need additional financing beyond SBA's loan limits to repair, rehabilitate, reconstruct, or replace their residences. Some disasters receive special Disaster CDBG Funding
- v. **HUD/Federal housing Administration (FHA) Title I Home Repair Loan Program:** This program will finance loans up to \$25,000 through participating lenders at prevailing interest rates.
- vi. **HUD/FHA Section 203(k) Rehabilitation Mortgage Insurance Program:** Assistance to make it easier to finance repairs or rehabilitation through participating lenders at prevailing interest rates. For disaster areas, HUD has expanded the debt ratio to 60 percent on FHA partial claims. Rehabilitation cost must be at least \$5,000.
- vii. **HUD/FHA Section 203(h) Mortgage Insurance for Disaster Victims:** Provides mortgage insurance to protect lenders against the risk of default on loans to qualified disaster victims whose

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homes were destroyed, or require reconstruction or replacement. Insured loans may be used to finance the purchase or reconstruction of a one-family home that will be the principal residence of the homeowner. Disaster victims are not required to meet the 3 percent minimum investment requirement.

- viii. **HUD HOME Program:** Participating jurisdictions may reprogram funds to provide permanent housing for low-income homeowners and renters who have become disaster victims. Funds may be used for acquisition, new construction, rehabilitation, and tenant-based rental assistance.
- ix. **HUD 5-H Homeownership Program:** Public housing sales proceeds (and interest earned on those proceeds) may be retained by the Public Housing Administration and be used for housing assistance to low-income families. Sales proceeds may be used to construct or acquire additional dwellings for sale to low-income families or to assist such families in purchasing other dwellings from public or private owners.
- x. **USDA/RHS Section 504 Repair Loans and Grants:** Grants and direct loans to very-low-income rural residents for the rehabilitation and repair of owner-occupied dwellings. Assistance is provided to very-low-income homeowners to remove health and safety hazards in their homes and to make homes accessible for disabled persons. Grants are available for persons age 62 and older who cannot afford to repay a loan. During an emergency, additional loans could be made to homeowners and to borrowers to repair housing facilities. Funds are available only to the extent that funds are not available from FEMA. Applicant's income for a loan may not exceed very-low-income limits (\$6,300 to \$22,650 for a single-person household, depending on an area's median income).
- xi. **USDA/RHS Self-Help Housing Loans:** Loans for materials, site, and skilled labor to assist groups of six to eight low-income families build each other's homes. Applicants must be a private or public nonprofit organization that will provide the developed sites to qualified borrowers on a cost-of-development basis in open country and towns with populations of 10,000 people or fewer. Places up to 25,000 population can be approved under certain conditions.
- xii. **USDA/RHS Rural Rental Loans:** Guaranteed and insured loans to build or rehabilitate rental units for low- and moderate-income residents. Applicants must be lenders that are approved by Fannie Mae, Freddie Mac, and HUD or be a State housing finance agency. Projects must be located in rural areas.
- xiii. **USDA/RHS Section 502 Single-Family Housing Direct and Guaranteed Loans:** Subsidized direct loans to very-low- and low-income rural residents and guaranteed loans to low- and moderate-income rural residents in need of housing. RHS may also make limited housing repair loans through the direct loan program. Existing borrowers are offered loan forbearance, when needed, to recover from the effects of a natural disaster.

## 16. Infrastructure Assistance

- i. **DOT/FHWA Emergency Relief Program:** Assistance for the repair of Federal-aid highways and roads on Federal lands. The State match generally varies from 10 to 20 percent depending on the class of Federal-aid highway. No State match is required for emergency repairs accomplished within 180 days of the disaster to restore essential travel. Additionally, no State match is required for repair of roads on Federal lands.



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- iii. **DOC/EDA Infrastructure Construction Grant Program:** Grants for local public infrastructure projects. Projects must be either new construction or predisaster improvements to commercial and industrial facilities, or publicly owned infrastructure. Grants support job retention and job creation, leverage private investment, and directly contribute to the overall long-term economic recovery of the disaster area. Grant funding is cost-shared, 75 percent Federal and 25 percent State.
  - iv. **FEMA Public Assistance Program:** See description of FEMA PA above.
  - v. **USDA Water and Waste Disposal Programs:** Grants, and direct and guaranteed loans to develop water and waste disposal systems in rural areas. During an emergency, funds would be made available for loans or grants for the repair of rural water and waste disposal systems damaged by natural disasters. Funds cover any facility that did not receive assistance from other sources, so that impacted communities can continue to provide safe drinking water and wastewater treatment facilities.” Source: <http://www.usda.gov/rus/water/docs/wwfact.pdf>
  - vi. **USDA/NRCS Emergency Watershed Protection Program:** Financial and technical assistance to: 1) safeguard lives and properties, and 2) eliminate or reduce hazards created by natural disasters that suddenly impair a watershed. Technical assistance also includes engineering and design for soil and water conservation structures. Eligible applicants include State agencies, counties, municipalities, towns or townships, soil and water conservation districts, or any other organization with authority to acquire land rights and operate and maintain measures installed.

