



ACTORS IN DISASTER CYCLE, ANALYSIS OF SIX RECOVERY PLANS, AND FINANCIAL SOURCES FOR POST-DISASTER COMMUNITY RECOVERY

EXECUTIVE SUMMARY

To properly mitigate against, prepare for, respond to, and recover from disasters, it is crucial to know who is involved. In the Fall of 2014, fourteen Master’s of Urban Planning students at Texas A&M University created this report as part of the graduate course “Disaster Recovery and Hazard Mitigation” instructed by Yu Xiao, Ph.D., AICP. The purpose of this report is to provide information on the four phases of the disaster cycle (mitigation, preparedness, response, and recovery), the critical tasks that need to be accomplished in each phase, and who needs to be involved in those tasks. The processes involved in compiling this report is internet research on recovery plans and sources for post-disaster community recovery.

We reviewed six recovery plans and five cases studies for finding funding sources. Four of the plans are local community plans, and the others are state plans. We identified the steps to the long-term recovery planning process, the leadership and stakeholders, and the outcomes. The six plans reviewed are:

- Cordova, Alabama,
- Fairfax, Virginia,
- Galveston, Texas,
- Greensburg, Kansas,
- New York, New York, and
- Lyons, Colorado.

Recovery Plans

There are two types of recovery plans identified in our search:

1. Pre-disaster recovery plan (PDRP), which are created before an event and focus on the transition from response to recovery, coordination, and recovery agency operation.
2. Disaster recovery plan (post-event), which describe the community visioning process after a specific event and identify particular activities to rebuild and renew the community from economic, natural resources, housing, and social services. This does not include discussion of Recovery Agency’s, but instead taskforces to visioning and plan development.

1. Pre-disaster Recovery Plans

Pre-disaster recovery plans are rare, and we found one (Fairfax, Virginia). Fairfax officials described their document as such,

“By focusing on the Strategic and Concept levels, this PDRP provides a flexible and scaleable framework for organization and decision-making that may be effectively deployed against unknown and unpredictable threats – particularly those of an intentional, human-caused nature. The PDRP thus provides menus of potential options, depending on the scope and scale of an incident: potential roles of staff in a temporary Recovery Agency, potential issues and tasks that the recovery organization may need to address, and potential lead and supporting agencies in Recovery Support Function roles.”



The example PDRP includes sections that address:

- a. Visions, goals, and priorities
 - i. Be prepared and proactive
 - ii. Establish and maintain County's leadership role
 - iii. Leverage private and nonprofit sectors using existing relationships
 - iv. Promote legitimacy and credibility
 - v. Focus on fairness
 - vi. Build on existing plans
 - vii. Ensure sufficient financial reserves
- b. Post-disaster goals
 - i. Effective command and coordination
 - ii. Maximize funding
 - iii. Communicate
 - iv. Promote mitigation and resilience
 - v. Maintain county economic base
 - vi. Sustain social and human services
 - vii. Provide and ensure quality housing
 - viii. Sustain and restore infrastructure
- c. List of priorities in post-disaster context
- d. Hazard analysis (*similar to what this class provided in the other report*)
- e. Description of the Recovery Committee
 - i. Structure,
 - ii. Management,
 - iii. Organization,
 - iv. Reporting, and
 - v. Leadership composition
 - vi. Timeline
 - vii. Functioning post-event
- f. Pre-event objectives
 - i. Establish and maintain pre-incident coordination
 - ii. Inventory resources and capacities, identify gaps
 - iii. Address issues in resource procurement
 - iv. Maintain and promote continued capacities
 - v. Train and exercise the PRDP
- g. Post-event objectives
 - i. Brief supporting agencies
 - ii. Identify and address resources needs
 - iii. Identify additional funding needs and sources
 - iv. Maintain documentation
 - v. Maintain legal compliance
 - vi. Ensure health and safety of recovery staff

Post-event Recovery Plans

Post-event recovery plans are all very similar and follow FEMA guidelines, and are often developed with a FEMA recovery coordinator. These are created immediately following a disaster, as soon as possible. These documents describe:

- the disaster and impacts,
- the community pre-event,
- the public engagement process to develop the recovery goals and plans, and



- the resulting “Community Vision” that came out of the public participation process.

Usually the participation process involves 5-10 public meetings. The Recovery Community Vision is then detailed in specific projects, up to 40, which fall under broad themes, such as environment, economic, housing, health, transportation, green development, community character, education, etc. Projects can include creating new economic opportunity office, revitalizing expanding parks, etc. Each project will have a price assigned and also a list of potential revenue sources for it. This entire process is often led by specialists, such as academic, planning, or corporate consultants. This process is similar to what Texas Target Communities at Texas A&M would undertake in a community. (see: targetcommunities.arch.tamu.edu).

Funding Sources

In the United States, individual, local, and state financial resources are used first after a disaster, and then the federal government provides funding through various programs. Individual funds can come from personal savings, insurance, personal loans, and friends and family. Local funds can be from churches, non-profit organizations, insurance, and personal loans along with other sources that arise due to need after a disaster. State funds may be from various budgeted programs set aside for disaster recovery and mitigation. Most of the major sources of recovery funding for communities, businesses, non-profit organizations, and households after a disaster come from a few key agencies in the federal government.

RECOMMENDATIONS

- Assign a chair to each project – the person in charge of the project as a whole. This person would be in charge of designating various assignments to those who are on the team for that project in particular. Having a chair for everyone to go to would facilitate the project getting completed in a timely manner.
- Elaborate on the community outreach efforts. Scheduling community meetings, creating a recovery website that is user-friendly, and having open-house discussions that are well-advertised would help get community input and aid in prioritizing the recovery projects.
- Develop a PDRP for the next event using the Fairfax, VA one as a guiding document.

Questions or comments?

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Actors in Disaster Cycle, Analysis of Six Recovery Plans, and Financial Sources for Post-Disaster Community Recovery

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Part 1: Actors Involved in Each Phase of the Disaster Cycle

To properly mitigate against, prepare for, respond to, and recover from disasters, it is crucial to know who needs to be involved. This document will begin by defining the four phases of the disaster cycle (mitigation, preparedness, response, and recovery), and then will go on to describe what critical tasks need to be accomplished in each phase and who should be involved in those tasks. This is not meant to be an exhaustive list, but it will attempt to discuss as many as possible of the major tasks and actors involved in the disaster cycle.

Definitions

When discussing a complex issue such as the disaster cycle, words can often be thrown around without cohesive and commonly understood definitions. To ensure against this, this report begins with a description of each of the four phases of the disaster cycle.

Mitigation

Mitigation is defined as “taking sustained actions to reduce or eliminate the long-term risks to people and property from hazards” (Schwab, 2010). The sustained part is important – mitigation is not a one-time action. Also worthy of note is that the risks are viewed from a long-term perspective. Mitigation can also be on any scale. Even something as simple as backing up files on a computer can be mitigation, as it will reduce the long-term risk to hazards.

Preparedness

Preparedness and mitigation are related, but while mitigation is concerned with the long-term, preparedness is concerned with the short-term. Preparedness is defined as pre-impact actions that provide the human and material resources needed to support active responses at the time of hazard impact (Lindell & Prater, 2003). It can be thought of as “readiness” for a disaster. Typically assessment of the impact of disaster is a major first step in preparedness, and education on both what to do during a disaster and what the evacuation plans are would be included.

Response

Response is the actions taken once a disaster is imminent, and immediately after. This is the phase where the least planning is able to be done; response to a disaster must be quick and efficient, carrying out the plans that hopefully have already been made. The response phase is broken up into two parts: emergency and relief (National Voluntary Organizations Active in Disaster, 2012). Emergency is the initial shock of the disaster, where evacuation happens, immediate shelter is found, and first responders come to the scene to rescue people. Relief is what happens in the next few days (or sometimes weeks depending on this disaster); basic needs are taken care of, temporary shelter is found for those without it, basic cleanup work is begun, and finances begin to come in for aid.

Recovery

Recovery has been debated in the literature as to its exact, measureable definition (Chang, 2010), but the general idea is that recovery is the process of bringing a community back to a new normal (National Voluntary Organizations Active in Disaster, 2012). It is the actions taken after the dust settles. This typically involves restoration or rebuilding of the physical aspects of the community, such as homes, roads, bridges, and other buildings. It also, however, includes social aspects such as community connections, social capital, and psychological well-being (Dash, Morrow, Mainster, & Cunningham, 2007).

Mitigation

Task	Potential Actors
Creation of an overall mitigation plan	City planners, city managers,
Getting Support of Elected Officials	Disaster planners, emergency managers, elected officials
Training for Planning Commission	Disaster planners, emergency managers
Public Outreach and Education	Fire officials, civic groups, disaster planners
Building Retrofitting	Construction companies
Sewer and Water Services Mitigation	Public works employees
Urban Forestry	Public works employees
Continuity-of-Operations Plans	Public works employees
Long-range Transportation Planning	Transportation planners
Mapping and Information Storage	GIS managers, planning staff
Environmental Considerations	Environmental professionals
Local Business Resiliency	Economic dev. departments, chamber of commerce, business leaders and owners
Mitigation Opportunities with Parks	Parks and Rec. officials
Moving Homes and Businesses out of High-risk Zones	Home and business owners
Relocation of Appliances, etc. Within Buildings	Home and business owners
Help for Local Communities Adopting Floodplain Ordinances	Home and business owners

Figure 1: Tasks and Potential Actors in the Mitigation Phase

Mitigation ideally should be the first phase in the disaster cycle; communities should strive to mitigate for a disaster before ever having one. In reality, however, most cities have to go through a disaster one or more times before the need for mitigation really sinks in. Figure 1 outlines the major tasks that need to be addressed in the mitigation phase, along with who might need to be involved in addressing those tasks. Following are more detailed descriptions of the tasks.

Creation of an overall mitigation plan

Hazard mitigation by definition is about preparing and planning for future events. It makes sense, then, that having a unified plan would strengthen the efforts made by all the various parties involved. City planners are trained in making these plans, which coordinate multiple activities and resources to achieve a common goal.

Getting support of elected officials

Elected officials must vote to formally adopt a plan before it will be recognized by FEMA. Even if they vote for it, however, if they are not involved throughout the process they likely will not completely understand the need for it and it will become difficult to actually implement the plan (Schwab, 2010). City staff typically have better access to elected officials, so are good people to keep them in the loop.

Training for Planning Commission

Planning Commission members have to make day-to-day decisions about development, so if mitigation is the goal, they need to understand its importance. Because they may not always have knowledge or expertise in hazard mitigation, trainings can be helpful (Schwab, 2010). City staff are good candidates for this, but citizens sharing how disasters affect them can also be effective.

Public Outreach and Education

Public participation can make mitigation efforts achieve so much more, and there are several actors that can be involved in this. City staff and civic groups typically do public outreach, but in addition fire officials may already be doing outreach related to fire mitigation and safety (Schwab, 2010).

Building Retrofitting

Often buildings need to be retrofitted to better withstand disaster elements such as wind or earthquakes. City engineers should be consulted in planning for these improvements, but often the private firms and owners of the buildings will be completing and paying for the improvements.

