



POST-DISASTER REDEVELOPMENT PLANNING

A Guide for Florida Communities



The Florida Post-Disaster Redevelopment Planning Initiative

The Florida Post-Disaster Redevelopment Planning Initiative is sponsored by the Florida Division of Community Planning, the Florida Division of Emergency Management, and the Florida Department of Environmental Protection with funding through grants from the National Oceanic and Atmospheric Administration and the Federal Emergency Management Agency. The purpose of the Initiative is to develop a planning process that will encourage vulnerable communities to undertake the preparation needed to ensure long-term sustainability and guide them through pre-disaster planning and post-disaster implementation. The Initiative has included researching redevelopment lessons learned during previous disasters, applying this research during the drafting of a long-term post-disaster redevelopment planning process, and testing the planning process through a series of pilot projects. This Guidebook, created to assist communities in developing a Post-Disaster Redevelopment Plan, is the culmination of all efforts associated with this Initiative.

Cover and Backcover photo credits: FEMA/Mark Wolfe (Sumter County, Florida, 2007).
Inside cover photo credits: FEMA photo/Andrea Booher (Pensacola Beach, Florida, 2005).





Table of Contents

How to Use This Guide	iv
Chapter 1. Getting Started	1
What is a Post-Disaster Redevelopment Plan?	
Why Should My Community Develop a PDRP?	
Different Approaches to Plan Development	
Key Ingredients for Plan Success	
Chapter 2. Planning Process	17
Initiating the Process	
Getting Buy-In	
Capacity Assessment	
Vulnerability Analysis	
Facilitating Input	
Chapter 3. Plan Topics	41
Land Use	
Housing	
Economic Redevelopment	
Infrastructure and Public Facilities	
Health and Social Services	
Environment	
Chapter 4. Implementation Considerations	101
Pre-Disaster Implementation	
Post-Disaster Implementation	
Financing Implementation	
Including the Public in Implementation	
References and Resources	121

ACKNOWLEDGEMENTS

FLORIDA DEPARTMENT OF COMMUNITY AFFAIRS

Thomas G. Pelham, AICP, Secretary

Charles Gauthier, AICP, Director
Division of Community Planning

Julie Dennis, Project Manager

FLORIDA DIVISION OF EMERGENCY MANAGEMENT

David Halstead, Director

Doug Wright,
Bureau Chief-Recovery

Emily Meyer, Project Manager

The Florida Department of Community Affairs and the Florida Division of Emergency Management wish to express their appreciation to the following individuals who participated in the Post-Disaster Redevelopment Planning Initiative:

Craig Diamond, State Planning Administrator
Walker Banning, Community Program Manager
Matthew Preston, Planner II
Joseph Borrás, Program Manager

Sandy Lanier, Government Analyst II
Larissa Pallo, Government Analyst I
Jordan Pugh, Environmental Specialist II
Laura Herbert, Planner IV

Focus Group Member List

Gary Appelson, Sea Turtle Conservancy
Mitchell Austin, City of Punta Gorda
Pat Blackshear, Walton County
Lieske Cox, Enterprise Florida
Robert Deyle, Florida State University
Roy Dunn, Florida Division of Emergency Management
Ann-Margaret Esnard, Florida Atlantic University
Walter Fufidio, Nassau County
Howard Glassman, Florida Department of Transportation
Allara Gutcher, City of Panama City
Eugene Henry, Hillsborough County
Betti Johnson, Tampa Bay Regional Planning Council
Curtis Knowles, Polk County

Alex Magee, American Planning Association-Florida
Sandy Meyer, Florida Division of Emergency Management
Cynthia Palmer, Federal Emergency Management Agency
Jim Quinn, Florida Department of Environmental Protection
Heidi Recksiek, National Oceanic and Atmospheric Administration
Sharon Tarman, Manatee County
Sheridan Truesdale, Palm Beach County
Mickie Valente, Valente Strategic Advisers, LLC
Gabriela Vigo, Federal Emergency Management Agency
Carol Westmoreland, Florida League of Cities
John Wilson, Lee County
Michael Wood, Manatee County
Laird Wreford, Sarasota County



A publication of the Florida Department of Community Affairs, Division of Community Planning and the Division of Emergency Management.

Prepared by CSA International, Inc.

The manual can be found on the Florida Department of Community Affairs' website: <http://www.dca.state.fl.us/fdcp/dcp/PDRP> and the Florida Division of Emergency Management website: www.FloridaDisaster.org/IndividualAssistance/pdredevelopmentplan

For additional copies of the manual, contact: Division of Community Planning, Publications Florida Department of Community Affairs 2555 Shumard Oak Boulevard Tallahassee, Florida 32399-2100 850-487-4545

This report is funded in part, through agreement from the Florida Department of Environmental Protection, Florida Coastal Management Program, by a grant provided by the Office of Ocean and Coastal Resource Management under the Coastal Zone Management Act of 1972, as amended, National Oceanic and Atmospheric Administration Award No. NA06NOS4190129. The Federal Emergency Management Agency provided supplemental funding through the Hazard Mitigation Grant Program Award 1609-124P. The views, statements, findings, conclusions, and recommendations expressed herein are those of the author(s) and do not necessarily reflect the views of the State of Florida, NOAA, FEMA, or any of its sub-agencies.

October 2010

How To Use This Guide

Rebuilding a community after a major or catastrophic disaster is a huge undertaking. The most effective way to accomplish holistic post-disaster redevelopment is to be prepared before a disaster strikes. Developing a Post-Disaster Redevelopment Plan (PDRP or the Plan) requires envisioning the potential obstacles to reconstructing a community in a compressed timeline – and hopefully not just reconstructing what was there, but redeveloping a more sustainable and disaster-resilient community with participation from various community stakeholders.

This Guide provides an accessible and practical method for developing a Plan during “blue skies,” otherwise referred to as the pre-disaster period. Florida’s communities are diverse and one plan template cannot meet the needs of each. To give this Guide the flexibility to work for a variety of local governments, five counties and one municipality volunteered to be pilots representing different qualities and aspects of Florida jurisdictions that would be undertaking this type of planning. Throughout the Guide, you will find brief case studies of issues the pilot communities faced during their planning process. You will also find that most suggestions in this Guide are categorized as one of three levels of achievement. This will be useful to the local government that wants to incrementally develop a Plan as well as the local government that already has excellent planning documents in place addressing hazard mitigation and disaster recovery but is looking to enhance them during future updates.

This Guide addresses the basics of what a Post-Disaster Redevelopment Plan is, what current requirements there are, and different forms it can take (**Chapter 1**); proven methods for the initial planning process (**Chapter 2**); suggestions for topics and issues to include in your Plan (**Chapter 3**); and considerations for implementation and future updates of your Plan (**Chapter 4**). Because there is a wealth of information in each of the pilot Post-Disaster Redevelopment Plans, this Guide provides insights into which aspects of each of the pilot Plans might be the optimal choice for your community. The pilot Plans, a full case study of the pilot projects, and links to learn more about the local governments that participated in the pilot Plans can be accessed through the Florida Department of Community Affairs project webpage (www.dca.state.fl.us/fdcp/dcp/PDRP). The website is also a good place to check for information on future related projects and materials to complement this printed Guidebook.

Achievement Levels Used in this Guide



Minimum. Any items marked as a minimum achievement level are suggested to be undertaken first.



Recommended. If resources are available, these items should be addressed either simultaneously with minimum items or during the next planning cycle.



Advanced. Items for communities to commence after a solid foundation for hazard mitigation and disaster recovery is already established. Items marked Advanced are considered best practices.

Pilot Post-Disaster Redevelopment Communities



Six communities were chosen by the State of Florida to be case studies and build the foundation for this Guidebook. Suggestions from those involved in the process, example scenarios, and lessons learned from each of the six communities are included throughout the Guide. The **Resources** section at the end of the Guide includes details on how to access the pilot communities' Post-Disaster Redevelopment Plans and other information. All of the pilots' Plans, apart from Sarasota County, were financed by the National Oceanic and Atmospheric Administration (NOAA) and the Federal Emergency Management Agency (FEMA) Hazard Mitigation Grant Program funds through the State of Florida.