## **17. USDA/NRCS Emergency Watershed Protection Program:**

Following a flooding disaster, the USDA Natural Resource Conservation Service through the Emergency Watershed Protection Program can provide financial and technical assistance to: 1) safeguard lives and properties, and 2) eliminate or reduce hazards created by natural disasters that suddenly impair a watershed. Technical assistance also includes engineering and design for soil and water conservation structures. Eligible applicants include state agencies, counties, municipalities, towns or townships, soil and water conservation districts, or any other organization with authority to acquire land rights and operate and maintain measures installed.

## **18. Department of Education**

The Readiness and Emergency Management Grants (REMS) are available to schools to local education agencies to improve and strengthen their emergency management plans. The funds can also be used for the development of plans to address all phases of emergency management. School districts are required to coordinate with emergency management.

## **19. Public Private Partnerships**

Public private partnerships can be a great way to leverage existing resources and work towards a more resilient community. Local and national businesses, insurance companies, home builders, non-profits involved in sustainability, and others can be excellent partners.

NHMA has compiled a series of case studies on successful collaborative initiatives which can be found at: [www.nhma.info](http://www.nhma.info)

## **20. Environmental Agencies and Nonprofits**

Environmental agencies can be excellent partners, particularly in cases where there is alignment between

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their goals of preservation and the mitigation actions being proposed. Environmental groups are often interested in species preservation, natural floodplain functions, maintenance of green space, and more.

One example is the US Fish & Wildlife Service which can use funds from Migratory Bird Hunting and Conservation Stamps, also known as Duck Stamps, for land acquisition. Other potential partners include National Wildlife Federation, American Rivers, Environmental Defense Fund, and others.

## 21. Teaming Floodplain Management, Hazard Mitigation and Climate Adaptation

Another way of leveraging programs and resources towards the promotion of hazard mitigation and resilience is by unifying the work of floodplain managers, hazard mitigation professionals and climate adaptation professionals. As a Society, we are not even properly managing the foreseeable results of natural hazards calculated based on historical events. Climate uncertainty, and projected climate change impacts will further tap our skills and tax our available resources. We need to work together to educate policy makers about ways to build a safer, sustainable society, which takes into account the fact that due to uncertainty, and potential climate change we cannot necessarily the design development expected to last potentially hundreds of years, based only on our limited available years of past records..

Floodplain Management, Hazard Mitigation and Adaptation professionals are groups with a lot in common. The main differences between hazard mitigation and climate adaptation have been institutional. Until recently most hazard mitigation efforts have been based upon past events; while adaptation is informed by future projections. Floodplain managers have focused primarily upon flood hazards only. Uniting these groups, which have classically operated in different silos, will help create synergies.

Many state and regional governments are beginning to unify floodplain management, hazard mitigation and climate adaptation plans. Examples include:

- **Maryland.** The 2008 version of the Maryland hazard mitigation plan had limited mention of climate change. Stakeholders leveraged the data and analysis from other efforts to perform additional sea level rise state and critical facility risk assessments. The 2011 hazard mitigation plan update considered climate change as a potential *amplifier* of existing natural hazards (i.e. flooding, heat, drought, etc.) and included a discussion of projections as related to specific hazards and potential future impact on hazard frequency, intensity, and distribution.
- **California.** The 2010 California hazard mitigation plan update sourced the 2009 California Climate Adaptation Strategy to add significant climate change elements, including greenhouse gas mitigation and adaptation. The draft April 2012 version includes a framework for local/regional climate change adaptation planning.
- **Wisconsin.** The FEMA Region V Crosswalk of the 2011 Wisconsin hazard mitigation plan states “OK. The state plan begins to discuss issues regarding climate change. The discussion is preliminary and general and the next plan update should include a more detailed risk assessment for climate change and a more detailed treatment of mitigation strategies.”
- **Santa Cruz, CA.** Santa Cruz has demonstrated perhaps the most drastic change from a typical hazard mitigation plan into an all-hazards plan. The City Hazard Mitigation Plan integrates a vulnerability assessment, a Climate Action Plan, a General Plan, and an Emergency Operations Plan.
- **Lewes, DE.** Lewes, DE has, through a collaboration of the City, Delaware Sea Grant, and ICLEI (Local Governments for Sustainability), integrated climate change into existing hazard mitigation planning. Their biggest project challenge was the differences between hazard mitigation and climate change adaptation nomenclature.

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The following foundations and organizations provide technical assistance, information, and other sources for climate adaptation:

- ICLEI- local governments for sustainability has an international network, tool kits, and case studies: <http://www.iclei.org>
- EcoAdapt- Climate Adaptation Knowledge Exchange is a database of organizations, case studies and tools: <http://cakex.org>
- Georgetown Climate Center has an extraordinary adaptation clearinghouse of resources and organizations: <http://www.georgetownclimate.org/adaptation/clearinghouse>

Below are federal agencies that provide funding opportunities for adaptation:

- EPA State and Local Climate and Energy Newsletter- listserv that shares state and local developments in policies, programs, and opportunities:  
<http://epa.gov/statelocalclimate/newsletters/index.html#a01>
- EPA Grant Competition Forecast for Calendar Year 2013- list of current and anticipated opportunities:  
[http://www.epa.gov/ogd/training/resources\\_for\\_communities/community\\_grants\\_table.htm](http://www.epa.gov/ogd/training/resources_for_communities/community_grants_table.htm)
- Grants.gov- database for all federal grants: <http://www.grants.gov/>
- Partnership for Sustainable Communities: Grants, Assistance & Programs- a list of opportunities through this interagency HUD-DOT-EPA partnership:  
<http://www.sustainablecommunities.gov/grants.html>
- EPA Adaptation Tools for Public Officials- numerous tools and guidebooks:  
<http://www.epa.gov/climatechange/impacts-adaptation/adapt-tools.html>
- Federal and EPA Adaptation Programs- information and links about adaptation efforts across federal agencies: <http://www.epa.gov/climatechange/impacts-adaptation/fed-programs.html>

The Climate Change Adaptation for State and Local Governments Webcast Mini-Series covers:

- Achieving Buy-In for Adaptation
- Overcoming the Uncertainty Barrier for Adaption
- Attracting funding for adaptation

and is available here: [www.epa.gov/statelocalclimate/web-podcasts/local-w](http://www.epa.gov/statelocalclimate/web-podcasts/local-w)

## 22. Rain Gardens as Stormwater Management

Rain gardens are a means of reducing stormwater runoff and can be a component of a broader stormwater management strategy incorporating Low Impact Development. Not only do they aesthetically add to the landscape, but they also encourage ground infiltration of stormwater, reducing the flow of pollutants to water sources via run off. Incentive programs are available to homeowners through many local/state organizations and/or foundations.

Previously implemented rain garden programs include:

- LA Rain Gardens- Los Angeles: <http://www.laraingardens.org>
- 12,000 Rain Gardens- Puget Sound: <http://www.12000raingardens.org/raingardens-for-you.html>
- Watershed Management- Water Quality Improvement Program: Holmes Lake Watershed:  
<http://www.lincoln.ne.gov/city/pworks/watrsheed/educate/holmes/index.htm>
- City of Lincoln- Residents Can Apply for Rain Garden Grants:  
<http://www.lincoln.ne.gov/city/mayor/media/2010/092310.htm>

Some sources of funding for rain gardens:

- EPA- Clean Water and Drinking Water State Revolving Funds: ARRA Implementation:  
[http://water.epa.gov/grants\\_funding/eparecovery/](http://water.epa.gov/grants_funding/eparecovery/)
- EPA- Clean Water State Revolving Fund:  
[http://water.epa.gov/grants\\_funding/cwsrf/cwsrf\\_index.cfm](http://water.epa.gov/grants_funding/cwsrf/cwsrf_index.cfm)

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Rain Garden programs by state:

- Alabama- State Water Program: <http://www.aces.edu/waterquality/mg.htm>
- Alaska- Anchorage Rain Gardens: <http://www.anchorageraingardens.com>
- Arizona- Southern Arizona plant list: <http://www.harvestingrainwater.com/tucson-az-plant-lists/southern-arizona-native-plant-list-for-rain-gardens/>
- Arkansas- Illinois River Watershed Partnership: <http://www.irwp.org/conservation-and-restoration/rain-garden-project/>
- California- Sea Grant: [http://www-csgc.ucsd.edu/BOOKSTORE/Resources/GS3%20Rain%20Gardens\\_8-10-09.pdf](http://www-csgc.ucsd.edu/BOOKSTORE/Resources/GS3%20Rain%20Gardens_8-10-09.pdf)

-Los Angeles:

[http://www.laraingardens.org/index.php?option=com\\_content&view=article&id=53](http://www.laraingardens.org/index.php?option=com_content&view=article&id=53)