Sewer and Water Services Mitigation

These next three items on the list are largely functions of the city Public Works department. This one involves making sure that sewer and water services are as resistant to disasters as possible, including moving key facilities outside of the highest risk zones.

Urban Forestry

The Public Works department can use urban forestry to mitigate, by making efforts such as clearing hazardous street trees or by encouraging more hazard-resilient trees (Schwab, ed. 2009, as cited in Schwab, 2010).

Continuity-of-Operations Plans

Continuity-of-operations plans plan for keeping the vital functions of an organization or business running after a disaster. Public Works officials should make these for city utilities and services, but businesses, the rest of city government, and non-profits should also make these plans for how to continue their operations in or after a disaster scenario.

Transportation Infrastructure Improvements

Transportation networks are vital to pre-disaster preparedness and post-disaster response and recovery, so mitigating against their failure has tremendous upside (Schwab, 2010). Transportation planners and engineers at all levels of government can be involved in making safer transportation networks.

Long-range Transportation Planning

Because of the need for transportation to work in disaster scenarios, making a long-range transportation plan that includes mitigation efforts can have a huge impact. Transportation planners are best suited to this task.

Mapping and Information Storage

When it comes to hazards, information is everything. Geographic Information Systems (GIS – mapping and analysis software) specialists at all levels of government should be involved in mapping out and storing the data and information that leads to productive mitigation efforts (Schwab, 2010).

Environmental Considerations

The natural environment can do much to mitigate the effects of disasters, but only if we makes plans to disallow development in sensitive areas (for example, wetlands absorb high volumes of water during floods). Thus, environmental professionals, including scientists, engineers, or managers, should be involved in mitigation efforts and planning (Schwab, 2010).

Local Business Resiliency

Economic resiliency and recovery are the main goals of disaster mitigation; jobs and a tax base are crucial to a community's long-term recovery (Alesch et al., 2008, as cited in Schwab, 2010). This is why it is critical to involve the local chamber of commerce, any existing city economic development department, and business leaders/owners. In addition, economic developers are often those most likely to oppose mitigation, but by incorporating them into the process they can be made aware of the negative impacts disasters have on their businesses (Schwab, 2010).

Mitigation Opportunities with Parks

Parks can often be utilized as a good use for high-risk land. Areas heavily subject to flooding, earthquakes, landslides, or avalanches can be acquired and turned into parkland (Schwab, 2010). Parks and recreation officials or agencies should be involved for this task.

Moving Homes and Businesses out of High-risk Zones

Homes and businesses, because of poor or a lack of planning, are often located in high-risk hazard zones. Often it is possible to find a more suitable location for these, but the business or homeowners would need to be heavily involved (National Voluntary Organizations Active in Disaster, 2012).

Relocation of Appliances, etc. Within Buildings

It can sometimes be possible to relocate major appliances, such as water heaters, into safer or more elevated parts of a building. As with the previous task, the home or business owners would need to be involved, as would city code officers (National Voluntary Organizations Active in Disaster, 2012).

Preparedness

To make an immediate response system properly work right after disasters and keep the impact on disturbing usual life and economic activities to the lowest level, every unit needs disasters preparedness planning. The process also involves physical and socioeconomic aspects and acts at the community level, local government level and national level (FEMA, 2011). While physical preparedness focus on training and construction codes (FEMA, 2006), socioeconomic mainly cover insurance on both households and businesses (Alesch, Holly, Mittler, Nagy 2001).

Task	Potential Actors
Education	Community Emergency Response Team (Cert), The Citizen Corps
Insurance Planning For Disasters	Local Insurance Companies
Information	U.S. Department of Commerce (doc)
Construction Code	Technology Research Institutes, Emergency Manager, Transportation Planners/Engineers
Evacuation Plan	Community Emergency Response Team (Cert), The Citizen Corps
Volunteer Training	Citizen Corps Council, RC, NGOS, FEMA
Risk Assessment	The Threat And Hazard Identification And Risk Assessment (Thira)
Estimating Capability Requirements	Planning Process
Business Preparedness Plan (For Response To Like Lifeline Services)	Private-Sector Firms

Figure 2: Tasks and Potential Actors in the Preparedness Phase

Education

Community Emergency Response Teams (CERT) and the Citizen Corps take in charge of community level training of voluntary. While CERT educates volunteers to act effectively in emergency (FEMA, 2014), the Citizen Corps aim to make better preparedness for every single family (FEMA, 2014).

Information

The U.S. Department of Commerce plays roles in supporting information on resource and communications. It also has a huge impact on business (FEMA, 2014).

Evacuation Plan

Households themselves matter most on their own safety to evacuate right after the disaster, and to find a safe spot or open space in case of every different type of disaster (ARC, 2014).

Volunteer Training

The Citizen Corps Council provides volunteer training for every local community, as well as ARC. The only difference is the Citizen Corps give help from the community itself, while the ARC's assistance comes outside from the community (ARC, 2014). FEMA also offers professional training programs.

Risk Assessment

The Threat and Hazard Identification and Risk Assessment (THIRA) is developing approaches for identifying and assessing risks and afterwards impacts (FEMA, 2011).

Estimating Capability Requirements

As based on assessments of risk and the supposed outcomes, the planning process involves factors that act on identifying overall requirements on community, local or state level (FEMA, 2011).

Construction Codes

For building codes, mostly they are restricted as mitigation planning processes. As part of the preparedness process, technology research delivered by different institutes reflects on construction codes for mitigation planning processes (FEMA, 2006).

Insurance Planning

Local insurance companies perform great value on preparing small businesses and households in compliance with emergence financial expands on recovery (Alesch, Holly, Mittler, Nagy 2001).

Business preparedness plan

For response to lifeline services and other losses made by infrastructure failure, private-sector firms need well-planned organizing on emergency response (Webb, Tierney, Dahlhamer, 2000; ARC, 2014).

Response

Tasks and Actors in Response

Involved in the first stage after the disaster, the capability of emergency response reveals the extent on lowering the level of impact that the disaster would effect the community whether in physical or socioeconomic aspects. The process acts at the community level, local governmental level and federal level (Dash, Morrow, Mainster , Cunningham, 2007), functioning in emergency and relief.

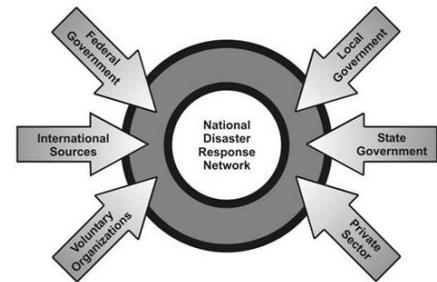


Figure: National Disaster Response Network
<http://www.globalsecurity.org/military/library/policy/army/fm/3-05-401/fig6-2.jpg>

Emergency Response

Task	Potential Actors
Search and Rescue	Fire Department or EMS, Police, Military, Volunteer Groups Like Community Emergency Response Team (CERT), Animal Control
Prevent Hazardous Spills	Firefighters, Department of Environmental Protection
Traffic Control	Local Police Department, Public works
Remove Debris	Local transportation department, Parks and Recreation, Department of Public Works,
Repair Transportation and Infrastructure	Local transportation department, Public works
Medical Services	Public Health Agency, Community Emergency Response Team (CERT), EMS, Emergency Medical Technicians (EMT), American Red Cross, U.S. Department of Health and Human Services (HHS)
Temporary Shelter	Churches, Schools, Housing Agency, Social Service Agency, U.S. American Red Cross, Department of Housing and Urban Development (HUD)

Figure 3: Tasks and Potential Actors in the Emergency Response Phase

Search and Rescue

Professional rescue teams like firefighters, police and military contribute a huge part in survivors search and rescue. In community level, volunteer organization such as a Community Emergency Response Team (CERT) is trained to help their neighborhood as a self-help pattern of response (FEMA, 2014). Animal Control can also be involved to deal with pets or other animals.

Prevent Hazardous Spills

The Department of Environmental Protection as well as firefighters take part in cleaning up the environment that helps prevent hazardous spills involving chemical or nuclear weapons (FEMA, 2014).

Remove Debris

As part of preparing future space for temporary sheltering and permanent housing, as well as sanitary problems, debris removal is taken charge of by the Department of Transportation, the Department of Parks and Recreation, the Department of Public Works at the community level supported by government (FEMA, 2014).

Traffic Control

Police and public works on the local level help provide services on security, traffic control, for a short period right after disaster to relieve the possible chaos in regular living caused by disaster.

Infrastructure Restoration

Local transportation agency not only removes debris but also repairs signal lights and reconstruct damaged roads and bridges that are crucial to usual life (FEMA, 2014). After Hurricane Sandy, the Energy Restoration Task Force coordinated fuel distribution provided for first responders across New York and New Jersey, and the DOD provided 9.3 million gallons of fuel to the demand of both states.(FEMA, 2013).

Medical Services

Medical services are mostly supported by government groups such as Emergency Medical Services (EMS), Emergency Medical Technicians (EMT), the U.S. Department of Health and Human Services (HHS). NGOs like the American Red Cross “immediately responded to about 70,000 natural and man-made disasters in the U.S.”, with help from Emergency Response Vehicles (ERV), circulated hands out and relief throughout communities contributes a lot to disaster response (ARC, 2014). Community Emergency Response Teams (CERT) also consist part of self-help medicare at the community level.

Temporary Shelter

Temporary Shelters are provided by local housing agency or the Department of Housing and Urban Development (HUD) to local government. The ARC also helps relieve shelter demands. Community based organizations such as local churches and schools satisfy the needs for people who distrust outsiders or lack access to direct government help (Lindell, Prater, 2003).

Relief Response

Task	Potential Actors
Utility Provision	Local Utilities Providers, Department of Public Works
Food Provision	Churches, Local Food Banks, Local agriculture department
Communication	Local Media, Public Information Officer, Chamber of Commerce
Relocation Facilitation	City Council, Department of Housing, Development and Redevelopment Agencies

Figure 4: Tasks and Potential Actors in the Relief Response Phase

Utility Provision

Local utilities providers and the Department of Public Works reconstruct public utilities after disasters and provide heavy equipment for debris removal (FEMA, 2014).

Food Provision

NGOs such as Local Food banks and ARC hand out free food to whom it is unavailable. U.S. Department of Agriculture (USDA) identifies food need after disasters and responds accordingly (Disaster Assistance, 2014).

Communication

Chamber of Commerce helps with business in response to acquire loan after disaster. Public information officers deal with local media as official response, both as actors involved in making the response process transparent (FEMA, 2014).

Relocation Facilitation

Following debris removal, City Council, Department of Housing and Development and Redevelopment Agencies take charge in finding ways to make recovery quicker (HUD, 2014).