CITY OF PANAMA CITY

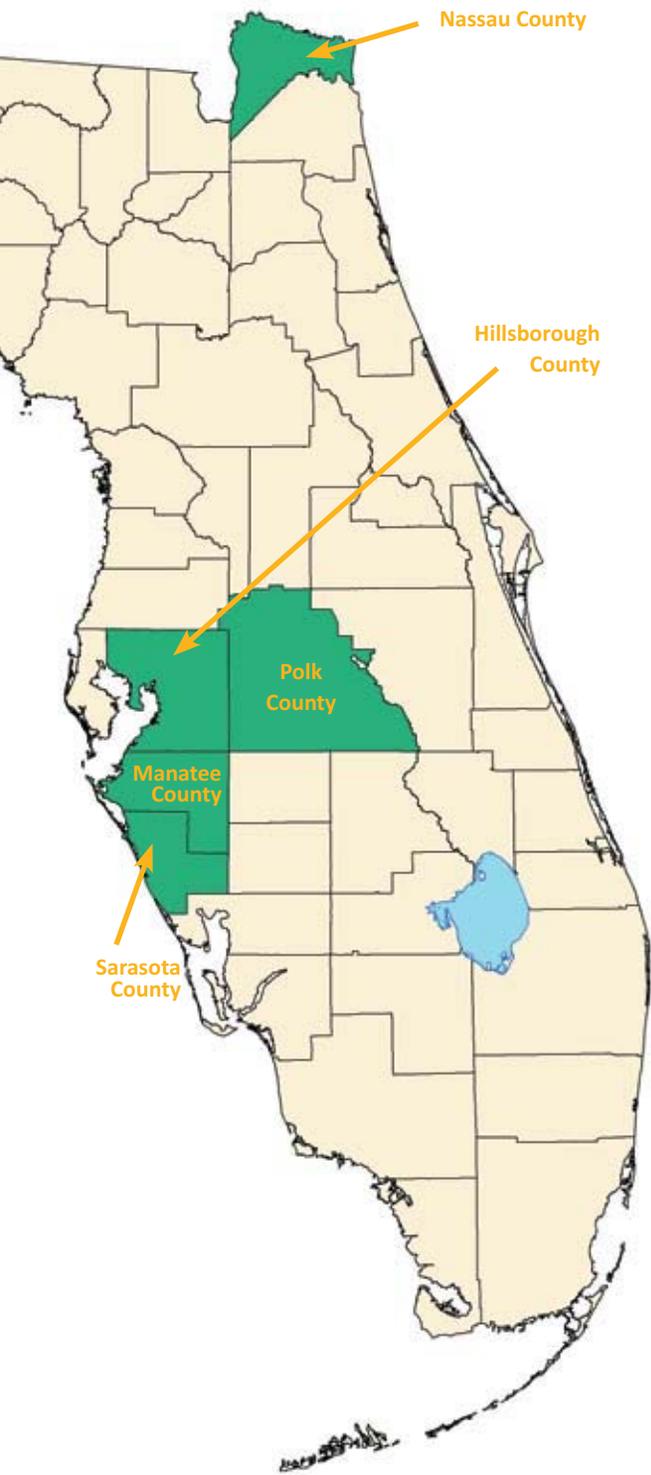
Selected as the first pilot community in the Post-Disaster Redevelopment Plan initiative by the Statewide Focus Group, the City of Panama City contains many of the components of a typical municipality in the State that might be a priority for post-disaster redevelopment planning. Panama City is a coastal community, medium in size with an economic focus on both tourism and industry, and has recognized historical significance. The City of Panama City is situated along the northern coast of the Gulf of Mexico in Bay County, Florida and is the largest in residential population of the eight cities in its county and serves as the county seat. Like all communities in Florida, Panama City is no stranger to storms, and the City's experience with and vulnerability to these storms is evident in their determination to undertake the post-disaster redevelopment planning process. Many parts of the City are vulnerable to storm surge and/or flooding. In fact, of the land within Panama City, 44% is within a storm surge and/or flood zone. This includes important areas such as the downtown area of Panama City, Gulf Coast Community College (main campus), and one of two hospitals located within the county. In addition to flooding and coastal storms, there is a high level of risk from wind events, such as tornadoes and tropical storms, due to the age of residential structures within the community.

HILLSBOROUGH COUNTY

Hillsborough County is the economic hub of the Tampa Bay metropolitan region. Its industries are diverse and include downtown Tampa businesses, the largest seaport in the state, tourism, higher education, medical services, and a thriving agricultural sector. However, approximately 22% of its diverse population is living in areas at risk from flooding. The problem that the County faces is that it has been thriving in an extremely vulnerable location on Tampa Bay and has been fortunate so far not to be directly hit by a hurricane for over 50 years. This means that for a majority of the greatest growth period in its history, the threat of destruction from storm surge flooding has not been forefront in citizen's minds. Despite the calm, the County has been progressively planning for post-disaster redevelopment and hazard mitigation, and their Plan includes many best practices.

MANATEE COUNTY

Manatee County is located on Florida's west coast along the Gulf of Mexico and boasts a population that has grown approximately 20% since the 2000 census. The eastern portion of the County is unincorporated and largely undeveloped, but has experienced increased growth in recent years. Since 1965, Manatee County has been impacted by 15 hazard events severe enough to receive Presidential Declarations. Another unique consideration in Manatee County is the deepwater seaport, Port Manatee. Manatee County has been actively working to promote the development of the Port Manatee area which could be an even greater economic generator in the future. The Post-Disaster Redevelopment planning process brought to light the potential state and regional impacts that might result from a disaster damaging the port and the importance of getting port channels open quickly after an event.



NASSAU COUNTY

Nassau County is vulnerable to various hazards, as it is a coastal community located on the Atlantic Ocean with many rivers, streams, creeks, and marshes spanning from the coast to the inland areas. The highest risk hazards for Nassau County that would likely result in a redevelopment effort include storm surge and high wind, flooding, and wildfire. Since 1898, nearly 40 hurricane and natural hazard incidents have impacted Nassau County. As much of the County has yet to be developed, opportunities exist to develop with greater resilience to coastal hazards. Tourism plays a major role in Nassau County's economy, spawning employment growth, personal income, tax revenue and gross regional product. The tourism industry is Nassau County's largest employer, and would very likely be adversely affected by a major or catastrophic disaster. Although the entire county can be affected by high winds, there are certain areas where winds would be higher due to their geography and/or higher elevations, such as the shoreline, areas adjacent to the Intercoastal Waterway, and developed areas such as Amelia Island.

POLK COUNTY

Polk County has several features that distinguish it from other pilot communities that were selected, particularly that it was the only inland county chosen to participate in the pilot program. Not only is Polk an inland county, but it contains headwaters to six of Florida's rivers and approximately 40% of its area is designated a 100-year flood hazard. Although it's not a coastal community, the County has been impacted by several major hurricanes, though other hazards also pose a risk – the County has received nine Presidential Disaster declarations since 1998. Located between the two major urban areas of Orlando and Tampa, even if Polk County is not directly impacted by a disaster, an incident in either one of these two large metropolitan areas is likely to have a significant impact on regional housing, economy, government services, environment, health and human services, and infrastructure. Polk County has the geographic space, infrastructure, and transportation linkages necessary to provide host services to displaced survivors from both of these areas if devastated by a disaster.

SARASOTA COUNTY

Sarasota County's 35 miles of Gulf beach shoreline (31 of which stretch across barrier islands) are major contributing factors to its appeal as an international tourist destination; but at the same time, its location makes the county highly vulnerable to disasters like hurricanes, flooding, beach erosion, and sea-level rise. The County has been very fortunate in the last 66 years to not have suffered a direct hit from a major hurricane. The most recent storm to cause significant damage in Sarasota County was Hurricane Donna in 1960. The County has had a significant increase in population and development since 1960, especially on the barrier islands in the Gulf of Mexico. If a similar hurricane were to hit Sarasota today, a great deal more damage would be done. While Sarasota County has had a respite from widespread hurricane damage in the last decade, recent major disasters in Florida and throughout the Gulf Coast are reminders that Sarasota is still vulnerable. The Sarasota County Board of County Commissioners recognized the severity of the County's risk to natural disasters and allocated funding to develop a Plan and participate in the State of Florida's pilot program.



1. Getting Started

The 2004 and 2005 hurricane season saw twelve named storms make landfall in Florida, seven of which received Major Presidential Declarations. Faced with billions of dollars in damages, Florida's communities began the long process of rebuilding. This experience brought to the forefront, the value of pre-planning for the long-term redevelopment phase of disasters. Without being prepared for the complexity of redevelopment in a compressed timeframe following a major disaster, local officials may struggle with recovery decisions and miss opportunities for public participation in reshaping the community's future. To become more disaster-resilient, local governments should plan for what must happen after rescue and recovery operations are completed in order to return the community to normal or perhaps rebuild an even better community. Through a Post-Disaster Redevelopment Plan (PDRP or the Plan), local governments can collaboratively create a long-term recovery and redevelopment strategy in pursuit of a sustainable community.

Photo (opposite page): Early in the 2004 hurricane season, Hurricane Charley left a 200-mile path of destruction caused by winds measured at 145 mph. The City of Punta Gorda was severely impacted. Mitchell Austin, a planner with the City and a participant on the State's Post-Disaster Redevelopment Planning Focus Group, is very proud of the redevelopment accomplishments that the City has made but is a firm believer that a PDRP prepared prior to the disaster would have resulted in a faster and less difficult long-term recovery process. Photo courtesy of FEMA/Andrea Booher (August 16, 2004, Punta Gorda, Florida).