- Colorado- plant list: <http://www.wildflower.org/expert/show.php?id=5394>
- Connecticut- A Resident's Guide to Rain Gardens: [http://www.ct.gov/deep/lib/deep/water/watershed\\_management/wm\\_plans/lid/what\\_is\\_a\\_rain\\_garden.pdf](http://www.ct.gov/deep/lib/deep/water/watershed_management/wm_plans/lid/what_is_a_rain_garden.pdf)
- Delaware- Rain Gardens for the Bays: [http://www.raingardensforthebays.org/index.php?option=com\\_content&view=article&id=6&Itemid=21](http://www.raingardensforthebays.org/index.php?option=com_content&view=article&id=6&Itemid=21)
- Florida- Florida's Water, Ours to Protect: [http://www.protectingourwater.org/watersheds/get\\_wet/protectwater/raingardens/](http://www.protectingourwater.org/watersheds/get_wet/protectwater/raingardens/)
- Georgia- University of Georgia: [http://www.caes.uga.edu/Publications/pubDetail.cfm?pk\\_id=7917](http://www.caes.uga.edu/Publications/pubDetail.cfm?pk_id=7917)
- Hawaii- HOK: <http://www.huihawaii.org/rain-gardens.html>
- Idaho- Native Nurseries: [http://www.plantnative.org/nd\\_idtoks.htm](http://www.plantnative.org/nd_idtoks.htm)
- Illinois- Rain Gardens Rock: <http://prairierivers.org/raingardens/>
- Indiana- A How To: <http://www.in.gov/dnr/lakemich/files/lm-RainGardenManual.pdf>
- Iowa- Rain Garden Project: <http://www.iowaagriculture.gov/press/raingarden.asp>
- Kansas- Design and Implementation for Property Owners [http://faculty.caped.ksu.edu/lskab/KSU-LARCP\\_Rain-Garden-Guidebook-lrs.pdf](http://faculty.caped.ksu.edu/lskab/KSU-LARCP_Rain-Garden-Guidebook-lrs.pdf)
- Kentucky- Residential Rain Gardens: [http://www.ca.uky.edu/gogreen/displays/rain\\_gardensRD.pdf](http://www.ca.uky.edu/gogreen/displays/rain_gardensRD.pdf)
- Louisiana- Storm Water and Your Rain Garden: <http://www.lsuagcenter.com/NR/ronlyres/79E7AA78-F75A-4B03-89CB-97F6B1BB5EC2/27022/Backyardraingarden1.pdf>
- Maine- Adding a Rain Garden to Your Landscape: <http://www.umext.maine.edu/onlinepubs/pdfpubs/2702.pdf>
- Maryland- Rain Gardens Across Maryland: [http://www.co.worcester.md.us/drp/natres/Rain\\_Gardens\\_Across\\_MD.pdf](http://www.co.worcester.md.us/drp/natres/Rain_Gardens_Across_MD.pdf)
- Massachusetts- Building a Rain Garden: <http://www.mass.gov/dfwele/der/riverways/pdf/raingardenfactsheet.pdf>
- Michigan- eWashtenaw: [http://www.ewashtenaw.org/government/drain\\_commissioner/dc\\_webWaterQuality/raingardens/tour/raingardentour.html](http://www.ewashtenaw.org/government/drain_commissioner/dc_webWaterQuality/raingardens/tour/raingardentour.html)
- Minnesota- How To: [http://www.extension.umn.edu/distribution/naturalresources/components/dd8241\\_4.pdf](http://www.extension.umn.edu/distribution/naturalresources/components/dd8241_4.pdf)
- Mississippi- Home Landscape: <http://msucare.com/lawn/landscape/sustainable/rain.html>
- Missouri- Rainscaping Guide: <http://www.missouribotanicalgarden.org/sustainability-conservation/sustainable-living/at-home/rainscaping-guide/rain-gardens.aspx>
- Montana- NRCS: <http://www.mt.nrcs.usda.gov/technical/ecs/water/lid/rain.html>

- Nebraska: Resources and Links:  
<http://www.lincoln.ne.gov/city/pworks/watrshed/educate/garden/>
- Nevada- Low Impact Development:  
<http://www.unce.unr.edu/publications/files/nr/2009/fs0925.pdf>
- New Hampshire- NHC: <http://www.nhcoast.org/index.php/raingardens/>
- New Jersey- Native Plant Society:  
[http://www.npsnj.org/pages/nativeplants\\_Rain\\_Gardens.html](http://www.npsnj.org/pages/nativeplants_Rain_Gardens.html)
- New Mexico- no resources available
- New York- Dept. of Environmental Conservation:  
<http://www.dec.ny.gov/public/44330.html>
- North Carolina- Backyard Rain Gardens: <http://www.bae.ncsu.edu/topic/raingarden/>
- North Dakota- Rain Gardens: <http://www.plant-materials.nrcs.usda.gov/pubs/ndpmctn7278.pdf>
- Ohio- Central Ohio Rain Garden Initiative: <http://www.centralohioraingardens.org>
- Oklahoma- Oklahoma Conservation Commission:  
[http://www.ok.gov/conservation/News/OCC\\_Rain\\_Gardens\\_featured.html](http://www.ok.gov/conservation/News/OCC_Rain_Gardens_featured.html)
- Oregon- Rain Garden Guide: <http://extension.oregonstate.edu/gardening/node/1083>
- Pennsylvania- EPA:  
[http://www.dep.state.pa.us/dep/DEPUTATE/watermgt/wsm/WSM\\_TAO/reuse/V-B-2-Zeigler/Rain\\_Garden.htm](http://www.dep.state.pa.us/dep/DEPUTATE/watermgt/wsm/WSM_TAO/reuse/V-B-2-Zeigler/Rain_Garden.htm)
- Rhode Island- A Design Guide for Homeowners:  
[http://www.uri.edu/ce/wq/nemo/Publications/PDFs/SW.RGBrochure\\_text.pdf](http://www.uri.edu/ce/wq/nemo/Publications/PDFs/SW.RGBrochure_text.pdf)
- South Carolina- Carolina Clear Manual:  
<http://www.clemson.edu/psapublishing/pages/hort/IL87.pdf>
- South Dakota: no resources available
- Tennessee: Birds, Butterflies, and Water Quality:  
[http://www.tn.gov/environment/tn\\_consv/archive/rain\\_gardens.pdf](http://www.tn.gov/environment/tn_consv/archive/rain_gardens.pdf)
- Texas- Rainwater Harvesting: <http://rainwaterharvesting.tamu.edu/raingardens/>
- Utah- Bioretention Rain Gardens at University of Utah:  
<http://www.escsi.org/ContentPage.aspx?id=760>
- Vermont- Rain Garden Manual:  
<http://www.uvm.edu:8889/~seagrant/communications/assets/VtRainGardenManual.pdf>
- Virginia- Technical Guide: <http://www.dof.virginia.gov/mgt/print/Rain-Gardens-Tech-Guide.pdf>
- Washington- Pudget Sound Rain Gardens: <http://raingarden.wsu.edu>
- West Virginia- EPA:  
<http://www.dep.wv.gov/WWE/Programs/stormwater/MS4/green/raingarden/Pages/default.aspx>
- Wisconsin- Build Your Own Rain Garden:  
<http://dnr.wi.gov/wnrmag/html/stories/2008/apr08/raingarden.htm>
- Wyoming- Case Study: Wyoming High School Rain Garden:  
[http://www.asla.org/uploadedFiles/CMS/Advocacy/Federal\\_Government\\_Affairs/Stormwater\\_Case\\_Studies/Stormwater%20Case%20003%20Wyoming%20HS%20Rain%20Garden,%20Wyoming,%20OH.pdf](http://www.asla.org/uploadedFiles/CMS/Advocacy/Federal_Government_Affairs/Stormwater_Case_Studies/Stormwater%20Case%20003%20Wyoming%20HS%20Rain%20Garden,%20Wyoming,%20OH.pdf)