Recovery

Phase	Task	Potential Actors
Recovery- Local	Local disaster or emergency declaration	Mayor/County Judge/County Commissioners
Recovery- Local	Coordination	City Manager
Recovery- Local	Medical Care	Emergency Medical Technicians (EMT), Health and Human Services
Recovery- Local	Communicate, develop Response	Emergency Managers
Recovery- Local	Counseling	Mental health agencies
Recovery- Local	Prepare ordinance	Code Enforcement Officer
Recovery- Local	Manage resources	Finance/Treasurer/Tax Collector
Recovery- Local	Provide security	Police
Recovery- Local	Reconstruction safety	Firefighting
Recovery- Local	Casework	Social workers
Recovery- Federal	Reaching resources	The Recovery Support Functions (RSFs)
Recovery- Federal	Highways and roads	The Emergency Relief Program
Recovery- Federal	Energy	U.S. Department of Energy (DOE)
Recovery- Federal	Buildings	Department of Engineering, Private Contractors, Housing and Urban Development and Department of Agriculture
Recovery- Federal	Coordination/Management	Federal Disaster Recovery Coordinator, State Disaster Recovery Managers,
Recovery- Federal	Economy	Small Business Administration (SBA), United States Department of Commerce, Department of Treasury and Department of Agriculture.
Recovery- Federal	Federal disaster or emergency declaration	The President of United States of America
Recovery- Federal	Reemployment	Disaster Unemployment Assistance (DUA)
Recovery- Federal	Agricultural	The USDA Farm Service Agency (FSA)

Figure 5: Tasks and Potential Actors in the Recovery Phase



Figure 6: Recovery Participation Actor
Source: (FEMA, 2011a)

To achieve a quick recovery process, all stakeholders and community members need to understand pre- and post- disaster roles and responsibilities (FEMA, 2011a). Also, local, State and Tribal officials need to spend effort for stronger and safer recovery. The businesses and nonprofit organizations have significant pre- and post- recovery roles with coordinating governmental authorities. For example, FEMA after Hurricane Sandy established a Disaster Recovery Center (DRC) including staff from FEMA, State and local government agencies, voluntary agencies and other Federal agencies.

Individuals

Individuals and families require a recovery plan and preparedness to survive after a disaster. These plans include adequate insurance and essential supplies to sustain, such as food and water (FEMA, 2011a).

Local Level

Local level recovery actors are listed with the following actors.

City manager generally coordinates with the emergency manager, mayor and other agencies in order to achieve effective and efficient response and recovery activities.

Mayor, County Judge and County Commissioners declare a disaster and start disaster recovery process, and work with the emergency manager, city manager and other departments to organize personnel and resources, and coordinate with state and federal officials to raise the disaster funds (FEMA, 2011b).

Emergency Medical Technicians (EMT) produces emergency medical care services for injured and transport disaster victim's further treatment in hospital. (FEMA, 2011b) **Health Officers** provide community health counseling and information to town staff on potential health-related, exposures, such as exposure to chemicals, and work on health related recovery issues with the Division of Public Health Services (Allentown, 2013).

Emergency Managers provide emergency operations plan, assess damages and losses, provide resources, and coordinate personnel and operations by communicating with the dispatch center, field personnel, department heads and political leaders (FEMA, 2011b).

Code Enforcement Officers assess damages and prepare policy to revise existing codes to support recovery efforts, and organize the housing permit process in the recovery process (Allentown, 2013).

Finance, Treasurer and Tax Collectors create policies and procedures for emergency purchasing and projects, and inspect contracts for recovery purchasing and projects, estimate disaster response and recovery related costs and organize donated money to support recovery efforts, manage insurance conflicts, and provide information for public and private grant (Allentown, 2013).

Police provide security for disaster areas, and emergency public information, coordinate damage assessment efforts with **Highway Department and the, code Enforcement Officer**, protect disaster victims from fraud, and provide child safety and assistance for other community crime issues (Allentown, 2013).

Firefighters provide assistance in the distribution of emergency public information and in maintenance of reconstruction safe, protect disaster victims from fire and fire risks, and provide assistance (Allenstown, 2013).

The Recovery Support Functions (RSFs) give support to local governments by facilitating problem solving, easily reaching resources, and promoting partnership among State and Federal officials, private entities and stakeholders (FEMA, 2011a).

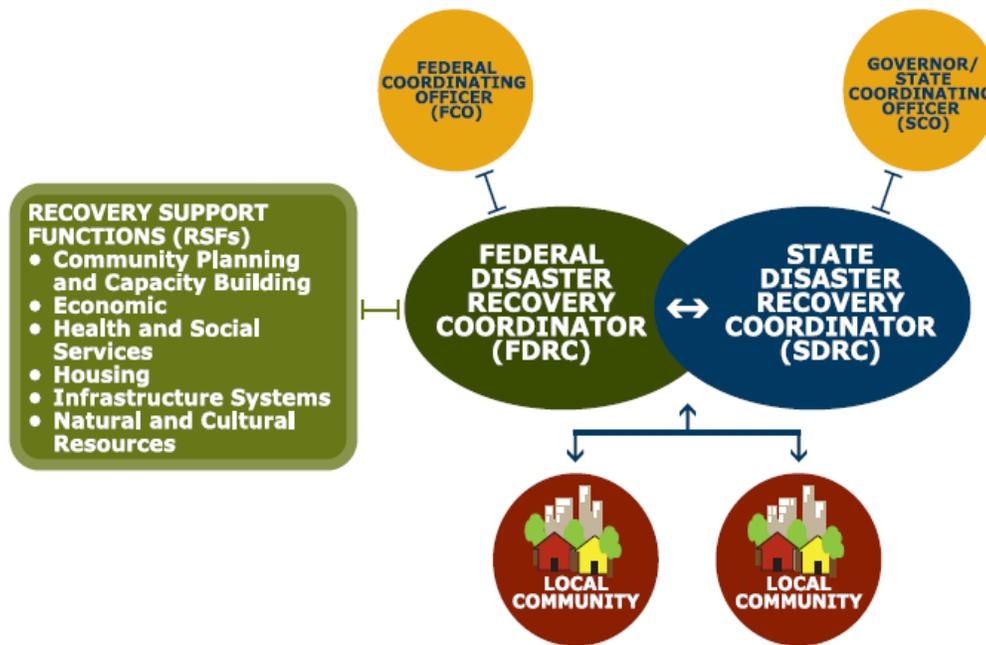


Figure: The Recovery Support Functions (RSFs) Chart (FEMA, 2011)

State Level

Individuals, families and businesses need to collaborate with local government which has significant roles of planning and managing all impacts of the recovery. According to FEMA’s State Disaster Recovery Managers Responsibilities (2011a) report, local government may become overwhelmed and need staffing, recovery expertise, leadership or other assistance. Also, local government joins with State and Federal officials in the development and implementation of their plans and recovery process whether needed or wanted.

Successful disaster recovery management includes coordination, integration, community participation and management. The state promotes leading and managing the overall recovery process, and plays the significant role to organize recovery activities, such as financial and technical support (FEMA, 2011). State may have programs to assist implement recovery projects and finance. State informs public with important messages and acquires information from other stakeholders for distribution process.

Federal Level

Accessing and using federal agency resources are important for state and local level. Federal agencies have safe and sharable information and resources about stakeholders who are impacted by disaster. Thus, disaster relief and assistance efforts by federal agencies help local agencies for sustainable recovery.

The President of the United States makes the declaration for federal disaster or emergency according to Stafford Act (§401). Most federal disaster recovery programs require Presidential declaration to be eligible (NCOG, 2009).

The FEMA Individuals and Households Program (IHP) provides financial assistance to individuals and households affected as a direct result of the presidentially declared major disaster or emergency (FEMA, 2011a). IHP provides following types of assistance.

Temporary housing is provided for homeowners and renters who receive funds to rent or a temporary housing when there is not a rental unit. Grants for repair are provided to make the damaged homes by disaster safer and strong. Homeowners or renters acquire assistance to rebuild and replace their damaged homes (NCOG, 2009).

Small Business Administration (SBA) provides disaster loans to businesses of private non-profit organizations, homeowners, and renters. The disaster loans for disaster victims are used to reconstruction or rebuild damaged houses, machinery and equipment, and business assets (SBA, 2014).

The Emergency Relief Program provides funding to States for reconstruction and repair of highways and roads have suffered as in consequence of natural disasters or catastrophic failures from an external factor (TIC, 2013).

The purpose of **Disaster Unemployment Assistance (DUA)** is to provide unemployment and reemployment services to individuals who have become unemployed as a result of a disaster and who are not suitable for State unemployment insurance (UI) (FEMA, 2014).

A crisis counseling program provides assistance to relieve stress or mental health problems offered by the American Red Cross, the Salvation Army and voluntary agencies (State of Louisiana, 2014).

The USDA Farm Service Agency (FSA) is available for most agricultural disaster recovery, and requires special funding for agricultural recovery (NCOG, 2009).

Community Planning and Capacity Building

Supporting and building recovery includes recovery for local, State and Tribal governments needed to effectively plan for, manage and implement disaster recovery activities in the disaster (FEMA, 2014). Federal agencies included community planning process are Department of Homeland Security/Federal Emergency Management Agency and Health and Human Services.

Economic Recovery

The Economic Recovery provides help from Federal Government to local, State and Tribal governments and the private sector reconstruct or rebuild businesses and employment, and develop sustainable and economically resilient communities after disaster impacts (FEMA, 2014). Federal agencies included economic recovery process are United States Department of Commerce, Department of Homeland Security/Federal Emergency Management Agency, Department of Commerce, Department of Labor, Small Business Administration, Department of Treasury and Department of Agriculture.

Housing Recovery

“Address pre- and post-disaster housing issues and coordinate and facilitate the delivery of Federal resources and activities to assist local, State and Tribal governments in the rehabilitation and reconstruction of destroyed and damaged housing, whenever feasible, and development of other new accessible, permanent housing options” (FEMA, 2014). According to FEMA (2014), Federal agencies included housing recovery process are Housing and Urban Development, Department of Homeland Security/Federal Emergency Management Agency, Department of Justice, Housing and Urban Development and Department of Agriculture.

Part 2: Recovery Plans—an Analysis of Six Long-Term Recovery Plans

Introduction to Recovery Plans

This report is the summary of our findings of the six recovery plans we have reviewed. We reviewed each plan for important things to consider in long-term recovery, how long the planning process took, who was involved, and what the outcomes were. The plans that were reviewed varied across the country and levels of government. The six plans were from Cordova, Alabama, Fairfax, Virginia, Galveston, Texas, Greensburg, Kansas, New York, New York, and Lyons, Colorado. Four of these plans are local community plans, and the other are overall state plans. Each plan is summarized below; the remainder of the document dives deeper into the various aspects of each plan individually.

Cordova, Alabama:

Cordova city announced their long term community recovery plan on November 2011. The Post-disaster recovery plan was made after the attack of two tornados that was happened on April, 2011. The Cordova Long-term Recovery (LTCR) Plan focuses on three areas: rebuilding the central business district (CBD), establishing recovery/capacity programs within the community, and improving key infrastructure elements that support community reconstruction.