1. GETTING STARTED



Window of Opportunity

Windows are moments of opportunity when a problem has become urgent enough to push for change of entrenched practices. But windows typically do not stay open for long after a disaster. The urgency of residents to get back to their homes coupled with pressure by business owners to return to normalcy builds quickly after a disaster and is amplified by a substantial inflow of capital for reconstruction. A community should be ready with solutions when a window opens, while the importance and priority that local officials assign to hazard threats are temporarily elevated. To take advantage of an open window, a community should have a recovery plan in place long before a disaster strikes.

Berke and Campanella, 2006, pg. 193

WHAT IS A POST-DISASTER REDEVELOPMENT PLAN?

A Post-Disaster Redevelopment Plan is a requirement for all Florida coastal counties and municipalities and is encouraged for inland communities. The Plan identifies policies, operational strategies, and roles and responsibilities for implementation that will guide decisions that affect long-term recovery and redevelopment of the community after a disaster. It emphasizes seizing opportunities for hazard mitigation and community improvement consistent with the goals of the local comprehensive plan and with full participation of the citizens. Recovery topics addressed include sustainable land use, housing repair and reconstruction, business resumption and economic redevelopment, infrastructure restoration and mitigation, long-term health and social services support, environmental restoration, financial considerations, and short-term recovery actions that affect long-term redevelopment as well as other long-term recovery issues identified by the community.

WHY SHOULD MY COMMUNITY DEVELOP A PDRP?

There are several reasons why each community in Florida should develop a Plan to address long-term post-disaster recovery and redevelopment: 1) reduce community vulnerability to disasters; 2) it is required for coastal communities and encouraged for all other communities; and 3) the Plan will allow for a more successful community recovery from disaster impacts.

Convincing your community leaders of the reasons why a Plan is needed and the benefits of planning for post-disaster redevelopment during “blue skies” is not very difficult, and the remainder of this section provides material you can pull from. What may be difficult is convincing community leaders to make the Plan a priority and initiating its development as soon as possible. A rainy day plan is easy to push aside when there are more immediate community problems; however, there is no way to know that this won’t be the hurricane or wildfire season when your community’s luck runs out. Even if your community is unable to finish the planning process or begin pre-disaster implementation prior to a disaster occurring, the institutional knowledge that can be created in just beginning the planning process will greatly increase the resiliency of the community and contribute to a more successful rapid long-term recovery. Developing a Post-Disaster Redevelopment Plan provides a valuable communication and educational process for local elected officials, staff, and community stakeholders to understand the complexity of decisions that will need to be made in order for the community to redevelop after a major disaster and agree to start making such decisions before something catastrophic happens.

Photo (top left): FEMA/Mark Wolfe (May 15, 2007, Lake City, Florida).

State Requirements

Florida's Growth Management Act, Chapter 163, Part II, Florida Statutes (F.S.), requires all of Florida's 67 counties and 410 municipalities to adopt Local Government Comprehensive Plans that guide future growth and development. Rule 9J-5, Florida Administrative Code (F.A.C.), provides the minimum criteria for plan review and compliance determination. Also included within these State regulations is the foundation for post-disaster redevelopment planning.

Sections 163.3177(7)(l) and 163.3178(2), F.S., and Rule 9J-5.012(3)(b)(8), F.A.C., require that coastal communities prepare PDRPs and policies that will reduce the vulnerability of private and public property and individuals to natural disasters. The plans and policies will be based on "studies, surveys, and data" and will be consistent with coastal resource plans. In addition, the statute recommends that non-coastal communities also develop a Plan.

The Coastal Management Element

Chapter 163, Part II, F.S., requires that each general purpose local government with jurisdiction over coastal lands include a coastal management element in its comprehensive plan based on studies, surveys, and data (Section 163.3177(6)(g), F.S.). It further requires that the coastal element contain a redevelopment component outlining the principles to be used to eliminate inappropriate and unsafe development in the coastal areas when opportunities arise (Section 163.3178(2)(f), F.S.). Data and analysis for the coastal management element must include natural disaster concerns with several specific post-disaster redevelopment analyses (Rule 9J-5.012(2)(e), F.A.C.). Rule 9J-5.012(3)(c)(5), F.A.C., also requires that the coastal management element include policies on post-disaster redevelopment that accomplish the following:

- Distinguish between immediate repair and clean-up actions needed to protect public health and safety and long-term repair and redevelopment activities;
- Address the removal, relocation, or structural modification of damaged infrastructure as determined appropriate by the local government but consistent with Federal funding provisions and unsafe structures;
- Limit redevelopment in areas of repeated damage; and
- Incorporate the recommendations of interagency hazard mitigation reports, as deemed appropriate by the local government, into the local government's comprehensive plan when it is revised during the evaluation and appraisal process.

The Post-Disaster Redevelopment Plan

In addition to requiring data, analyses, and policies for the coastal management element, Rule 9J-5, F.A.C., also requires the preparation of PDRPs as one of the objectives of the element. The Rule specifies that the purpose of the Plan is to reduce or eliminate the exposure of human life and public and private property to natural hazards (Rule 9J-5.012(3)(b)(8), F.A.C.). Local governments not required to prepare coastal management elements are encouraged to adopt hazard mitigation/post-disaster redevelopment plans, which should, at a minimum, establish long-term policies regarding redevelopment, infrastructure, densities, non-conforming uses, and future land use patterns (Section 163.3177(7)(l), F.S.).



See **Resources** for full citations of the Florida Statutes and Florida Administrative Code that reference post-disaster redevelopment planning (www.dca.state.fl.us/fdcp/dcp/pdrp/).

All coastal local governments are required to prepare a PDRP. Non-coastal communities are encouraged to do so as well.

Speed vs. Deliberation

Every post-disaster recovery manifests tension between speed and deliberation. Speed of recovery is important in order to keep businesses alive, rebuild infrastructure, and provide temporary and permanent housing. If official agencies do not act quickly, many victims will begin to rebuild on their own in ways and at locations that they determine.

Olshansky, 2006, pg. 148

Benefits of a Post-Disaster Redevelopment Plan

There are three principal benefits to having a well-developed Plan:

1) Faster and More Efficient Recovery

Without a comprehensive, long-term recovery plan, ad hoc efforts in the aftermath of a significant disaster will delay the return of community stability. Creating a process to make smart post-disaster decisions and prepare for long-term recovery requirements enables a community to do more than react, prompting post-disaster action rather than time-consuming debate. By identifying appropriate planning mechanisms, financial assistance, and agency roles and responsibilities beforehand, a community begins the road to recovery more quickly. Being able to show efficient and effective use of taxpayer dollars after a disaster is incredibly important for the public's perception of the recovery. See **Chapter 2** for more on how to assess and enhance resources and capabilities.

2) Opportunity to Build Back Better

A disaster, while tragic, can also create opportunities to fix past mistakes or leap forward with plans for community improvements. In the immediate aftermath of a disaster, local officials are under significant pressure to restore the community to its pre-disaster condition. Without a guiding vision, short-term decisions may inadvertently restrict long-term, sustainable redevelopment and overlook opportunities to surpass the status quo. A Post-Disaster Redevelopment Plan strengthens the recovery process, and communities benefit from assessing their risk levels and crafting a long-term redevelopment plan under "blue skies." Local officials and the public can thoughtfully analyze and debate issues, linking redevelopment goals with other important community plans. Careful thought and planning achieves a more sustainable and resilient outcome than decisions made under emergency circumstances, compromised budgets, and political pressures.

CAN A DISASTER PROVIDE OPPORTUNITY TO ADVANCE YOUR COMMUNITY'S VISION?

All communities have already prepared comprehensive plans and participated in other planning initiatives that include a vision for the community's future. The PDRP can identify disaster scenarios in which opportunities may be present to advance the community's already-stated vision in a compressed timeframe. The planning process presented in **Chapter 2** will assess what policy and procedural tools are needed to ensure that post-disaster opportunities to build back better are not missed in the rush to rebuild.

Plans That Have Blueprints for the Community's Vision

- Local comprehensive plan
- Area-specific redevelopment plans
- Regional plans (e.g., Strategic Regional Policy Plan)
- Local economic development strategy plans
- Long-Range Transportation Plans

Opportunities to Consider During Post-Disaster Redevelopment

- Disaster-resilient land use patterns
- Hazard mitigation construction techniques
- Energy-efficient buildings
- Healthy community design
- Affordable or workforce housing
- Alternative transportation networks
- Environmental preservation and habitat restoration
- Sustainable industry recruitment

3) Local Control Over Recovery

Developing a PDRP provides local government officials, residents, and businesses the opportunity to determine long-term redevelopment goals and develop policies and procedures that will guide redevelopment before well-intended outside agencies and non-government organizations rush to aid the community. While outside resources are needed and welcomed in a major or catastrophic disaster, a locally developed Plan will best channel those resources to effectively meet the community's specific needs and goals. A Post-Disaster Redevelopment Plan will show outside agencies and donors that the community is prepared to play an active role in the recovery process and promote its capabilities to wisely use donated and loaned resources. There will always be rules and, occasionally, strings attached to external sources of funding, but a community that has researched the allowable uses of Federal and State assistance can better work within their boundaries in an effort to fund projects that further local redevelopment goals.