### **23. Cooperation of Energy Assurance and Hazard Mitigation**

Energy assurance planning focuses on the availability of reliable and appropriate energy options for day to day needs, and in the case of an emergency. Many communities are beginning to develop energy assurance plans that incorporate the use of renewable energy sources, and often times address issues related to hazard mitigation such as back-up generation.

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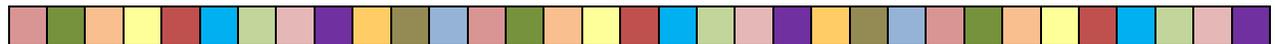
The Department of Energy provides some information on energy assurance planning at:  
<http://energy.gov/oe/services/energy-assurance>

## 24. Other

Other ways of raising funds in a post disaster context range from issuing tax-exempt bonds, working with foundations, holding community fundraisers, as well as soliciting contributions of money and goods from local state and regional businesses and industry.

**Get creative! There is NO SHAME in asking for help, NO SHAME in begging and pleading for help to make the lives of disaster victims/survivors, and future generations better and safer!**

## VI. Sewing it All Together: Taking Action



In the early days of this country, an old fashioned quilting bee would bring together many different people who would have a great time working together to decide on a pattern, select material to use in a particular quilt, and then work harmoniously together to turn bits and pieces of material in to a valuable and treasured heirloom.

Today community leaders, residents; business owners and various governments, private and volunteer agencies can likewise work together to develop a common vision for their community and weave together variety of different funding sources, technical support, lessons from other communities and through synergy, create a heritage of better tomorrows for their community.



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## VII. An Example of How the Patchwork Process Is Done



Assembling the pieces of the quilt, at first, can seem mind-boggling. It requires assessing the desires of each individual and business owner in an area, balancing their needs with broader community objectives, determining the best course of action through a well-planned and conceived collaborative process, finding the right funding sources, and putting the process in motion.

Let's do an example from the hypothetical community:

### **Rivertown, Any State, USA**

Rivertown is an agricultural community of 1,000 people located along the majestic banks of the Great Fast River. The small-town government has only a few full-time employees or officials. Some of these officials wear many public hats and run their own private businesses, too.

The people in this town are used to floods, which occur just about every decade. In the past, the area was affected by a tornado (1997-no Federal disaster declared) and a large wildfire (2005-Presidential Declaration for Fire Suppression Assistance). In these rare floods, a few basements get flooded, and when waters recede, people dry out their furniture and start over. (No Disaster Declarations by State or Federal Government.) Folks in Rivertown were able to rebuild their property following the tornado and wildfire using the proceeds of insurance policies, and mutual aid. However, three children lost their lives in the fire, and an elderly couple lost their lives in the tornado. These natural disasters also caused numerous injuries, including the partial paralysis of one individual.

This most recent flooding is different. Water levels during the flood event were higher than ever. The higher water may have been due to changes in both the hydrology and hydraulics of upstream rivers and creeks, following the 2005 fire. In any case, the flood was exacerbated by severe ice jams at several locations, as well as by strong winds, which destroyed many ice-covered trees. Houses that had only had basement flooding in the past were soaked to the roofline and remained under water for several days. Some homes were washed completely from their foundations. During the evacuation, one rescue worker, a junior firefighter, was swept away to his death by swift waters; three people were injured, and there were several "close calls". Were it not for the heroic work by police, fire and emergency management volunteers, the loss of life and injury could have been truly horrific in this small town.

The area is covered by damaged tree limbs and destroyed trees, which may pose a severe risk of wild-fire for years to come.

The Governor requested, and the President declared, a Major Disaster under the Stafford Act, as amended, for these floods.

One neighborhood of 23 homes and two rental properties in Rivertown were hit particularly hard. The flood undermined many public roads and caused severe damage to a non-Federal Highway System Bridge, private wells and septic systems. The damage seriously impacted the community's water supply by causing a huge surge of septic water into the community's wells. A "boil water" order is consequently in effect. The entire community stormwater system seems to be leaching pollutants into the waters of the state. As the recovery process began, a few resources were already in place for the community due to the President's Federal Disaster Declaration. In addition, the damages were so severe that the Congress took the unusual step of providing a special Appropriation of Department of Housing and Urban Development (HUD) Community Block Grant Disaster (CDBG) Funds to Rivertown to supplement the normal funds available to the State as well as "entitlement" and "non-entitlement" communities. The state has designated the bulk

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of these funds to the most seriously damaged communities on a formula basis, in which uninsured damages counts heavily.