Fairfax, Virginia:

The Fairfax County Pre-Disaster Recovery Plan is a comprehensive plan that provides the framework for managing recovery from major disasters affecting the county. Agreement to this plan represents a commitment from each agency to be responsible for their roles as assigned in this plan. This document is intended to be a model for recovery planning for Northern Virginia and the Washington D.C. area, as well as establish a framework for recovery coordination in future regional disasters.

Galveston, Texas:

The long term community recovery plan for Galveston, Texas was a reactive plan to Hurricane Ike in September 2008. The recovery plan took about 12 weeks to implement. It covered all aspects of the Galveston community including: the environment; economic development; housing and community character; health and education; transportation and infrastructure, and disaster planning. The recovery plan has various projects laid out and prioritized, as well as timelines by which each project needs to be executed. The recovery projects each have a “chair” or a person in charge of the decision-making of that particular project.

Greensburg, Kansas:

After a major EF-5 tornado that devastated a large majority of Greensburg, KS in May 2007, citizens of Greensburg as well as Kiowa County adopted a long –term recovery plan. This

extensive plan is the vision of the community for recovery in the aftermath of the tornado and incorporated a vision shared with their Sustainable Comprehensive Plan. The city partnered with GreenBuild and passed a resolution that all new public construction would meet LEED Platinum standards. The recovery plan took 12 weeks to finalize and was drafted based on meetings with the community and incorporated ideas from design workshops and public input.

PlaNYC and New York

The New York plan is one of the plans that have occurred on the state level. It is the third volume of an overall comprehensive emergency management plan where volume one is state mitigation and volume two is short term recovery. The overall plan is maintained by the Department Homeland Security and Emergency Services. This volume provides implementation for long term recovery activities that are given in the Robert T. Stafford Act and the Emergency Assistance Act. It acknowledges local governments responsible for implementing plans and the emergence of new organizations in times of disasters.

Lyons Colorado:

Beginning September 9, 2013, significant flash flooding occurred in north-central Colorado on the eastern side of the Continental Divide--a Presidential Disaster Declaration was issued on September 24, 2013. Lyons was among the hardest hit communities when the flood surge moved down through the canyons. The planning process for the community recovery was initiated three months after the flood. It was a community-driven laying the framework for Lyons to recover while simultaneously making it more resilient.

The rest of the document goes into detail about each section that has been reviewed.

Topics and major areas of concern for each community are summarized by the matrix below.

Plan	Housing	Economy	Business	Facilities	Infrastructure	Transportation	Comprehensive Plan
Cordova	X	X	X	X	X	X	
Fairfax	X	X	X	X	X		X
Galveston							
Greensburg	X	X	X	X	X		X
New York							X
Lyons	X	X	X	X	X		X

Table 1.

The Planning Process

(How long did it take for the plan to be made? What are the major step and milestones in the planning process?)

Cordova, Alabama

This disaster recovery plan is for a post-disaster time period. The planning process started after the tornado hit Cordova in April 2011 and it took about 6 months to complete the planning process.

Fairfax, Virginia

This Pre-Disaster Recovery Plan took 2 years to be completed. The project was launched in December 2009 and was finalized in early 2012. A more detailed timeline can be seen in the following table:

Time	Activities	Participants	Objective
December 2009	Project launch		
March 2010	Pre-Disaster Recovery Demonstration Workshop	Fairfax County agencies/ departments	Introduce county agencies to potential disaster recovery issues in Fairfax County and to the PDRP initiative and planning process
March-May 2010	Pre-Disaster Recovery Interviews and Survey	Fairfax County agencies/ departments	Issues identification and Gaps Analysis
August 2010	Pre-Disaster Recovery Information Workshop	Additional stakeholders and planning partners, Fairfax County Boards, Authorities and Commissions, Businesses and nonprofits, neighboring jurisdiction, and state and federal partners	introduce stakeholders and planning partners to potential disaster recovery issues in Fairfax County and to the PDRP initiative and planning process
September 2010-Summer 2011	Outline and Draft Pre-Disaster Recovery Plan	Fairfax County Agencies/Departments and Partner Organizations	Through a series of steering committee meetings and working group sessions, develop recovery goals, strategies, tasking, authorities, and resources

Summer-Fall 2011	Review Pre-Disaster Recovery Plan	Fairfax County Agencies/Departments and Partner Organizations, additional stakeholders, and interested member of the public	Review and comment on Plan document, and apply changes as appropriate
Winter 2011-2012	Pre-Disaster Recovery Plan Table-Top Exercise and Plan Finalization	Fairfax County Agencies/Departments and Partner Organizations	Familiarize users and test applicability of the plan

source: <http://www.fairfaxcounty.gov/oem/pdrp/timeline.htm>

Galveston, Texas

Hurricane Ike struck Galveston Island on September 13, 2014. The planning process began ten weeks later. Over a six week time-period, around 300 committee members were selected to participate in the recovery planning process. From the beginning, the recovery planning process was on an extremely tight timeline. The plan itself was due to City Council on April 9th. Guided by the experience of the FEMA Long Term Recovery Team, the committee determined that despite it being fast-tracked, it needed to take the time to listen carefully to the citizens of Galveston (Galveston Long-Term Community Recovery Plan).

Greensburg, Kansas

The Long-Term Community Recovery Plan was a 12 week process that involved multiple meetings and discussions with residents, non-profit organizations, business owners and elected officials. They utilized a “Public Square” process developed by Kansas Communities, LLC., that focuses on asset-based conversation, citizen engagement and partnerships among leaders in business, education, government and health sectors. This process is normally a two year process but in light of the tornado and the urgent need to get back to normal, they expedited the process using one-on-one interviews, community meetings, a design workshop, and a rebuilding fair. Based on this input, a vision for the community was developed. The next major step was to find leadership and funding to implement their plan.

PlaNYC and State of New York

This plan, introduced in 2006, took about 3-6 years to develop--the beginning of the plan features a timeline of revisions that this volume underwent. The plan is written under the assumptions that there is a natural or technological disaster that caused damage to the transportation network, public buildings, housing, businesses, and the environment. This plan is also based on the assumption that the disaster is more than the state and affect jurisdictions can

handle, and that the governor has asked for federal disaster assistance, the community has requested for assistance from the state, and the affected region is rendered inoperable.

The planning process included communicating with a variety of agencies, which takes time. Participation in the planning process also involves data collection and exchange, involving stakeholders, public awareness, team meetings and webinars, review and feedback of the plan, and updates of current activities. Some non-state stakeholders were also contacted, including the U.S Geological Survey, county members, and the Department of Agriculture - Natural Resources Conservation Services.

Town of Lyons, Colorado

The planning process for Lyons' recovery was initiated three months after the flood on December 18. The preparation took about a month and the actual planning process took six weeks.

The group was divided into seven sub groups, or Recovery Working Groups (RWGs). The RWGs represented individual topics in the Lyons Comprehensive plan. The RWGs met once a week for six weeks from January 13 to February 24. The planning process begun with issue identification and idea generation and was followed by project identification through developing project development guides (PDG) and program refinement. A planning exchange was held at which the eight RWGs' proposed solutions were presented and attendees were allowed to leave comments—these were later reviewed for the final PDG. After the six week recovery process, the RWGs submitted development guides. The final output included a variety of projects to be considered and adopted by the Town. It was compiled in a form of an Implementation Table which will be an advisory document for implementing recovery projects.

The Implementation Table can be used to see all the required action for recovery and what parties are responsible for carrying it out—a measure of stakeholder integration. The Board of Trustees is responsible for the adoption and future update of the Action Plan. this also includes regular progress monitoring.

A steering community was formed to look over the planning process--they guided and coordinated the RWG and prioritized the projects according to the recovery.

Leadership and Stakeholders

(Who led the planning process? Who participated in the planning process? Did the leadership and participation change over time?)

Cordova, Alabama

A long term community recovery plan committee was established, and an extensive public outreach program was created. The AUUS and RPCGB partnered with the city and the FEMA LTRC Team to provide technical assistance to Cordova's LTRC Committee for recovery

planning. The process followed by the LTCR Committee was to engage residents and stakeholders, get their input about community recovery needs, and identify a vision for the future. The results of this process were compiled in the Cordova Recovery Plan and are intended to provide local officials and property owners guidance for making effective recovery and rebuilding decisions. In addition, the LTCR process provided assistance for organization and coordination of community recovery activities. The public process for LTCR began with an initial public meeting on July 15, 2011, attended by over 250 residents and local officials

Fairfax, Virginia (<http://www.fairfaxcounty.gov/oem/pdrp/stakeholders.htm>)

This plan was made by collaboration with many stakeholders which was divided into three major groups: a core steering committee, a larger working group, and plan reviewers group.

The Steering Committee defined the overall direction and structure of the plan, participated in reviews of rough and/or preliminary draft materials, and proposed best-practice outcomes that would be a realistic fit for local conditions in Fairfax County.

Fairfax County Boards, Authorities and Commissions	Liaison to the Board of Supervisors, Fairfax Area Disability Services Board, Office of the County Attorney, Economic Development Authority.
Fairfax County Agencies and Departments	Deputy County Executive (Public Safety), Office of Emergency Management, Office of Public Affairs, Department of Planning and Zoning, Department of Public Works and Environmental Services, Department of Management and Budget, Risk Management Division, Department of Health, Fire Marshal's Office (Department of Fire and Rescue), Mental Health Services, Department of Housing and Community Development, Department of Transportation
Nonprofits	Volunteer Fairfax, Fairfax County Citizen Corps, Faith Communities in Action (FCIA), NOVA Volunteer Organizations Active in Disaster (VOAD), Multicultural Advisory Council, Fairfax Federation of Citizens Associations
Private Businesses	Local Chambers of Commerce

The Steering Committee (source: <http://www.fairfaxcounty.gov/oem/pdrp/stakeholders.htm>)

The working group was tasked to refine, vet and validate the preliminary work of the steering committee, applying both technical expertise and local knowledge to arrive at workable and realistic solutions to challenging problems.

Steering Committee Stakeholders	idem above
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Fairfax County Boards, Authorities and Commissions	(District) Land Use Advisory Boards, Community Revitalization and Reinvestment Advisory Group, Architectural Review Board, History Commission, Small Business Commission, Board of Zoning Appeals, Planning Commission, Economic Advisory Commission, Office of the Sherriff, Redevelopment and Housing Authority, Fairfax-Falls Church Community Services Board, Community Policy and Management Team (Fairfax-Falls Church), Community Long Term Care Coordinating Council, Community Action Advisory Board (CAAB), School Board, Fairfax Water.
Fairfax County Agencies (Technical Experts)	Public Schools, Department of Human Services, Code Compliance, Department of Community and Recreation Services, Department of Tax Administration, Archives and Records (Public Library), Fire and Rescue Department, Police Department, Office of Community Revitalization, Facilities Management Department, Department of Family Services, Department of Purchasing, Department of Cable Communications and Consumer Protection, Department of Vehicle Services, Department of Information Technology, Herndon, City of Fairfax, Vienna, City of Falls Church.
Local Nonprofits	Fairfax Joint Local Emergency Planning Committee, Humane Society, United Way, Amateur Radio Emergency Services (ARES), etc.
Local Businesses	Utility, Insurance, Retail, etc.