In studying disaster-stricken communities, Daniel Alesch, Lucy Arendt, and James Holly found that communities most likely to recover see themselves as self-organizing rather than reliant on an external agency.

Alesch et al., 2008



Photo (above left): Port Charlotte residents view the Charlotte county Long Term Recovery Plan presented by FEMA and the State to the local community. FEMA photo/Andrea Booher (December 7, 2004, Port Charlotte, Florida).



Photo (above right): Todd Davison of FEMA (second from right) speaks at a town hall meeting in Wauchula to discuss the recovery from Hurricane Charley. Other attendees included: Congresswomen Katherine Harris (center) and Janet Hale, DHS Under Secretary for Management (far left). FEMA Photo/Mark Wolfe (September 24, 2004, Wauchula, Florida).

All Florida Communities are Vulnerable to Disaster

Florida had 62 major disaster declarations between 1960 and 2009 (FEMA, 2009). Of those 62 disaster declarations, 22 followed hurricanes and seven were due to tropical storms. The remaining declarations were categorized as severe storms, severe weather, thunderstorms, flooding, tornadoes, or a combination thereof. In addition, five freeze events, one abnormally high tide event, and the wildfires of 1998 also resulted in major disaster declarations.

Coastal storms are by far the most common disaster in Florida. The coast experiences the highest wind speeds from hurricanes and is at risk from storm surge and beach erosion – key ingredients for a catastrophic disaster scenario requiring a major long-term redevelopment effort. The State’s acute vulnerability to tropical storms and hurricanes stems from the fact that 78% of the population resides in Florida’s 35 coastal counties (Florida Division of Emergency Management, 2010). The future vulnerability of our coastal communities may be even greater as sea level rise increases the impacts of beach erosion and storm surge.

Inland communities are also impacted by hurricanes and tropical storms. Flood and wind impacts from coastal storms can travel across the interior of the state, as was experienced with the 2004 hurricanes, Hurricane Wilma, and Tropical Storm Fay. Inland communities also may be indirectly impacted by becoming the host community for displaced survivors of neighboring coastal communities devastated by a hurricane. Some inland communities will also face other hazards, such as wildfire, tornadoes, sinkholes, and freezes, which can cause physical and economic damages constituting a disaster for local jurisdictions.

Although a Post-Disaster Redevelopment Plan is required only for Florida coastal jurisdictions, all communities can benefit from developing and implementing a Plan, regardless of their geographic location. Hurricanes, wildfires, floods, and other disasters do not confine themselves to jurisdictional boundaries. Regardless of whether a community is coastal or inland, it can experience the impacts of disasters. Displaced residents, compromised infrastructure, changes in economic conditions, hazardous materials contamination, and degradation of sensitive environments are some of the impacts that can affect an entire region after a major disaster. When recovery is slow, neighboring communities also experience these impacts for an extended period of time. With a Plan, local governments have a better chance of rebuilding a community more resilient to future disasters.

“Sarasota County recognized the need for a PDRP many years ago – our community was ahead of its time in this regard. In fact, it has been an objective in the County’s Comprehensive Plan for quite some time. What finally moved it from a listed intention for “someday” to an actual initiative and undertaking was the two-fold motivation of 1) the severe back-to-back storm seasons of 2004 and 2005 and 2) more specifically, the near-miss of Hurricane Charley that caused such devastation to Charlotte County immediately south of us. These events were the “nudge” that caused us to begin the process of building a PDRP for the County.”

Laird Wreford, Sarasota County Coastal Resources Manager



Photo (left): The warning sign in this Volusia County neighborhood applied to boats as well as vehicles, following the flooding from Tropical Storm Fay. Local, State, and Federal emergency agencies had to work through such community flooding to assess the state-wide damage caused by the slow moving storm. FEMA Photo/Barry Bahler (August 24, 2008, Deltona, Florida).

Types of Disaster

The Plan is designed to be used in any disaster, regardless of type, as long as the damage will require long-term redevelopment efforts. It is an all-hazards plan addressing disasters caused by any of the natural or human-caused hazards identified in each county's Local Mitigation Strategy (LMS) and Comprehensive Emergency Management Plan (CEMP). Florida communities are most vulnerable to hurricanes, major flood events, tornados, and major wildfire events. Examples in this Guide, therefore, focus on these common, high-risk disaster types. Some additional disaster scenarios that can be incorporated into the Post-Disaster Redevelopment Plan include social/technological disasters (e.g., terrorist attack or public health emergencies) as well as future sea level rise (see **Figure 1**) and the associated increases in coastal flooding. Additional disaster types can be incrementally incorporated during Plan updates and as time and funding permit in each local government.

Levels of Disaster

A Post-Disaster Redevelopment Plan is useful for all levels of disaster – minor, major, or catastrophic. In general, however, the scale of long-term recovery and redevelopment is proportional to the severity of the disaster. Therefore, the Plan will be most valuable in the event of a major or catastrophic disaster affecting a large segment of the community or region. Particular components of the Plan and certain actions, such as acquisition of damaged properties, could also occur in a minor or localized disaster. A minor disaster may also be an excellent time to exercise the Plan and practice implementation of post-disaster actions.



Photo (above left): Homes along Pensacola Bay show the fury of Hurricane Ivan's winds and storm surge. Waves reaching 20 to 30 feet leveled the home in the foreground, leaving only the foundation. The home in the background also sustained catastrophic damage. FEMA Photo/Butch Kinerney (September 20, 2004, Pensacola, Florida).



Photo (above right): Flames light up the sky as wildfires in central Florida forced hundreds of residents to evacuate their homes. Florida Today photo/Craig Rubadoux (May 12, 2008, Malabar, FL).

State of Florida Definition of Disaster (Section 252.34, F.S.)

"Disaster" means any natural, technological, or civil emergency that causes damage of sufficient severity and magnitude to result in a declaration of a State of Emergency by a county, the Governor, or the President of the United States. Disasters are identified by the severity of resulting damage:

- a. "Catastrophic disaster" – requires massive State and Federal assistance, including immediate military involvement.
- b. "Major disaster" – likely exceeds local capabilities and requires a broad range of State and Federal assistance.
- c. "Minor disaster" – likely within the response capabilities of local government and results in only a minimal need for State or Federal assistance.



Figure 1. Estimated effects of a one meter rise in sea level.

Although sea level rise is not considered a disaster in the typical sense of an emergency event, the impact of sea level rise is predicted to be disastrous for existing development patterns. Rebuilding after a more typical disaster, such as a hurricane, could also consider mitigation opportunities to increase the community's resilience to future sea level rise. Including sea level rise scenarios as a component of the PDRP would improve coastal redevelopment decisions where risk from future erosion, inundation, and higher storm surges may be an issue.

Disaster Phases and the PDRP



Disaster management is typically viewed as a cycle with overlapping phases: 1) pre-disaster mitigation and emergency management preparedness; 2) emergency response; 3) short-term recovery; and 4) long-term recovery and redevelopment. **Figure 2** depicts the disaster management cycle and major plan interaction.

The Plan has an implementation role in pre- and post-disaster phases, but the intent of all Plan implementation activities is to improve the community's ability for long-term recovery and redevelopment. Implementation considerations for all disaster phases are further discussed in **Chapter 4**.

Pre-Disaster Phase – Initial Plan development occurs during the pre-disaster phase (except if a community is struck by a disaster before a Plan has been drafted). **Chapter 2** details the pre-disaster planning process. Once the Plan is adopted, preparatory activities detailed in the Plan should be implemented on an on-going basis during normal operations, which are sometimes referred to as “blue skies.” The Plan should also be exercised prior to a disaster event so that all stakeholders with a post-disaster implementation role are familiar with their responsibilities.



Emergency Response Phase – The Post-Disaster Redevelopment Plan does not address this phase. Emergency response activities are addressed in the CEMP and include immediate actions to save lives, protect property, and meet basic human needs. This is the shortest phase of the cycle, lasting only a few days in minor disaster conditions.

Short-Term Recovery Phase – The role of the Plan during the short-term recovery phase is to begin organizing for long-term redevelopment activities and guide short-term recovery decisions that may have long-term implications (e.g., placement of temporary housing or debris sites). Short-term recovery operations are addressed in the CEMP, but the Post-Disaster Redevelopment Plan can provide direction for transitioning to long-term redevelopment during this phase. The short-term recovery phase begins as the emergency response phase is winding down and will continue until critical services are restored. The duration of the short-term recovery phase depends on the severity of the disaster and the level of community preparedness; it could range from several weeks to one year to complete this phase.