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The town participates in the National Flood Insurance Program (NFIP), but the FEMA Flood Insurance Rate Maps (FIRMs) are 26 years old, and, for some reason, the flood largely took place in areas which were not designated as “Special Flood Hazard Areas” (SFHAs). FEMA calls areas which are calculated to be inundated by a flood which has a one percent annual chance of occurrence, also called the 100 year flood, a SFHA. FEMA representatives had already made community leaders aware of flood insurance program requirements for rebuilding substantially damaged homes; as well as the additional funds available for Increased Cost of Compliance (ICC) with the local requirements adopted to comply with the NFIP.

Town officials originally planned to use all available CDBG funds to acquire one home and help elevate another. The original thought by the community was to demolish this entire remaining neighborhood and force the residents to relocate to safer, higher ground. **The residents did not agree, and shared that thought with the local officials clearly, forthrightly, and loudly.**

After hearing from their constituents and holding discussions with the professional planners from their local Community Planning Association, a “Patchwork Quilt” approach to leveraging funds started to sound appealing to community leaders. They approached their state hazard mitigation officer (SHMO), and Community Planning Association to help develop a strategy, to develop an approach, that made sense for the long-term recovery of Rivertown, and one that was politically palatable. The regional planning agency suggested utilizing the both the services of FEMA’s ESF-14 (See, Section IV A. for program description), as well as the state’s recently established Silver Jackets team to assist the community in developing a plan which would identify the community’s long-term vision, potential solutions, and applicable programs and funding mechanisms. **The state, in coordination with the Silver Jackets team, agrees to set this as a team priority; the team will assist the community in developing their long-term plan.** (See, Section IV. C, above, for program description).

Working together with the Silver Jackets Team, community leaders developed a “patchwork quilt” approach to discussing options with the entire community. Generally speaking residents were totally opposed to ripping apart the fabric of their neighborhood by relocating. In addition, it quickly became apparent that: a) relocation was an incredibly expensive as well as disruptive option; and b) there was no reason that most, but not all, of the homes could not be safely rebuilt, exactly where they were, through a program of elevation.

The result was the acquisition and demolition of the two hardest-hit rental properties along the Great Fast River and their replacement with new, energy-efficient, affordable rental properties built away from the most severely hazardous portion of the flood hazard zone, and also designed to eliminate pollutants moving into the community well and state waters. In addition, the 23 remaining homes were elevated above the FEMA calculated “Advisory Base Flood Elevation,” (ABFE) that is the level of a flood that has a one-percent annual chance of occurrence (the so called 100 year flood). In addition, since these homes were elevated without a basement, in an area prone to tornadoes; all homes were provided with an especially reinforced “safe room” for refuge during tornadoes, together with a tone alert radio to provide warning as when to seek shelter in their new “safe room”.

Funding seemed at first to be a problem. Unfortunately, most of this hard hit area had not been mapped as especially flood prone under FEMA’s Flood Insurance Program. So, only two of the residents had a National Flood Insurance Policy, which now includes funds to cover Increased Cost of Compliance (ICC) with community floodplain regulations. Therefore, extensive use was made of the State CDBG funded program to provide long-term rebuilding assistance for the beleaguered homeowners. The FEMA Individuals and Households Program was used to provide short term rental housing. The CDBG funds were further enhanced by a FEMA Section 404 Hazard Mitigation Grant. Rivertown used grants to individual homeowners to supplement CDBG, as necessary as well as using FEMA Individuals and Households Assistance Funds, loans from the Small Business Administration (which can include the cost of hazard mitigation, including compliance with local codes and ordinances), and funds and supplies from

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several local businesses through the Voluntary Organizations Active in Disasters (VOAD). Volunteers and residents also pitched in to do the sorts of work that they were allowed to perform, under local codes and ordinances.

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In addition, FEMA provided Public Assistance Funds to cover road repair and a replacement bridge which was not only designed to meet state and local road design standards, but also contained cost-effective hazard mitigation design to reduce or eliminate future damages. The new neighborhood was provided community water and sewer through programs of the US Department of Agriculture (USDA). The vacated area was replaced with a park, restored wetlands, and a centerpiece historic landmark, which was repaired using FEMA Public Assistance funds, including cost-effective hazard mitigation. In addition, the community determined that considering their history of serious damage from wildfire, it made little sense to rebuild homes reasonably safe from floods, only to have them destroyed by fire. So they began working with the State Forestry Commission, established a Firewise Committee and pursued recognition status as a Firewise Communities/USA site (See, Section V. B. 17 above for program description) to encourage property owner behavior which will reduce the risk of home losses to wildfire. Finally, the community became a member of the NOAA StormReady Community Program and distributed tone alert radios to provide future warnings of tornadoes and floods. (See, Section V.B. 16 above for program description.)

These efforts required the help of no less than 20 different agencies and programs; as well as a tremendous amount of community organization and technical support through the Corp's Silver Jacket Program. Additional assistance was needed from: a) consultants hired by the community, b) the State Hazard Mitigation Officer (SHMO), c) the State NFIP Coordinator, d) the Regional Planning Agency and e) FEMA's ESF-14.