The Working Groups (source: <http://www.fairfaxcounty.gov/oem/pdrp/stakeholders.htm>)

The Plan Reviewers group was invited to provide comments, edits, revisions and questions to the draft of the plan. The draft plan was also made generally available for public comment via libraries, internet, etc. Input from the plan reviewers would be addressed in detail by the Steering Committee and the working group.

Fairfax County residents	Interested members of the public.
Local	Other county agencies, nonprofits, businesses, civic groups, homeowners associations.
State	Virginia Department of Emergency Management (VDEM) Region VII, Virginia Department of Environmental Quality, Virginia Department of Transportation (VDOT), Virginia Department of Health, Virginia Housing Development Authority (VHDA).
Regional	Northern Virginia Department Transportation Commission, Metropolitan Washington Airports Authority, City of Alexandria, Arlington County, Loudoun County, Prince William County, NCR Joint Force Headquarters, Metropolitan Washington Council of Governments, FEMA Office of National Capital Region Coordination.

Federal	FEMA Region III, Environmental Protection Agency, Housing and Urban Development (HUD), Small Business Administration (SBA).
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The Reviewers Groups (source: <http://www.fairfaxcounty.gov/oem/pdrp/stakeholders.htm>)

Galveston, Texas

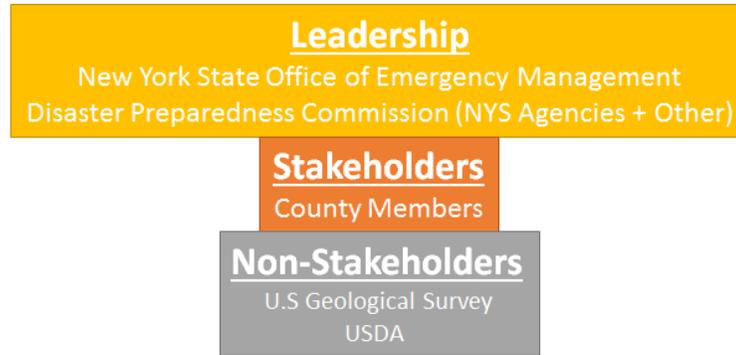
On November 20, 2008, the Galveston City Council began the process of appointing a Long-Term Recovery Committee. That appointment process finished six weeks later and resulted in a committee that included 330 Galveston residents. The Galveston Community Recovery Committee was charged with developing a vision, goals, and projects that would move Galveston along the road to full recovery from the devastation of Hurricane Ike. The committee divided itself into five focus areas and then into 13 work groups and, finally, into 42 project teams. The first two workshops addressed setting a recovery vision and identifying goals. At the third, fourth, and fifth meetings, committee members reviewed criteria for setting recovery value and identified recovery projects. The sixth Monday meeting was used to review the drafts of recovery projects that were presented at a final community open house held on March 28, 2009 (Galveston Long-Term Community Recovery Plan).

Greensburg, Kansas

The Long-Term Community Recovery team led the planning process. The citizens, civic groups, business owners, and local, state and federal officials were all involved and met weekly in the 12 week planning process—there was an average attendance of around 25 people. There were also four community meetings (averaging 400 people) in which the draft recovery plan was discussed and additional input was provided. There was no indication that the leadership changed over this short period of time.

PlanNYC; New York State

The overall mitigation plan is maintained by the Department Homeland Security and Emergency Services. The planning process for long-term recovery plan is coordinated by the New York State Office of Emergency Management with member agencies under the Disaster Preparedness Commission (DPC). Out of the 108 total state agencies, 30 are on the DPC and 18 participated in this specific long-term recovery plan.



Town of Lyons, Colorado

The Community Recovery Planning Process was led by the Recovery Working Groups (RWGs) which was an all-inclusive, temporary, community based group. Members of RWGs included residents, Town of Lyons staff liaisons, Board of Trustee appointees, representative of the Sustainable Future Commission and the Planning and Community Development Commission. Natural Capitalism Solution Inc. and the University of Colorado at Denver also aided this recovery planning process. The Federal Emergency Management Agency (FEMA) and Colorado’s Department of Local Affairs (DOLA) supported RWGs with facilitating and technical assistance on the Recovery Action Plan development.

Outcomes

(What are the major topics covered by the plan? How did the community prioritize recovery projects and what projects were prioritized? Were the projects linked to funding and resources for implementation?)

Cordova, Alabama

During the process of making the recovery plan, several initiatives were shared by all participants. Some of the main ones are listed below:

- A vibrant, walkable CBD.
- Family-oriented activities in or adjacent to the CBD.
- An amphitheater.
- Return of CBD commerce including a grocery store, pharmacy and doctor’s office.
- Economic development including eco-tourism.
- Water resource-related development, such as greenways, canoe/kayak areas and fishing.
- A diverse housing supply

The committee invited 20 design professionals in key disciplines to give technical support, who were joined by community members to share thoughts on the ideas and design concepts. The community began to make their vision considering the importance of the environment; reducing risk from future storms; and creating a place where civic, commercial, and recreational

activities come together.

Two main elements were highlighted through the recovery plan process:

The Economy

The recovery plan used a SWOT analysis to help them focus on priority economic areas that needed immediate action—this is where they found that the CBD of Cordova needed to be rebuilt as soon as possible because it included most of the local businesses and sources of sales tax revenue. In order to achieve sustainable recovery, the city needed to replace these businesses as quickly as possible; the city needed to focus on generating economic activity to strengthen the local economy and enable growth in population and jobs.

Housing

The vision for recovery includes replacing homes destroyed by the tornadoes, improving housing conditions, identifying areas for new residential development, and maintaining the community.

Below are the main goals that were stated in the report which address housing issues:

- Help homeowners repair and rebuild.
- Coordinate housing assistance programs.
- Address vacant and dilapidated housing.
- Make Cordova's residential areas attractive to new growth and development Projects in this

Section

- Housing Resource Center
- Neighborhood Stabilization Program
- Facilitate the Development of Alternative Housing Options
- Helping Homeowners Rebuild
- Create a Housing Pattern Book

Fairfax, Virginia

This plan was made to represent the commitment of Fairfax County to maintain readiness capacity in all phase of emergency management and to be able to respond to large scale emergency disaster. This plan is intended to be used together with existing operational procedures, plans, and protocols.

This plan was designed to guide the recovery phase after a disaster in order to make a resilient, safe, physically accessible, sustainable, and economically sound community. These goals are implemented through long-term community recovery planning, housing restoration and reconstruction, economic recovery, infrastructure and lifeline restoration and reconstruction, continued provision and public safety and security, continued provisions of community services, and protection of natural and cultural resources.

Goals of this plan:

- a) pre-disaster operational goals: be prepared and be proactive, establish and maintain the County's leadership role, leverage the private and non-profit sectors, using existing relationships, promote legitimacy and credibility, focus on fairness, build on existing deliberative plans and assets identification/ prioritization, and ensure sufficient financial reserves;
- b) post-disaster operational goals: provide effective command and coordination, maximize funding opportunities, communicate effectively, promote mitigation and foster resilient redevelopment and construction, maintain and enhance the county's economic base, sustain social and human services, public safety, and health services, provide and/or ensure quality of housing, and sustain lifelines and restore infrastructure and public facilities.

Priorities in this plan:

- a) address life-safety concerns
- b) provide for public safety/security and basic health and essential social and human services needs
- c) protect property and maintain basic economic stability
- d) respect basic liberties, legal protections, and privacy safeguards
- e) maintain basic standards of fairness, and balance individual rights and community interests
- f) support general well-being and address intangible social and personal impacts
- g) protect and restore natural and cultural resources

(Fairfax County PDRP document, 2012. Ch. 1)

Galveston, Texas

The committee members found ways to reach out to the community through the duration of the planning process. In addition to the community meetings, the Recovery Committee utilized electronic communication and participation, with input coming via email, the website, and then distributed at committee meetings. This public input was used by the GCRC to identify recovery issues and concerns and formed the foundation for five recovery focus areas: the environment; economic development; housing and the character of the community; health and education; transportation and infrastructure, and disaster planning (Galveston Long-Term Community Recovery Plan).

The community prioritized the 40 recovery projects with regard to FEMA's assignment of the recovery values to each project. While some projects may not have had a high recovery value, they were nevertheless key pieces of community recovery--the recovery value being the designation assigned by FEMA to each project for its ability to help jump-start a community's recovery from a natural disaster. Projects that positively contribute to recovery typically address issues that promote a functioning and healthy economy, support infrastructure optimization, offer housing opportunities, and revitalization of downtowns. Each project is ranked on one out of four levels: High, Moderate, Low, and Community Interest. Each project has undergone an assessment based on FEMA's recommendations and has been assigned a recovery priority based on the following criteria (Galveston Long-Term Community Recovery Plan):

- Meets a community need

- Is sustainable
- Is feasible
- Provides a positive overall community impact that:
 - Stimulates the economy
 - Provides linkages
 - Has high visibility
 - Contributes to the community's quality of life

Those projects assigned a High Recovery Value are catalyst projects that have multiple impacts on the community and its recovery. Those projects assigned a moderate recovery value are projects that can be expected to have clear and positive impact on recovery, but by their nature are limited in scope, span, impact or benefits to less than community-wide significance and/or support, and are generally focused on the physical damage caused by the disaster. Low recovery value projects either do not have a direct link to the disaster and its damages, lack public support, and/or provide few, if any, identifiable benefits to the community related to disaster recovery. In many cases, a low recovery value project will fall far short of the resources needed to carry out the project, may generate questions regarding its achievability, and may only impact a small portion of the community. A community interest project may be extremely important to a community even though it does not have a significant recovery value. These projects would normally be classified as low recovery value except they have significant public support (Galveston Long-Term Community Recovery Plan).

Greensburg, Kansas

Major topics included in this plan were typical of most recovery plans, but differed in their strong desire for a sustainable development. Topics that were also included were housing, economy and business, and finally community facilities and infrastructure. These four main topics included the establishment of resource offices and programs for leadership and assistance.

After receiving support from the city, county, and state officials, Greensburg prioritized their projects based on their "recovery value." This is designated to a project that indicates its ability to help jump-start a community's recovery from a disaster. The projects that were prioritized were those that addressed a broad range of issues that promote a functioning and healthy economy, support infrastructure optimization, and encourages a full range of housing opportunities.

Each one of the 40 projects included in the recovery plan has a cost estimate that serves as a guide for initial budgeting purposes as well as potential funding sources that assist future members where to seek the proper assistance.

PlanNYC; New York State

There were no immediate outcomes for this plan because it was formulated pre-disaster, though Hurricane Sandy hit while the plan was being developed. There was a lot less confusion

than what could have happened without a plan--post-disaster, there was more focus toward sustainability and resiliency than there may have otherwise been.

Town of Lyons, Colorado

The Lyons Recovery Action Plan had three guiding principles:

- Resident Driven: Multiple methods were used to involve residents. This included weekly working groups, community wide meeting, public hearing, online discussions, social media and interactive websites. Transparency on the process was focused
- Sustainability: Sustainability Future Commission conducted analysis of each recovery action item to check its impact on sustainability.
- Resilience: The goal of the action plan is to help create resilient community and prepare for future risk.