Long-Term Recovery and Redevelopment Phase – The Plan is used most during this phase. Long-term recovery and redevelopment include efforts to reconstruct and enhance the built environment as well as recover the economy, environment, and social systems. This phase begins as short-term recovery activities are accomplished and can last from a couple years for a minor disaster to five or more years for a major or catastrophic disaster.

Photo (top left): Emergency Response Phase – Urban Search and Rescue workers search for any survivors in a house that was destroyed by Hurricane Ivan. A thermal imaging unit is used in the search. FEMA Photo/Jocelyn Augustino (September 16, 2004, Navarre, Florida).

Photo (middle left): Short-Term Recovery Phase – A worker removes vegetative debris left by the recent tornadoes. The tornadoes caused extensive damage to the Lady Lake area. FEMA Photo/Mark Wolfe (February 6, 2007, Lady Lake, Florida).

Photo (bottom left): Long-Term Recovery and Redevelopment Phase – John Mafera fixes the roof outside of his house which had damage from Hurricane Frances. FEMA Photo/Jocelyn Augustino (September 11, 2004, Grant, Florida).

1. GETTING STARTED

The PDRP acts as a guide for utilizing the policies and procedures found in other documents when making post-disaster redevelopment decisions.

Countywide, Stand-Alone PDRP Examples

Seven Florida counties have developed countywide, stand-alone PDRPs:

- Hillsborough County, 2010
- Manatee County, 2009
- Nassau County, 2010
- Palm Beach County, 2006
- Polk County, 2009
- Sarasota County, draft
- Alachua County, 2010

Interaction with Other Plans

The objective of the Post-Disaster Redevelopment Plan is to guide the redevelopment decision-making process following a disaster in a manner consistent with local comprehensive plans (especially the Future Land Use and Coastal Management Elements, where applicable), the Local Mitigation Strategy, the Comprehensive Emergency Management Plan, and other relevant plans or codes such as the Long-Range Transportation Plan, land development regulations, and economic development and redevelopment plans. Each of these plans, and potentially others, has pre-existing policies or procedures that affect post-disaster redevelopment. For instance, the comprehensive plan has many policies that determine where and to what extent redevelopment can occur. Ultimately, the PDRP acts as a guide for utilizing the policies and procedures found in other documents when making post-disaster redevelopment decisions. The planning process provides an opportunity to examine how local plans and codes will impact redevelopment and to recommend changes that could result in a faster and more sustainable recovery (see **Chapter 2**).

Implementation of the Post-Disaster Redevelopment Plan will overlap with implementation of other plans that also address some of the same topics, such as housing or infrastructure (see **Figure 2**). The focus on long-term post-disaster redevelopment, however, is unique to the Plan and its implementation strategy should include specific actions for integrating long-term redevelopment considerations into other local plans, as applicable. **Chapter 3** describes how each post-disaster redevelopment topic interacts with other plans.

DIFFERENT APPROACHES TO PLAN DEVELOPMENT

State requirements for the Post-Disaster Redevelopment Plan are general, providing communities some flexibility in how they approach planning for and implementing their Plan. This Guide presents several approaches that a local government (or community) can take, but focuses on the best practice of a stand-alone Plan as tested through the pilot projects. Examples and resources referenced in this section can be located by referring to the Resources section at the end of this Guidebook or the Department of Community Affairs website (www.dca.state.fl.us/fdcp/dcp/PDRP).

1. Stand-Alone PDRP Integrated with Other Local Plans

The best practice for developing a PDRP is for a county and its municipalities to collaboratively create a new countywide document through a planning process dedicated to the subject of post-disaster redevelopment. A stand-alone Plan provides a single reference for guiding action and decision-making during the difficult disaster recovery period and detailing actions that can be taken before a disaster strikes to speed the recovery process. This Guide is concentrated on providing recommendations on how to perform the planning process, develop the content, and implement a stand-alone Plan.

By itself, a stand-alone Plan is not adequate for successful post-disaster redevelopment. The Plan provides the strategy and action plan, but other local plans must support the Post-Disaster Redevelopment Plan strategy through policy, regulations, procedures, and projects. The approaches below for integrating the Plan into other local plans can be used in combination with the stand-alone approach.

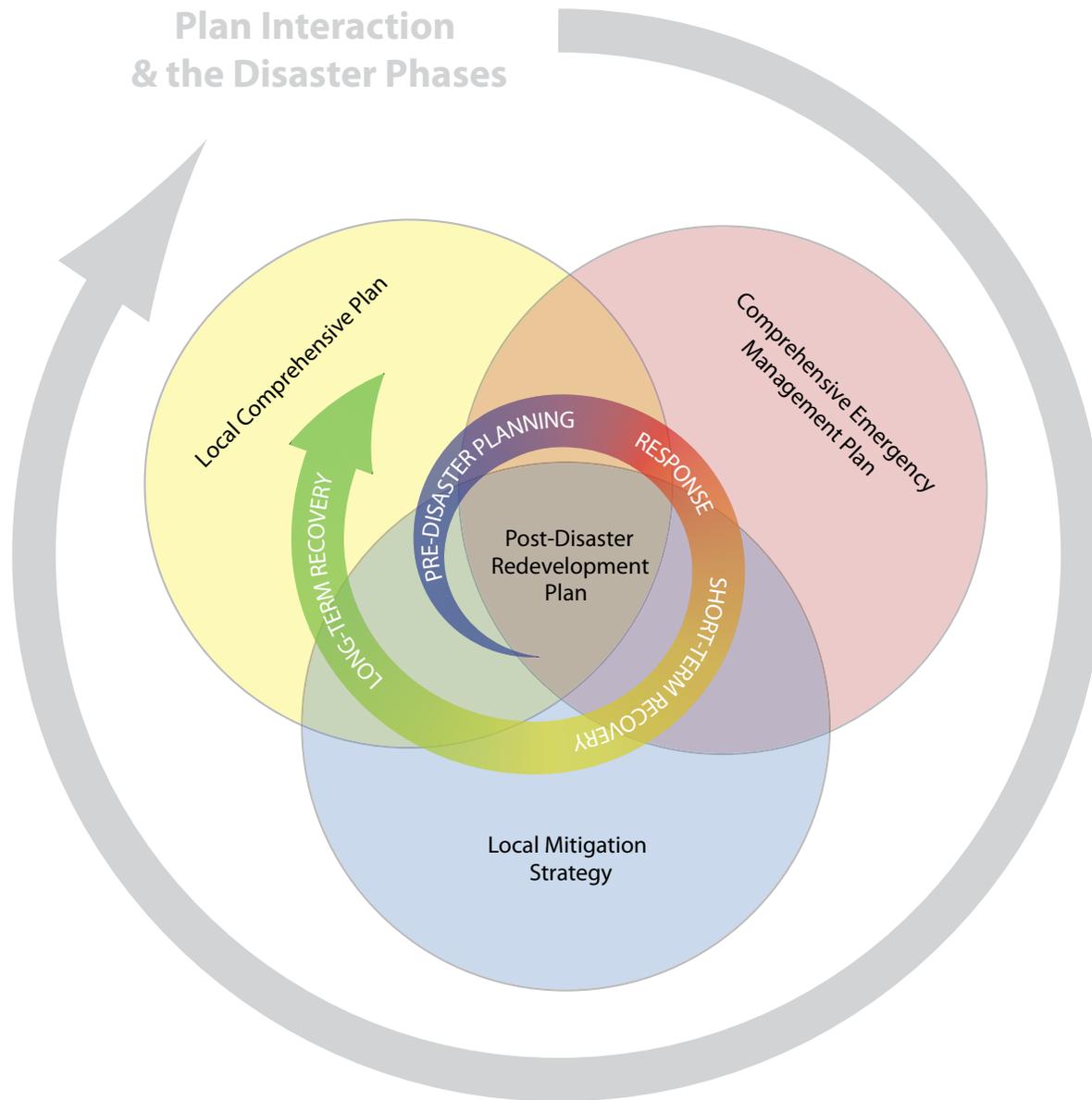


Figure 2. The Post-Disaster Redevelopment Plan is a guide that provides direction on how to implement other relevant local plans such as the comprehensive plan, CEMP and LMS during the different phases of a disaster. The overlap between the plans notes key integration and transition points such as the need to integrate hazard mitigation into the local comprehensive plan, pre-disaster and the transition between short-term and long-term recovery post-disaster. The nature of the planning process matches well with that of the disaster management cycle as they are both continuous with overlapping and imprecise phases.