The community had a huge learning curve. Funding sources differ. Disaster survivors with no flood insurance may combine funds from their State CDBG Program, FEMA, the Small Business Administration (SBA), and the FEMA 404 Hazard Mitigation Grant Program. Most programs must be applied for by the community or the individual separately, and each has its own guidelines. Some programs require matching community funds.

**But, in the end, the Patchwork Quilt used synergy to leverage many programs together. So, instead of merely helping two homeowners, the community solved the flood problem of 25 households. The solution met the people's needs, and desires while at the same time developing a lovely neighborhood. It is noteworthy that this new, safer neighborhood returns significantly more tax revenue to the town, while at the same time costing the taxpayer less in yearly costs related to flooding than the old flood- ravaged, blighted location.**

**At the same time, the community is far better prepared than ever to deal with future wildfires, floods and storms.**

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## VIII. How the Process Works



### ***A) Funds to Individuals: How Do They Get Through the Process?***

Once homeowners have decided to safely deal with their hazardous situation, and have found appropriate sources for their solution, they will be concerned about getting moving quickly.

In the event that voluntary property acquisition is involved in the “Patchwork Quilt”, whether acquisition funds are provided by the State programs using HUD CDBG funds, Section 404 of the Stafford Disaster Relief and Emergency Assistance Act, or any other federal source, individuals can expect to be paid pre-damage fair market value for a damaged property. Flood insurance proceeds and any unspent federal funding provided for minimal repairs may be deducted from the final price.

Homeowners, who, on a voluntary basis, wish to participate in a relocation or elevation project, may expect financial help from a variety of sources. The largest single source for the Katrina –Rita Recovery Operation will, of course, be the huge state Programs established using special HUD CDBG appropriations. More typical recovery programs include:

1. The FEMA rental assistance program can provide payments for up to 18 months or, in rare circumstances, even a longer period of time, after a declared disaster, provided the individual is working on their individual housing plan. The individual’s plan may be to participate in a voluntary elevation or acquisition project.
2. Low-interest disaster loans from the Small Business Administration.
3. Grants from FEMA’s Individuals and Households Program may be called into play.
4. Often, disaster survivors can get some cash relatively quickly by applying for refunds through the IRS Disaster Casualty Loss Program.
5. If they still have needs, Voluntary Organizations Active in Disasters (VOAD) such as the Red Cross or the Mennonites may be able to provide building materials, labor, or other types of assistance.
6. In the aftermath of Katrina and Rita, there were also other charities and assistance programs set up on a local and regional basis that operate outside the VOAD umbrella. These organizations can often provide additional assistance.
7. FEMA also has the Cora Brown Fund for situations for which there is insufficient disaster assistance available.

**Affected individuals must be supported and counseled. Agencies such as the state or local department of elder affairs can help. In many cases, the state department of mental health will implement a crisis-counseling program to address disaster survivors’ needs, especially those who are facing major changes.**

### ***B) Funds to the Community: Putting it all Together***

Managing a reconstruction process, issuing building permits, counseling homeowners how to elevate their substantially damaged home, buying up neighborhoods, building new subdivisions, and creating parks and open spaces requires funding and skills. We have talked about funding sources for safe rebuilding. Yet, where do funds come from to administer aid, handle permitting, build new infrastructure, and preserve historic properties?

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For starters, if there is a declaration for a public assistance disaster, FEMA funds can be requested to support demolition, environmental review, and possibly some legal work related to demolition and rebuilding. Other agencies that may help include the U.S. Army Corps of Engineers (USACE), the Department of Energy (DOE), the Economic Development Agency, the Environmental Protection Agency (EPA), the Department of Housing and Urban Development (HUD), the Department of Transportation (DOT), and the National Trust for Historic Preservation, and many more listed in this article, as well as in the lengthy appendix that accompanies it.

Some funding sources require local and state matching funds. Usually, municipal crews, donated time, or materials such as gravel from a town-owned gravel pit can be used as non-cash or “in-kind” services to satisfy the cost-match requirements of these programs.

To round out the package, private resources are sometimes available. Local fund-raising efforts can support such things as business development and historic preservation.

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## IX. Next Steps



Getting started includes thinking about developing a pre-disaster plan, which includes a concept of how your community will deal with the post-disaster situation. What risks does your community face?

- What possibilities now exist to avert a tragedy in the future?
- Developing a comprehensive Disaster Plan?
- Promoting purchase of flood insurance?
- Becoming a StormReady Community?
- Becoming a Firewise Community/USA® site?
- Developing Emergency Warning, Preparedness and Evacuation Plans?

In any case, review the ASFPM's No Adverse Impact (NAI) Toolkit which contains many sensible, down-to-earth suggestions on pre-disaster preparedness (*See ASFPM's web site for free download of the NAI Toolkit; or order a printed copy via the web*).

Who in the community needs to be involved in doing the best we can NOW, before something awful happens so that foreseeable, preventable misery is averted or lessened?

**EVERYONE!!!**

What pre-disaster sources of assistance-both funding and technical support exist now?