The recovery plan mainly focused on the topics that were found in the comprehensive plan of the town of Lyons while considering the new challenges after the flood. These were the areas identified as impacted by flood and were emphasized on the recovery objectives and actions. The topics covered were

- 1) Housing
- 2) Stream Recovery
- 3) Public Facilities
- 4) Infrastructure
- 5) Parks & Recreation
- 6) Arts, Culture & Historic Preservation
- 7) Business & Economic Development and
- 8) Health & Human Services.

These topic sub-groups guided the town's eight Recovery Working Groups (RWGs). After the planning process, 57 project ideas were generated and were reviewed. Lyons Recovery Action Plan was made through the creation of Project Development Guides (PDGs) which are detailed questionnaires that aided the local government and the different stakeholders in the creation of projects for long term community recovery. It assisted data collection and evaluation for the formation of goals, strategies and the outcome for proposed projects. It includes nearly 60 individual projects, policy changes, or instructions for further plans or studies

The recovery plan is considered a "living document" rather than something fixed, as the document needs to be updated through the process. It is a document for helping through future disaster for reducing future risk and building resilience.

Recommendations

R.1 Cordova, Alabama

The report recommended aiding in the recovery of the main source of economy first--this will help make the city as sustainable/productive as it was before. Also their plan was to take advantage and build the impacted area to become better than it was before the disaster. This is done by taking public opinion into account. Using SWOT analysis helped the committee target specific focus areas. The Cordova recovery plan is the general vision with two sub-visions: Economy and Housing. We recommended that Granbury use the same method of having focused visions.

R.2 Fairfax, Virginia

The unique aspect of this plan is it was made before the disaster, thus it gives stakeholders enough time to think and design the plan carefully. As its objective, this plan can be a precedent for other counties which have vulnerability to similar disasters--this is a comprehensive plan that can be adopted by others. It includes hazard analyses and involved all stakeholders related to disasters in the county. This plan also has a letter of agreement that was signed by stakeholder representatives to ensure they agree and will fulfill their responsibilities in this plan.

One thing to be remember from this plan is that it has never been used and evaluated—until a disaster comes, the effectiveness of this plan is speculation.

R.3 Galveston, Texas

One thing that was very interesting about this recovery plan was that they had a project tracking tool toward the end of the document that would track the progress of the project in each phase of the process. This would be beneficial to keep track of the progress of projects on each level. This may be beneficial for Granbury because the community will be able to better track the progress of the most important aspects of recovery.

The other thing that we would recommend for Granbury is to assign a chair to each project – the person in charge of the project as a whole. This person would be in charge of designating various assignments to those who are on the team for that project in particular. Having a chair for everyone to go to would facilitate the project getting completed in a timely manner.

The outreach to the community was really interesting as well. From the field trip rhetoric, an outreach program was implemented on an elementary level in Granbury, but a full outreach program would significantly aid in keeping community support and helping in the overall recovery process. Scheduling community meetings, creating a recovery website that is user-friendly, and having open-house discussions that are well-advertised would help get community input and aid Granbury in prioritizing the recovery projects.

The plan also has suggestions and recommendations at the end of each section for possible financial assistance and/or websites for information. This is helpful for those in the community as well as others looking at and using the plan as a guide.

R.4 Greensburg, Kansas

There are several recommendations that are prevalent throughout Greensburg's plan that are very important. First and foremost is to always refer back to the overall Comprehensive Plan for the city. Greensburg wanted to become a sustainable or "Net-Zero" community and this was evident in their comprehensive plan as well. This will also assist in any other future disasters and plans that are revised at a later date. Next is to include the community in participatory planning. Greensburg held meetings with the community and conducted interviews and workshops. This led to the rebuilding fair that presented their finding to the community and

demonstrated best building practices by educating them. Some of the participants included the Department of Energy, the Environmental Protection Agency, Federal Emergency Management Agency, the Small Business Administration and many others from the building trade associations. Lastly, it is imperative to prioritize projects with the community's input. This gives a sense of ownership and buy-in when projects that have a social benefit for all.

R.5 PlaNYC; New York State

As I have reviewed the long term recovery plan for New York State, I recommend 3 things for West and Granbury, TX. One would be that, when developing a plan, make sure to include all stakeholders involved in the implementation of the plan. There should be some kind of face-to-face interaction between local and state officials and the residents of the community. Another recommendation I want to make is to review and update plans on an annual basis. New York requires that plans be updated every three years. Lastly, I recommend that the plan developers be knowledgeable of policies pertaining to long term recovery and making plans. In the long term recovery plan for New York, they identified what policies and FEMA requirements were needed in a local recovery plan.

R.6 Town of Lyons, Colorado

The plan for Town of Lyons focuses on making the process a community effort. The planning process was an intensive resident-driven process. It is recommended to involve the residents in the planning process. Another interesting thing to note from the Town of Lyons of recovery plan would be their topics of inclusion within the plan. The topics were chosen in accordance to the comprehensive plan and relevance. They have integrated topics such as art and culture, historic preservations and stream recovery, which are some very important aspects for Lyons' recovery.

Sustainability and resilience has been a keep point in the recovery plan so, it is important to make it a priority throughout the process. Lyons has incorporated the Sustainable Future Commission in the planning team in order to ensure the plan is sustainable. Finally it is recommended to regularly review and update the document according to the need of time.

Part 3: Funding Sources for Post-Disaster Community Recovery

Introduction

Disasters have been a part of civilization from the beginning. Early disasters had the greatest impact when they destroyed agricultural crop lands and farms. Disasters, by definition, are beyond the means of a community to financially and physically respond to an event and therefore the communities are unable obtain recovery without help from outside sources (Bates & Peacock, 1989). Natural disasters include hurricanes, tornadoes, river floods, flash floods, wildfires, earthquakes, and tsunamis. Technological disasters can be caused by dam failures, acts of terrorism, and wars among other things. All of these events have the potential of devastating individuals, communities, and regions within states.

In the United States, individual, local, and state resources are used first, and then the federal government provides funding through various programs. Individual funds can come from personal savings, insurance, personal loans, and friends and family. Local funds can be from churches, non-profit organizations, insurance, and personal loans along with other sources that arise due to need after a disaster. State funds may be from various budgeted programs set aside for disaster recovery and mitigation.

The Federal government has provided relief to disaster survivors since the New Madrid earthquakes in 1815. Over the next century, relief and recovery funding was provided for individual incidents as they occurred by a Congressional Relief Act specific to the incident. The Reconstruction Finance Corporation was enacted by legislation in 1933 and provided direct assistance “to private citizens suffering disaster damage by issuing federal loans” for reconstruction (Wright, 2000, p. 67). Moderate changes in funding programs from the federal government continued until 1979 when disaster relief, recovery and mitigation efforts were handed over to the newly created Federal Emergency Management Agency (FEMA), and another major change came with the creation of the Stafford Act in 1988 which “significantly changed existing disaster relief programs” as it focused on mitigation by “funding to acquire destroyed or damaged properties and not for rebuilding in flood hazard areas, rebuilding in non-hazardous areas, and reducing exposure to flood risk in reconstruction” (Wright, 2000, p. 69). Functions 2 and 3 are recovery funding in the fact that they provide funds for rebuilding.

This review will compile funding from individual case studies of past disasters and will attempt to compile a list as thorough as possible of available funding opportunities at the federal, state, local and individual levels. Federal funds are available when the Governor of a State submits a request for help and a federal disaster declaration is approved by the President of the United States. The following is an overview of federal funds available for declared disasters.

Overview of Funding Sources

Federal Emergency Management Agency (FEMA) provides funding through its Individual Assistance and Public Assistance programs. Individual Assistance (IA) includes the Housing Program, which helps households rebuild. The federal government administers this program and funds it 100%. The Individual and Family Grant Program grants eligible recipients up to \$13,600 for personal needs and repairs; only those who do not receive insurance or Small Business

Administration loan money are eligible. This program is administered on the state-level, with the federal government covering 75% of costs. Public Assistance (PA) programs provide grants to state and local governments; some non-profit organizations also qualify. FEMA gives PA grants for the repair and restoration of public infrastructure and facilities. The federal and state governments divide the costs 75/25 (FEMA, 2000).

The U.S. Department of Housing and Urban Development (HUD) provides community and housing recovery funds through its Community Development Block Grants (CDBGs). HUD chooses a local or state-level administrator for these funds; the administrator chooses a distribution method under the approval of HUD (Texas General Land Office, 2012). The department also runs the Mortgage Insurance for Disaster Victims Program, which aims to protect lenders who loan to disaster victims from default. Borrowers seeking loans to rebuild apply through their lender to receive 100% financing through this program (FEMA, 2000).

Another major contributor to disaster recovery funds is the U.S. Small Business Administration (SBA). This agency provides low-interest loans to households, businesses, and non-profit organizations for recovery. SBA gives three types of disaster recovery loans: Home and Personal Property Loans, Business Physical Disaster Loans, and Economic Injury Disaster Loans (SBA, n.d.). Home and Personal Property Loans cover uninsured damages to their homes and property (FEMA, 2000). If accepted, homeowners can receive up to \$200,000 for home repairs, and both homeowners and renters can receive up to \$40,000 to replace and repair damaged property (SBA, n.d.). Businesses and most non-profit organizations can use the second type of loan, Business Physical Disaster Loans, to cover up to \$2 million uninsured losses to property such as equipment and inventory. Economic Injury Disaster Loans provide up to \$4 million to small businesses and most non-profit organizations “to help meet financial obligations and operating expenses that could have been met had the disaster not occurred” (SBA, n.d.). SBA publishes application due dates for each disaster; often, local agencies work to inform the public about the loan process (SBA, 2011).

Recovery funds also flow from other sources, depending on the disaster and impacted area’s particular need. For example, the U.S. Department of Agriculture (USDA) and the Fish and Wildlife Service in the Department of the Interior (DOI) work with communities to restore watersheds, wetlands, and wildlife habitats (FEMA, 2000). Additionally, many local organizations raise and distribute funds to their community for recovery. These organizations are as varied and numerous as the communities themselves; we mention a few of them in our case studies below, as well as other federal and regional agencies.

As mentioned in the introduction, some communities affected by disasters do not qualify for federal declarations, thus they do not qualify for these aforementioned funds. After a governor submits a request for a major disaster declaration, FEMA conducts an assessment of the damage and surveys other relevant factors -- such as the level of insurance, the community’s prior experience with disasters, and any remaining threats to public safety and health -- before handing its recommendation to the president (FEMA, n.d.-e).