1. GETTING STARTED

2. Adopt a Post-Disaster Redevelopment Ordinance

Every jurisdiction should adopt a post-disaster redevelopment ordinance. This can be the result of developing a comprehensive, stand-alone Plan or it can be a first step in preparing for long-term redevelopment after a disaster. At a minimum, a post-disaster redevelopment ordinance should address temporary regulations (such as building moratoria and repair permitting) and the establishment of a redevelopment task force or advisory body. A redevelopment ordinance was the foundation of Hillsborough County's Plan.

WHICH JURISDICTIONS TO INCLUDE?

Single Jurisdiction

A single-jurisdiction PDRP is a good option for any community that wants to move forward with developing a Plan and is in a situation where other jurisdictions within the county are not able or not ready to participate. Availability of funding may also lead a community to choose a single-jurisdiction Plan. This type of Plan can always be expanded to a countywide Plan at a later date if conditions change to make that a favorable option. With a single-jurisdiction Plan, some issues may be easier to address, as it will not require inter-jurisdictional coordination (e.g., decisions regarding a redevelopment land use strategy). On the other hand, disasters do not observe jurisdictional boundaries. Inter-jurisdictional coordination will lead to a stronger redevelopment strategy. Hazard management has been established at a countywide level in Florida (e.g., LMS and CEMP), and continuing with this structure has many benefits. The City of Panama City Post-Disaster Redevelopment Plan is an example of municipal level planning.

Regional (More Than One County)

There are many aspects of a Post-Disaster Redevelopment Plan that can be adequately addressed at a regional scale, such as economic redevelopment or transportation network restoration. A regional strategy can guide integration of post-disaster redevelopment considerations into other local plans, such as the comprehensive plan, much like a countywide Plan. For smaller counties and those with similar disaster vulnerability, a regional Plan can be an economical way to develop a PDRP with limited resources. Regional entities, such as regional planning councils, can play an integral role in Plan development.

A regional planning effort could have some obstacles, however. PDRPs cover a broad range of topics, requiring a substantial number of stakeholders to provide adequate input during Plan development. On a regional level, the number of participants could result in less functional meetings and more difficulty in reaching a consensus on strategies and actions specific enough to be effective. The East Central Florida Post-Disaster Economic Redevelopment Plan is an example of a topic-specific, regional PDRP.

Local governments have used two approaches in preparing a pre-disaster recovery plan. One involves preparing a recovery plan as a stand-alone plan. A stand-alone plan can be easier to revise, has more technical sophistication, is less demanding of coordination, and is simpler to implement. The second entails a recovery plan as one element integrated into a broader comprehensive plan for an entire municipality, county, or region. An integrated plan brings more resources together for implementation, broadens the scope of understanding about interactive effects of recovery issues with other local issues (e.g., transportation, housing, land use, environment), and provides access to a wider slate of planning and regulatory tools. An integrative plan also has the advantage of linking recovery to the broader economic, social, and environmental sustainability concerns of achieving a broader conception of community resiliency. The most effective choice is likely to be preparation of a stand-alone recovery plan in collaboration with preparation of a comprehensive plan, so that their databases, policies, and procedures are compatible.

*Berke and Campanella,
2006, pg. 194*

3. *Integrate Post-Disaster Redevelopment Issues into the Comprehensive Plan*

It is critical that any community working on post-disaster redevelopment issues integrate data, analysis, and policies into their comprehensive plan to guide long-term redevelopment after disaster. A community can choose to address integration into the comprehensive plan through three major processes: 1) as a component of developing a stand-alone PDRP; 2) during the comprehensive plan Evaluation and Appraisal Report (EAR) process; or 3) as part of any comprehensive plan amendment cycle. Redevelopment topics, such as land use and infrastructure, are essential to address in the comprehensive plan. **Chapter 3** identifies specific issues that should be integrated into the comprehensive plan. Not all issues, particularly the operational aspects of the Post-Disaster Redevelopment Plan, will be a good fit for integration into the comprehensive plan. Simply addressing post-disaster redevelopment through the comprehensive plan is a good place for a community to start, but the Plan should be combined with other approaches described in this section for best results.

4. *Integrate Post-Disaster Redevelopment Issues into the LMS*

Hazard mitigation increases the disaster resilience of a community, thereby decreasing post-disaster redevelopment issues. Integrating post disaster redevelopment goals, analysis, and projects into the Local Mitigation Strategy is a natural fit. Each of the six pilot counties has taken advantage of the overlap between the LMS and PDRP to maximize efficient resource use by pairing pre-disaster implementation and plan maintenance processes of the PDRP with similar LMS functions (more on this is included in **Chapter 4**). The scope of the Post-Disaster Redevelopment Plan, however, is more comprehensive than that of the LMS, and some communities may encounter limitations in implementing post-disaster actions using the LMS structure alone without modification.

5. *Expand the Recovery Annex of the CEMP to Address Post-Disaster Redevelopment Issues*

Transitioning between short-term recovery operations (led by the County Emergency Operations Center) and long-term redevelopment, which is not emergency-based and is often concentrated around community planning issues, can be difficult. An advantage of integrating long term, post-disaster redevelopment issues into the Comprehensive Emergency Management Plan is that it can better facilitate this transition. A county can expand its CEMP Recovery Annex to address long term redevelopment issues in addition to short-term recovery procedures. The disadvantage to addressing post-disaster redevelopment issues solely through this method is that the CEMP is primarily an operational plan and the ability to address redevelopment policy and public input may be limited.

The comprehensive plan and supporting land development regulations will direct physical redevelopment of the community. Does your comprehensive plan anticipate the changed conditions and challenges that may exist after a major disaster? Integrating post-disaster considerations in the comprehensive plan will ensure that its policies can be followed and enforced after a disaster and result in a successful community recovery.

Alachua County adopted their PDRP in April 2010 as an annex to their CEMP. They chose this method to emphasize the operational aspects of the Plan and to fully integrate it into their CEMP exercises. They also recognized that the PDRP could be more easily updated as part of the CEMP than if adopted as a component of their comprehensive plan, which has more restrictions on amendments.

KEY INGREDIENTS FOR PLAN SUCCESS

As with any planning initiative, there are a few key ingredients needed for ultimate success. This planning process is locally driven and relies on stakeholder input – not data or standardized templates. For a community to be prepared to effectively tackle long-term post-disaster redevelopment, it needs a Plan that is customized to its local vision and needs. Top-level and grassroots support is important to ensure that the Plan will be the guiding document for long-term redevelopment after a disaster.

Leadership

Multiple levels of leadership are important for the Plan, especially if developing one that is multi-jurisdictional. Support for the Plan from all community leaders who may potentially be involved in disaster recovery is necessary to ensure successful implementation. Elected officials and local government administrations are crucial supporters of the Plan. Also significant are private sector and non-government community leadership as well as the media. Having one or more champions of the Post-Disaster Redevelopment Plan from various community sectors can strengthen its ability to tackle controversial but necessary issues and maintain its strength and guidance during post-disaster implementation. Suggestions for building support from community leadership are included in **Chapter 2**.



Photo (left): Congressman Connie Mack acts as a moderator at a Port Charlotte Town Hall meeting where FEMA and State officials field questions from hurricane victims. FEMA Photo/ Andrea Booher (March 28, 2005, Port Charlotte, Florida).



Photo (top): Arcadia residents attend the FEMA sponsored long term recovery meeting in Arcadia, Florida, following Hurricane Charley. FEMA Photo/ Andrea Booher (November 15, 2004, Arcadia, Florida).

Participation

Hand in hand with leadership is the need for broad participation. The PDRP can only be successful with input from the community for which it is designed. Participation from the stakeholders and general public is vital during Plan development as well as during the implementation phases and Plan updates. The PDRP is a strategy for recreating a community that has been severely damaged or devastated, thus having buy-in and input from community members is essential to healing the community. Ideas for participatory planning and implementing processes are described in **Chapters 2 and 4**.

Commitment

As discussed previously in this chapter, the ideal Plan is dynamic and complex. It is not a one-time report that can be developed and filed or viewed as simply a policy amendment that, once adopted, is complete. For the Plan to guide holistic disaster redevelopment following a major or catastrophic disaster, it needs to be a long-standing commitment, kept up-to-date and regularly exercised. Funding and political support will be necessary to develop and maintain this planning effort. However, the amount of funding is not as important as the consistency of resource support from the local government(s). Suggestions for incremental planning and implementation integrated with other funded programs are included throughout this Guidebook.