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## X. Summary



### **Time, Patience and Synergy Can Create A Whole Greater than the Sum of its Parts.**

Time and patience are required in putting together the “Patchwork Quilt.” The devastation may have taken many forms, and the recovery may take months or even years. But, by working all together, balancing each individual’s needs with the community’s long-term objectives, *Nania*, another term for synergism, can take place. We worked together to make it happen in Rivertown.

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## XI. Helpful Web Sites



### Frequently Used FEMA Mitigation WebPages

Comprehensive Data Management System (CDMS) version 2.5

<http://www.fema.gov/library/viewRecord.do?id=3798>

Flood Hazard Mapping

<http://www.fema.gov/plan/prevent/fhm>

Flood Smart

<http://www.FloodSmart.gov>

Flood Smart Risk Assessment Tool

<http://www.floodsmart.gov/floodsmart/oneStepFloodRiskAddressSearch.action>

Flood Recovery Maps - LA and MS

<http://www.fema.gov/response-recovery/fema-flood-recovery-data>

Floodplain Management

<http://www.fema.gov/plan/prevent/floodplain/index.shtm>

Grant Programs

<http://www.fema.gov/government/grant/index.shtm>

HAZUS MH

<http://www.fema.gov/plan/prevent/hazus>

HAZUS Case Studies

<http://www.fema.gov/hazus/hazus-case-studies-and-success-stories>

Map Service Center

<http://msc.fema.gov>

Map Modernization

[http://www.fema.gov/plan/prevent/fhm/mm\\_main.shtm](http://www.fema.gov/plan/prevent/fhm/mm_main.shtm)

Mapping Information Platform (MIP)

<http://www.hazards.fema.gov>

Mitigation

<http://www.fema.gov/about/divisions/mitigation.shtm>

Mitigation Best Practices Portfolio

<http://www.fema.gov/mitigation-best-practices-portfolio>

Mitigation Planning

<http://www.fema.gov/plan/mitplanning>

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National Flood Insurance Program (NFIP)  
<http://www.fema.gov/business/nfip/index.shtm>

National Flood Mitigation Data Collect Tool  
<http://www.fema.gov/grant-applicant-resources/national-flood-mitigation-data-collection-tool-and-repetitive-loss>

Plan and Prevent  
<http://www.fema.gov/plan/index.shtm>

Pre-Disaster Mitigation (PDM) Grant Program  
<http://www.fema.gov/pre-disaster-mitigation-grant-program>

Recover and Rebuild  
<http://www.fema.gov/rebuild/index.shtm>

Repetitive Flood Claims (RFC) & Severe Repetitive Loss (SRL) Programs  
<http://www.fema.gov/government/grant/rfc/index.shtm>

Stay Dry  
<http://www.fema.gov/library/viewRecord.do?id=3293>

## **NOAA Websites**

NOAA's Digital Coast  
<http://www.csc.noaa.gov/digitalcoast/>

NOAA's Land cover Change Program  
[www.csc.noaa.gov/landcover/atlas](http://www.csc.noaa.gov/landcover/atlas)

NOAA's Sea Level Trends  
<http://tidesandcurrents.noaa.gov/sltrends/sltrends.shtml>

NOAA's Vulnerability Assessment Tool  
<http://www.csc.noaa.gov/products/nchaz/htm/mitigate.htm>

## **USACE Websites**

Flood Risk Management Program  
[www.nfrmp.us](http://www.nfrmp.us)

Risk Assessment  
<http://www.usace.army.mil/Pages/default.aspx>

Silver Jackets Program  
<http://www.iwr.usace.army.mil/>

## **Other Useful Sites**

American Society of Civil Engineers  
[www.asce.org](http://www.asce.org)

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Association of State Floodplain Managers  
[www.floods.org](http://www.floods.org)

Google Earth  
<http://www.google.com/earth/index.html>

National Earthquake Hazards Reduction Program  
<http://www.nehrp.gov/index.htm>

National Institute of Standards and Technology  
<http://www.nist.gov/index.htm>

National Interagency Fire Center  
<http://www.nifc.gov/>

National Weather Service Risk Assessment  
[http://www.nws.noaa.gov/?bcsi\\_scan\\_1D1A7A50B174BA63=0](http://www.nws.noaa.gov/?bcsi_scan_1D1A7A50B174BA63=0)

Natural Hazard Mitigation Association  
[www.nhma.info](http://www.nhma.info)

Storm Smart Coasts  
<http://www.mass.gov/czm/stormsmart/>

USGS Risk Assessment  
<http://www.usgs.gov/science/science.php?term=997>

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## XII. Comments/Suggestions?



This White Paper is, and will always be, a working draft, which requires constant updating.

It is not perfect, but if we all work together (Nania) we can make this Publication even better. A great sage of Floodplain Management once wrote: “...while awaiting perfection, let us do the possible”.

Please let Ed Thomas know by e-mail ([edwathomas@aol.com](mailto:edwathomas@aol.com)) if you have suggestions, comments, or ideas for improvement. Our thanks to the following folks who have already graciously reviewed this document and provided comments:

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- Anna Culcasi, Michael Baker Jr., Inc.
- Jennifer Dunn, CFM, US Army Corps of Engineers (USACE)
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*The opinions expressed are those of the authors and do not reflect approval by any organization. This is an opinion piece based on over 100 years combined experience and the general principals of Planning and the Law. It is neither planning, nor legal, advice.*

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