When communities are left on their own to fund their recovery, their survival depends on their resourcefulness and ability to gather together and distribute necessary funds. We include examples of local organizations and sources of funding in our case studies below, such as Galveston’s Regional Revolving Loan Fund and Austin Community Foundation’s Central Texas Wildlife Fund. In general, the availability of local funds depends greatly on the context of the affected community. Some national organizations, like Voluntary Organizations Active in Disasters (VOAD), have chapters across the country, including a Central Texas chapter. VOAD

seeks to foster “cooperation, communication, coordination, and collaboration” among its member organizations, who together focus on all phases of disasters, including recovery (Central Texas VOAD, n.d.). American Red Cross (ARC) is active throughout the United States, with 97 regional groupings and 514 chapters with many programs focused on response and education (ARC Humanitarian Services Operations, 2013). Additionally, ARC provides grants to local organizations involved in the recovery process, such as a \$1.5 million grant to the Bastrop County Long-Term Recovery Team mentioned in the Texas Wildfires case study.

Acronyms	Agency, Organization, or Term
ARC	American Red Cross
CDBG	Community Development Block Grant
DOI	U.S. Department of the Interior
FEMA	Federal Emergency Management Agency
HUD	U.S. Department of Housing and Urban Development
IA	Individual Assistance
PA	Public Assistance
SBA	U.S. Small Business Administration
USDA	U.S. Department of Agriculture
VOAD	Voluntary Organizations Active in Disasters

Table 1. Summary of acronyms for agencies and programs

Case Study 1: Iowa Floods, 2001

Iowa is located on the Mississippi River and has a long history of flooding because of its proximity to the river. The state has a good floodplain management program, but large floods can still overwhelm the protective measures that are in place like the levees, retention ponds, and floodwalls. In April 2001, a quick rise in temperatures caused snow to melt rapidly and additional rains fell to the north over the headwaters of the Mississippi, setting the scene for disastrous flooding.

The flooding began in April, continued through the month and into May with the river cresting three times from continued snow melt and additional above-average rains. These events created prolonged flooding. The river flooded counties in Minnesota, Wisconsin, Illinois, and Iowa. Sixteen counties in Iowa were eventually declared disaster areas and were eligible for federal aid. Iowa was prepared for a crest of 23 feet 5 inches, but the floods overtopped their

efforts (CNN, 2001). Damages were estimated to be in excess of \$4.7 million, with “40 homes destroyed, 62 homes suffered major damage, 1516 homes sustained some damage, and 129 businesses were closed due to flooding” (NOAA, 2010).

By May 2001, FEMA had published that 1,089 applications had been referred for Disaster Housing Assistance and 1,120 grants approved, totaling \$1,430,177. There had also been 58 SBA low-interest loans approved, totaling \$744,600 (FEMA, 2001b). Public Assistance grants were obligated in the amount of \$8,618,000.36, Permanent work grants were \$4,689,231.55. These totals were for Iowa and Illinois counties (FEMA, 2001a).

The Iowa State Emergency Management Division lists 13 programs for disaster preparedness, recovery and mitigation. Funding for recovery could be obtained through Emergency Management Performance Grant (EMPG), Hazard Mitigation Grant Program (HMGP), Flood Mitigation Assistance (FMA), Disaster Recovery Initiative (DRI), Public Assistance Grant Program (PA), and the Contingent Fund-Disaster Aid. Other programs were for specific industry and technological industries. The report continues and lists the amounts of monies in each fund allotted for disaster expenditures for the 2001 Fiscal Year. State funds totaled \$1,234,271.58 from the Public Assistance Grant Program and totaled \$624,141.46 from the Hazard Mitigation Grant Program. From federal funds, the Public Assistance Grant Program spent \$5,108,944.08, the Hazard Mitigation Grant Program spent \$3,917,506.02 and the Disaster Recovery Initiative spent \$1,250,194.00. The disaster recovery funds listed in the report totaled \$12,135,057.14 (Iowa Department of Public Defense, 2001).

Program	State	Federal	Dollar Amount Awarded
FEMA- Disaster Housing Assistance (Iowa and Illinois)	No	Yes	\$1,430,177.00
Permanent Work Grants (Iowa and Illinois)	No	Yes	\$4,689,231.55
Public Assistance Grant Program (Iowa)	Yes	No	\$1,234,271.58.
Hazard Mitigation Grant Program (Iowa)	Yes	No	\$624,141.46
Public Assistance Grant Program (Iowa)	No	Yes	\$5,108,944.08
Hazard Mitigation Grant Program (Iowa)	No	Yes	\$3,917,506.02
Disaster Recovery Initiative (Iowa)	No	Yes	\$1,250,194.00

Table 2. Summary of Iowa floods recovery funds

Case Study 2: Eagle Pass Tornadoes, 2007

From April 20 to 26, 2007, a massive and violent storm system moved across much of the southwest United States. This system spawned a number of cyclonic wind storms and tornadoes ranging from EF 0 to EF 4 on the enhanced Fujita scale of tornadoes in locations between Nebraska and Texas. In this case study, we will examine one particular community on the Texas/Mexico border called Eagle Pass.

On April 24, 2007, at approximately 5:45 PM, the mentioned massive storm system began to drop hail upon the town of Eagle Pass, coming from the counterpart border town of Piedras Negras (Black Rocks). By 6:00 PM a funnel cloud had developed and touched down in a four bedroom home one quarter mile southeast of Rosita Valley Elementary School, demolishing the home, before travelling toward the school. On this route the tornado damaged three more homes, destroyed a fourth, and then struck a mobile home, throwing its debris at the elementary school. The tornado then continued through more mobile homes, while throwing debris into the school, before turning into the school itself. After damaging the school as well as outlying buildings, the tornado moved 200 yards northeast to an area of houses, flattening several and sweeping others off their foundations before finally dissipating at 6:13 PM. This tornado was designated an EF 3. In all, the tornado had destroyed one school, fifty-seven houses, and fifty-nine manufactured homes. There were seven deaths reported as a direct consequence of the tornado, six in the mobile homes with ages ranging from four years old to 83 years old, and one 47 year-old man in his house (NOAA, n.d.).

The response was immediate. The Texas Department of Public Safety deployed helicopters, state troopers, and liaisons to ensure that everyone can be accounted for, and to coordinate disaster response at the site. The Department of Parks and Wildlife had sent out Search and Rescue teams to help rescue and recover persons who were not accounted for. The Texas Forest Service applied their dedicated Incident Management Team to the location. State Health Services sent out medical trailers, vehicles, and personnel, and the Texas National Guard sent in 130 soldiers to assist. In addition to state resources, the Salvation Army put three canteens in place at location to provide assistance (Office of the Governor Rick Perry, 2007).

Recovery was expedient as well. The governor of Texas issued a statement declaring a state of disaster on April 25, opening up access to both IA and PA on May 1, when a federal Major Disaster was declared. In the case of Eagle Pass, no PA was issued, though it is unclear if this was because such assistance was denied, or not applied for at all. IA, however, was granted to 643 applications. Approximately \$5 million went through the Individual and Household programs, with \$1 million going through the Other Needs category and \$4 going through Housing Assistance. The Individual and Housing Program is administered by FEMA. SBA also approved \$3.3 million in loans to help homeowners and small businesses recover in the aftermath. Approximately \$2,700 has been approved by the Department of Labor for Disaster Unemployment Assistance, though this is region wide, and it is presently unknown what percentage of this has gone to Eagle Pass (FEMA, n.d.). In addition to federal funds, local agencies stepped in to help, including the Red Cross, Salvation Army, and Habitat for Humanity (which operates a ReStore in the area). The Rosita Valley Disaster Relief Committee was formed to guide long term recovery in the region. Members include A. Menchaca of the Texas A&M Colonia Program as well as members of local chambers of commerce and development council. There is a parallel Eagle Pass InterFaith Long Term Recovery Committee chaired by religious figures in the community, as well as a representative from the Salvation Army.

Eagle Pass was a comparatively small event, when compared to other Texas events in recent memory, with a comparatively small recovery and coverage base. As such, the only academic paper about the Eagle Pass incident, was a study about family structural shifts in disaster situations, and none are about or relating to economic recovery of this region. With time, this lack of literature will probably change, but at time of writing there have not been any concrete findings to provide. The recovery would seem to be complete, though without actually travelling to the location to check this is only speculation, and we should note that fundraising efforts continue through the Christian Reformed World Relief Committee.

Case Study 3: Hurricane Ike in Galveston, 2008

The following is a case study of post-disaster recovery funding in Galveston, Texas after Hurricane Ike that occurred in September 7, 2008. FEMA conducts damage assessments but does not make this information available to the public. There are several funding sources that are available to localities that have been impacted by disaster. This research follows some of the funding that were available to the city of Galveston, such as the CDBG program, bridge loan program, Economic Development Administration (EDA) revolving loan funds, and FEMA. On February 17, 2009, the Houston-Galveston Area Council (H-GAC) Board of Directors adopted the allocation of \$165,839,163 in funding to Galveston County and other cities. These funds were used to address the unmet needs associated with Hurricane Ike. However, in the 2011 internal audit report, HUD provided a list of recipients and CDBG award amount.

The city of Galveston is a coastal city serving as a barrier island located on Galveston Island and Pelican Island in Southeast Texas about an hour’s drive south of Houston. On September 12, 2008, Rick Perry requested a major disaster declaration on account of Hurricane Ike, beginning on September 7 (FEMA, 2008). The declaration requested IA and PA from the federal government for the 99 counties as well as Hazard Mitigation for all counties. On September 13, 2008, President Bush declared that a major disaster exists in the state of Texas. Hurricane Ike devastated the communities along the upper Texas Gulf Coast. According to Governor Perry’s Texas Rebounds report, estimates from cities and counties in the disaster area indicate approximately \$3.4 billion in total damage to housing in their jurisdictions.

Emergency funding was allocated through HUD’s CDBG Program to assist Texas in its long-term recovery efforts (Texas Department of Housing and Community Affairs, 2011). There has been recent organizational shifts that handed funds from the H-GAC to the Galveston Economic Development Partnership (GEDP) to most recently the Texas General Land Office.

HUD allocated *Round 1* funds in CDBG disaster recovery funding for housing activities in the following hurricane impacted areas:

Sub-recipient Awards	Current Budget	Cumulative Expenditures	Balance Remaining	% Expended
City of Galveston	\$160,432,233	\$5,167,799.73	\$155,264,433.27	3.22%

Galveston County	\$99,503,498	\$10,524,415.79	\$88,979,082.21	10.58%
Houston-Galveston Area Council	\$11,076,980	\$1,505,433.93	\$9,571,546.07	13.59%

Table 3. CDBG disaster recovery funding for housing activities

HUD allocated *Round 2* funds in CDBG disaster recovery funding allocated to the H-GAC:

Council of Governments	General Housing	Program Specific Activities: Affordable Rental Program	Total Housing
Houston-Galveston Area Council	\$521,261,621	\$126,095,018	\$647,356,639

Table 4. Recovery funding to H-GAC

GEDP’s February 2009 update discusses an estimate of available recovery resources that were available to businesses, such as the Hurricane Ike Recovery Loan, Galveston Business Recovery Funds, CDBGs, EDA, SBA, and Governor’s Office of Economic Development. The GEDP seems to have allocated \$179 million dollars from the CDBG where 60% percent was used for housing and 40% percent was used for infrastructure and economic development (GEDP, 2009). In respect to EDA, \$20 million was allocated for Public Works Grants and \$10 million for the Regional Revolving Loan Fund. Preliminary allocations include: Galveston - \$179 million, Galveston County - \$236 million, Houston - \$172 million and Harris County - \$85 million. Four banks came together and pooled over \$40 million in recovery loans (GEDP, 2009). While most of the funding that was available to Galveston was a result of the disaster declaration, there are local funds that are available in the event that a declaration is not possible, For four months, between September 2008 and December 2008, Galveston Banks re-invested almost \$50 million to local businesses impacted by Hurricane Ike (GEDP, 2009). The following banks pooled monies to form bridge funds: Frost Bank, Hometown Bank, Moody National Bank, Prosperity Bank, and Texas First Bank.