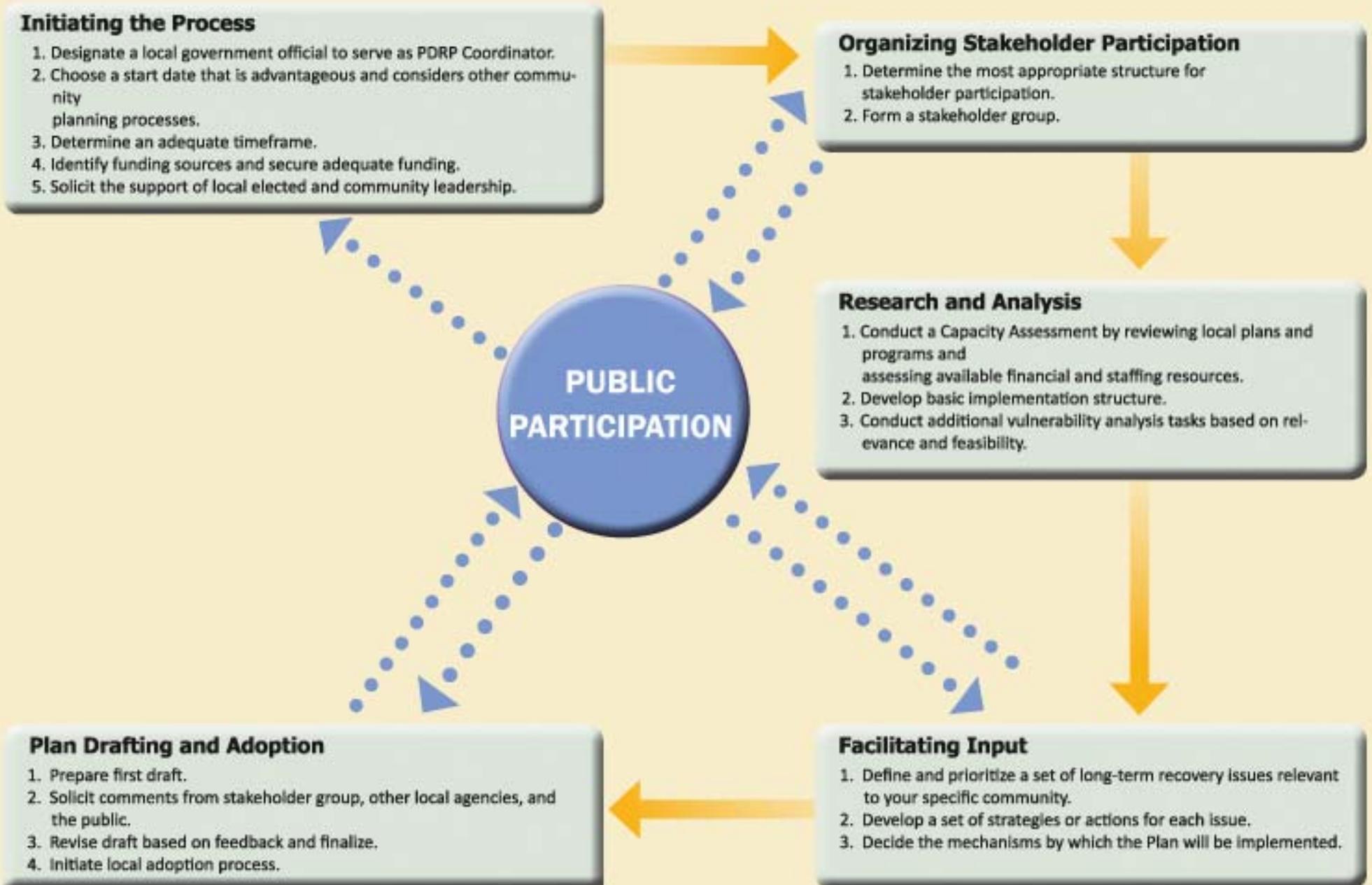


Photo (left): Members of the FEMA Housing Strike Team and Port Charlotte residents view the Charlotte County Long Term Recovery Plan presented by FEMA and the State. FEMA photo/Andrea Booher (December 7, 2004, Port Charlotte, Florida).



Photo (top): Over 690 applications for the Hazard Mitigation Grant Program (HMGP) arrived at the FEMA Long Term Recovery office by the May 2, 2005 deadline. FEMA photo/Alonzo E. Scott Jr. (May 2, 2005, Orlando, Florida).

The Post-Disaster Redevelopment Planning Process



2. Planning Process

The planning process for the PDRP should be a participatory process similar to other community planning initiatives. The best practice presented in this chapter is to develop the Plan using a stakeholder group format that represents a wide spectrum of the community beyond government agency interests. Public participation is also an important component in developing a plan that will be supported both during blue skies and in the event of a disaster. Beginning the planning process with a solid foundation of community awareness and support can be beneficial to the success of the remainder of the process and implementation. The lessons learned from the Post-Disaster Redevelopment Plan pilot communities have been incorporated into the recommendations of this chapter. Common hurdles the pilot communities faced, such as garnering leadership support to boost stakeholder meeting attendance or keeping input focused on long-term redevelopment concerns, may not be completely avoided but can be mitigated by preparing for such planning process pitfalls. In developing your scope of work for initial Plan development, make sure to plan sufficient time for input processes and do not leave considerations for how the Plan will be implemented to the end of the process. Part of the value of the Post-Disaster Redevelopment Plan is in the advanced awareness and institutional knowledge fostered during planning process coordination. In an evaluation study of the Recovery and Reconstruction Plan of the City of Los Angeles after the Northridge Earthquake, it was concluded that the quality of the planning process was the factor that led to the local agencies' ability to effectively carry out their major responsibilities. While a well-written Plan is essential in documenting the planning process and input gathered, the importance of the process itself should not be underestimated and may be a precursor to the level of success your community has in implementing the Plan.

Diagram (opposite page): The Post-Disaster Redevelopment Planning Process includes five major steps with public participation being a component throughout the process. The planning process does not necessarily need to be linear as presented – some steps can be performed simultaneously, e.g. staff or consultants can conduct preliminary research and analysis while a stakeholder group is being formed.

2. PLANNING PROCESS

Who Coordinated These Local PDRPs?

Hillsborough County
Hazard Mitigation Section
Manager, Planning and Growth
Management Department

Manatee County
Comprehensive Planning
Administrator,
Comprehensive Planning Division

Nassau County
Director, Growth Management

Palm Beach County
Senior Hazard Mitigation Planner,
Emergency Management
Department

Panama City
Manager, Planning Services

Polk County
Senior Transportation Planner,
Long Range Planning Division

Sarasota County
Coastal Resources Manager,
Natural Resources Department

Alachua County
Emergency Management Chief,
Public Safety

INITIATING THE PROCESS

When embarking on any new planning effort, there are a few logistics to sort out – Who will lead the effort, coordinate the process, and write the plan? When is the best time to get started? How long is it going to take? How is the plan going to be funded?

Who

An important first step in developing a Plan is to designate a local government staff member as the PDRP Coordinator. The Coordinator should be able to dedicate at least 25% of his or her time to Plan development responsibilities during the planning process. More than 25% of the Coordinator's time might be necessary if Plan development will be conducted in-house rather than with the assistance of a contractor. For continuity, this staff position should also be one that can accommodate responsibilities for coordinating implementation of the Plan after it has been adopted (see **Chapter 4** for more on implementation considerations). Most of the communities that have developed Post-Disaster Redevelopment Plans have found it useful for the PDRP Coordinator to be a staff person with job responsibilities related to hazard mitigation and/or community planning. If the Plan is multi-jurisdictional, the planning process will benefit by each participating jurisdiction assigning a liaison to work with the lead jurisdiction's PDRP Coordinator.

In addition to determining who will lead the planning effort, the local government(s) will also need to decide whether to employ a contractor or develop the Plan in-house — note that extenuating circumstances like funding and staff time availability will affect this decision. Other considerations for who will actually write the Plan could include whether there are training opportunities for staff to develop post-disaster redevelopment expertise and the timeframe for Plan development. If there are no timing limitations, such as grant deadlines, then an incremental, in-house approach may be valuable as this will also build implementation capacity and foster local ownership of the Plan.



Photo (left): Manatee County economic stakeholder meeting held as part of planning process activities. The PDRP planning team will be responsible for coordinating and facilitating many meetings during the planning process. Photo courtesy of FDEM/Nathan Slaughter (April 14, 2009, Bradenton, Florida).

When

The planning process should occur before a disaster event – during “blue skies” or normal community conditions. It may be advantageous for a community to coordinate the PDRP planning process with other plan updates if it won’t unnecessarily delay adoption of the Plan or interfere with funding timeframes. During the planning process, it may be discovered that the best way to implement a component of the post-disaster redevelopment strategy is to amend another plan; for instance, it may be necessary to add a new policy to the comprehensive plan. If the PDRP planning process can be accomplished prior to the comprehensive planning Evaluation and Appraisal Report (EAR) process, then newly identified post-disaster redevelopment issues can be included as topics in the EAR for later integration into the comprehensive plan.

Some communities will find it beneficial to complete their Local Mitigation Strategy (LMS) update prior to starting the PDRP planning process so that the latest hazard risk and vulnerability analysis can be used as the basis of the PDRP vulnerability analysis. Another option may be to have the planning process coincide with the LMS update process so that LMS Working Group meetings and public workshops can also contribute to development of the Post-Disaster Redevelopment Plan.