Case Study 4: Wildfires throughout Texas and in Bastrop County, 2011

In 2011, Texas went through a season of unusually high wildfire activity, due to conditions of drought, low rainfall, and high temperatures (Moore, n.d.). From November 15, 2010 to October 31, 2011, over 31,000 fires occurred on over 4 million acres (Texas A&M Forest Service, 2014). Wildfires in the fall of 2011 were particularly destructive, affecting over 60 counties throughout the state and inciting a presidential major disaster declaration on September 9 (FEMA, n.d.-a).

On September 4, fires began in Bastrop County, due to the aforementioned conditions and strong winds resulting from Tropical Storm Lee (Moore, n.d.). FEMA quickly declared the

area eligible for Fire Management Assistance (FEMA, n.d.-b). This fire complex destroyed over 1,600 homes and 1.8 million trees; it was the most destructive fire in the state's history (Rissel & Ridenour, 2013). Estimated insured losses were \$325 million (Insurance Council of Texas, 2011).

The major disaster declaration enabled many counties to receive FEMA recovery funds. Counties qualified for various grant programs based on their assessed needs. The Individual Assistance program approved 1,017 applications and granted a total of \$14,405,989.92. The Public Assistance program approved \$49,797,562.57 for various needs in 61 counties (FEMA, n.d.-a). All counties in the designated areas qualified for category B funds (Emergency Protective Measures); 32 counties qualified for the more specific and recovery-related categories of funds – A, C, D, E, F, and G (FEMA, n.d.-b; FEMA, 2010). As the most affected county, Bastrop qualified for all categories of IA and PA funds. Additionally, with the Fire Management Assistance declaration, it received response funds for fire-fighting activities, which fall under PA's category H (FEMA, n.d.-c). SBA also provided loans for recovery. Applications for Home Disaster and Business Physical Damage Loans were due on November 8, 2011, and those for Economic Injury Disaster Loans were due on June 6, 2011 (SBA, 2011). SBA approved \$22 million in loans for 188 homeowners (FEMA, 2012).

The state has received \$36,380,686 in Community Development and Block Grant (CDBG) funds from the Department of Housing and Urban Development (HUD) (Texas General Land Office, 2013). The Texas General Land Office (GLO) has administered the funds and initially planned to use 80% for Bastrop County housing and infrastructure recovery and 20% for infrastructure recovery other counties in the disaster declaration areas (GLO, 2012). However, other counties lacked infrastructure needs and instead desired funds for fire equipment and protection. Thus, the GLO decided to give the majority of the funds to Bastrop County and to provide for this specified need through a competitive grant for around \$4.7 million of the CDBG funds (GLO, 2013).

Many local non-profit organizations are involved in Bastrop County's recovery. Bastrop County Long Term Recovery Team (BCLTRT) began meeting in September 2011 but could not receive funds from grants until it registered as a 501(c)(3) nonprofit organization, which it did in February 2012 (BCLTRT, n.d.-a). According to BCLTRT's website (n.d.-a), the organization works directly with affected homeowners to assess their need and with builders, suppliers, and volunteers to coordinate the task of rebuilding. From 2011 to 2013, the organization received a total of \$3,653,645.34 from donations, fundraising, and grants; this total includes a \$1.5 million donation from the regional American Red Cross (BCLTRT, n.d.-b).

In addition to the many affected homes and businesses, the fires also destroyed many trees and especially impacted the Lost Pines Forest in Bastrop County. To encourage environmental recovery, a team of workers from federal, state, regional, and county agencies and universities created the Lost Pines Recovery Team to "accelerate native vegetation recovery," which will directly reduce erosion, restore habitats, and reestablish the forest's natural beauty, for the sake of residents and the area's tourism industry (Lost Pines Recovery Team, 2012, p. 1). According to the master plan (2012), they estimate spending \$17,196,517.20 on the project, anticipated to last through 2017. Members of the team include representatives from the U.S. Fish and Wildlife Service – an agency within the U.S. Department of the Interior – and the Natural Resources Conservation Service – an agency within the U.S. Department of Agriculture (Lost Pines Recovery Team, 2012).

Another non-profit organization, Austin Community Foundation, administered the Central Texas Wildfire Fund, which was created in September 2011 to provide grants to non-profit organizations that help affected communities “recover, rebuild, and return to the quality of life that existed before the fires began” (Austin Community Foundation, n.d.). In 2011 and 2012, the foundation doled out \$1,397,191.24 for recovery-related activities to various organizations, including the BCLTRT and the Lost Pines Recovery Team (Austin Community Foundation, n.d.).

Source	Funds
FEMA IA	\$14,405,989.92
FEMA PA	\$49,797,562.57
SBA	\$22,000,000
CDBG (through GLO)	\$36,380,686
American Red Cross	\$1,500,000
Central Texas Wildlife Fund	\$1,397,191.24

Table 5. Summary of Texas 2011 wildfire recovery fund sources

Case Study 5: Hurricane Sandy in New Jersey, 2012

Hurricane Sandy was the most destructive hurricane of the 2012 Atlantic hurricane season, as well as the second-costliest hurricane in the United States history. It was a Category 3 storm at its peak intensity when it made landfall in Cuba on October 25, 2012. The total economic damage was over \$68 billion and at least 285 people were killed along the path of the storm in seven countries. It hit New Jersey on October 29, 2012 and resulted in the damage and destruction of approximately 346,000 homes. The 8.9 feet storm surge, overland flooding, wind damage, and ensuing snowstorm further damaged almost all the communities throughout New Jersey (New Jersey Department of Community Affairs, 2013).

Up to October 23, 2014, FEMA has funded more than 5,185 PA projects including repairing and restoring hospitals, schools, waterways, parks, beaches, marinas, water treatment plants, and public buildings. \$6.67 billion has been provided to the state of New Jersey for Hurricane Sandy recovery. There were 61,442 applications approved by FEMA. For the IA, the total approved funding of Individual and Households Program was \$422,896,469.37 which was comprised of \$365,827,878.89 Housing Assistance and \$57,041,590.48 Other Need Assistance. The grants been distributed to help survivors get back on their feet. FEMA has provided \$1,513,404,697.54 total PA grants to communities and certain non-profit organizations for debris removal, emergency work, and permanent work. \$789,929,885.15 was used for emergency work and \$684,570,455.52 was used for permanent work. \$3.5 billion has been paid to policyholders for flood claims through FEMA's National Flood Insurance Program. \$279.5 million in grants has been provided for projects to protect damaged facilities against future disasters. \$123.9 million in funding for property acquisitions,

elevation, and planning updates has been paid to New Jersey communities through the Hazard Mitigation Grant Program. Up to October 23, 2014, SBA has approved \$847.7 million for disaster loans to 10,726 individuals and 1,718 small businesses (FEMA, n.d.-d).

CDBGs were used to fulfill the financial needs that were not satisfied by other public or private funding sources like FEMA IA funds, SBA disaster loans, or private insurance. The total grants for Housing Program is \$1,829,520,000. The Housing Program distributed the funding into several programs such as Homeowner Assistance Program (\$780,000,000), Rental Housing and Renter Programs (\$379,520,000), Economic Revitalization (\$460,000,000), Support for Governmental Entities (\$116,000,000), Supportive Services Programs (\$10,000,000) as well as Planning, Oversight and Monitoring (\$84,000,000) (New Jersey Department of Community Affairs, 2013).

The New Jersey Economic Development Authority (EDA) approved grants for \$500,000 to each of four Community Development Financial Institutions (CDFIs), as part of the Stronger NJ Business Neighborhood and Community Revitalization (NCR) program. Up to \$500,000 in grant funds per CDFI are being made available to fund loans to small businesses, utilizing their current lending programs (New Jersey EDA, 2013).

According to the announcement of Agriculture Secretary Tom Vilsack on Aug. 25, 2014, up to \$99 million in conservation funding will be provided to assist Hurricane Sandy victims in Connecticut, New Jersey and New York. Funding will be used to enroll 671 acres of hurricane-damaged property into permanent floodplain easements, while also making affected communities more resilient to future flooding and storm surges. The resources will help coastal communities, both human and natural, which are still recovering from the effects of Hurricane Sandy (USDA). Governor Chris Christie announced on June 17, 2014 that New Jersey would receive \$25.3 million in federal grants including \$7.1 million for state-led projects from DOI to help protect coastal communities from future storms through state or local projects using science-based solutions (State of New Jersey Governor Chris Christie, 2014).

American Red Cross is working with residents affected by Hurricane Sandy throughout the state. Red Cross case managers meet one-on-one with individuals to assess their storm related needs and help them to develop recovery plans to address these needs. Case managers also connect people to other state resources and available social services, and in some cases, provide direct financial assistance for housing related expenses (United Way, 2014). Several local long-term recovery groups were established to assist Atlantic City residents with Sandy related housing issues. Services available through long-term recovery committees may include casework management, construction management, volunteer management, donations management, spiritual care, fiscal controls/reporting, and public information about the committee's services and efforts (United Way, 2014). The Hurricane Sandy New Jersey Relief Fund Inc., which is an independent non-profit organization, has awarded the majority of \$40 million of donations from more than 30,000 individuals and corporations. Up to August 18, 2014, nearly \$33.8 million awarded to non-profit organizations throughout the state has been dedicated to housing assistance (O'Neill, 2014).

Conclusion

In summary, most of the major sources of recovery funding for communities, businesses, non-profit organizations, and households after a disaster come from a few key agencies in the

federal government. However, as our case studies demonstrate, there are many local organizations that also provide funds and inform their communities about accessing the federal funds.

Below is a summary table of the main sources of recovery-related funding and support mentioned in each case study. Please note that the absence of a check does not necessarily mean that source was not present in the recovery process; it simply indicates that we did not discover information on it in our research.

	FEMA IA	FEMA PA	SBA	HUD	EDA	USDA	DOI	Red Cross	Local
Iowa Floods		✓	✓						
Eagle Pass Tornadoes	✓		✓					✓	✓
Ike in Galveston	✓	✓	✓	✓	✓	✓	✓	✓	✓
TX Wildfires	✓	✓	✓	✓		✓	✓	✓	✓
Sandy in NJ	✓	✓	✓	✓	✓	✓	✓	✓	✓

Table 4. Summary of funding sources mentioned in case studies

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