ROLE OF A PDRP COORDINATOR

In most cases, the Coordinator will be the official point of contact and spokesperson for the Plan. In addition, he or she will lead the planning process to ensure that all steps are accomplished, including the following:

- Organizing and coordinating communication among the stakeholder group members;
- Facilitating planning process meetings and soliciting effective input;
- Leading public outreach about the Plan, including organizing a workshop or other public planning process event;
- Liaising with community leaders and government agencies concerning the Plan;
- Overseeing research and analysis tasks as well as Plan drafting;
- Reviewing and editing drafts;
- Soliciting stakeholder and public input on the draft Plan; and
- Presenting the Plan to elected officials for adoption.



Photo (above): Walter Fufidio–Growth Management Director, Nancy Freeman–Emergency Management Director, and Scott West–Emergency Management Coordinator work on reviewing drafts of the Nassau County PDRP during the planning process. Photo courtesy of Lisa Flax (April 14, 2009, Yulee, Florida).

Public and stakeholder participation can begin before the planning process is officially started. Try getting a head start on the education process while you're searching for funding or choosing a contractor.

See **page ii** for information on using the Achievement Levels to choose the appropriate scope for your planning process.

TimeFrame

Whenever the planning process is started, it is important to set aside an adequate amount of time to encompass stakeholder and public participation efforts. At least a full year should be scheduled for Plan development. This allows for the much needed time in the beginning of the project for staff, elected officials, and other participants to become familiar with post-disaster redevelopment and be able to provide more educated input later in the process. Time will also be needed to educate the public on what a Post-Disaster Redevelopment Plan is before they can be expected to provide public comment and support local government adoption of the Plan. Larger communities with extensive stakeholder input and communities that choose more ambitious scopes of work may need more than a year to complete the Plan. For example, the Hillsborough County PDRP planning process required about 18 months because of the number of issues that the County sought to address in the Plan and the large stakeholder group that participated in over 60 meetings.

Funding

Funding for any new planning effort is, of course, a major concern. The PDRP is a complex plan requiring expertise and many meetings to develop. Communities that cannot secure a grant or other lump sum to develop the Plan in one continuous planning process shouldn't despair. This Guide has broken down the process and content in ways that can be adapted to an incremental planning approach based on smaller funding amounts or temporary staff assignments. Some components of developing the Plan can also be worked into already budgeted programs (e.g., LMS or comprehensive planning). Grant opportunities do exist, and it is highly recommended that local governments pursue these opportunities once they have determined their preferred approach to Plan development and identified the participating jurisdictions. Many grants are competitive, and some will require a local match that can be achieved through in-kind donations of time and resources. Stakeholder participation in planning meetings is a great source of in-kind match. More information on grant funding is available in the PDRP Funding Companion Guide (see the **Resources** at the end of this Guidebook). The Florida Department of Community Affairs may also be able to advise your community on whether there are current funding opportunities available (for contact information, see the Department's website at www.dca.state.fl.us/fdcp/dcp/PDRP).

GETTING BUY-IN

Before diving too deeply into the planning process, bring in your local leadership and ask for their support. Whether your jurisdiction receives a grant or otherwise appropriates local budget to develop a PDRP, it is essential to present the purpose and importance of the Plan to elected officials and government administrators before getting started. It is these leaders' support that will give the planning effort legitimacy and ensure that the staff and stakeholders who should be involved in Plan development consider the initiative a priority and actively participate in meetings.

In addition to local government leaders, support from community leaders can also prove helpful in organizing a stakeholder group, gathering data, and eliciting overall public support. Business and non-governmental organization leaders' support can particularly enhance the planning and implementation capacity of the Plan. Long-term redevelopment topics, such as economic redevelopment or health and social services, cannot be successfully addressed by government alone and must be undertaken by formal or informal public-private partnerships (see **Chapter 3**).

Finally, from the beginning your planning team should be looking for ways to generate public awareness of the Plan. In order to have successful public participation during the planning process (discussed later in this chapter), the public first needs to know what a Post-Disaster Redevelopment Plan is and that the community is currently working on developing one. Minimum efforts to elicit public awareness early in the project should include setting up a webpage with background information, project materials, and status updates and inviting the media to stakeholder meetings.

The planning effort should be initiated with a clear commitment from the jurisdiction's elected body; a formal action by the body, directing that the planning effort be undertaken, is recommended.

Southern California Earthquake Preparedness Project, 1991

PILOT COMMUNITY BEST PRACTICE FOR GETTING BUY-IN

Hillsborough County kicked off the planning process by presenting the project scope of work to the Board of County Commissioners (BOCC) for approval. The project team then held a leadership meeting in which elected officials and community leaders were invited to hear from the County Administrator, County Emergency Management Director, and a Department of Community Affairs representative about the planning process the County and municipalities were embarking on. They were asked to support the project themselves or designate someone from their organization to become a member of the Stakeholder Group. A public stakeholders meeting was then held to introduce the project to those who would be directly participating in the planning process and any interested members of the public. The resulting stakeholder participation was high and remained active throughout the planning process.

2. PLANNING PROCESS

Manatee County took a different approach in structuring its stakeholder group—utilizing a core group of planners and turning to existing advisory groups for consultations. However, for post-disaster implementation, Manatee has adopted a uniquely collaborative approach. They plan to form a Recovery Operations Center that organizes how key stakeholders will participate in Plan implementation. See Chapter 4 for more information on this style of stakeholder organization.

An interdisciplinary reconstruction planning task force is the best way to guide the process of constructing the plan. In relatively small communities, however, staff may be able to develop the plan with less formalized public and interagency input, but citizen participation in the plan's development will remain essential for building public consensus.

Schwab, 1998, pgs. 75-76

Organizing Stakeholder Participation

For both the planning process and implementation it is recommended that a committee or task force with broad stakeholder representation be created. Ideally, the organization that creates the Plan is the same one designated with responsibility for overseeing implementation. The stakeholder membership should be chosen to represent a wide spectrum of the community, thereby gaining local expertise on all aspects of disaster impacts. The stakeholder group, its membership, and its responsibilities should be formalized through resolution or association to a previously adopted group.

Two considerations in deciding the stakeholder group's composition should be "whose participation is essential in guaranteeing technical accuracy and thoroughness for the plan and whose participation and support will enhance its political acceptability?" (Schwab, 1998). In addition, thought should be given to the size and function of the committee. Options for committee function could include creating an executive committee of the top-priority stakeholders related to post-disaster redevelopment, and other stakeholders could be included through subcommittees or working groups that provide expert advice to the executive committee. For instance, a business alliance or public-private partnership as developed in Palm Beach County could function as a subcommittee and provide valuable input without adding numerous private entities to the stakeholder group. When creating the stakeholder group, it should be kept in mind that this committee or a subset of it will most likely be given clear responsibilities and authority to make some decisions during implementation of the Plan, particularly post-disaster implementation (see **Chapter 4** for more implementation considerations). A group that is too large may be difficult to manage during implementation. Also, it is recommended that department heads be designated for the committee whenever possible as they will facilitate decision-making and provide leadership. **Figure 5** provides a list of potential stakeholders and their group function. Examples of some of the pilot communities' stakeholder structures are described on **page 24**.

Some communities may wish to model or integrate the stakeholder group within already existing local committee structures since some of the representation will overlap (e.g., the LMS Working Group or Emergency Support Functions). Careful consideration should be given before consolidating the PDRP Stakeholder Group into an existing structure, especially if it is anticipated that the stakeholders will be a resource for post-disaster implementation. Questions to consider in making this decision include the following:

- Can additional representation be added to the existing group to cover all planning topics and participating jurisdictions?
- Will additional meetings and tasks specific to the Post-Disaster Redevelopment Plan be accepted by existing members?
- Will staff supporting the existing group be able to also participate in the PDRP planning process?
- Are there any negative perceptions of the group that might cause the Post-Disaster Redevelopment planning process to be less successful?
- Would the existing group have the authority to operate as an advisory body throughout post-disaster implementation?
- Would the existing group have the capacity to operate as an advisory body throughout post-disaster implementation or would this interfere with other pre-existing functions (e.g., short-term recovery operations)?
- Will the Plan take a backseat to the existing responsibilities of the group?

Figure 5. Potential Stakeholder Members

Topic	Stakeholder Group	Function/ Contribution
General/ Administrative	Chief Administrative Officer	Leadership Focus
	Municipalities (if jurisdiction is a county)	Inter-jurisdictional participation
	Public Information Officer	Information dissemination, communications
	Public Safety or Emergency Management Department	Emergency operations impact on long-term recovery and transitions
	Finance Department	Budgeting, contracting, outside financial assistance
	Legal Department	Emergency ordinances, new regulations
	Administrative or Personnel Department	Staffing Capabilities
Land Use/ Comprehensive Planning	GIS Department	Vulnerability and redevelopment mapping
	Planning or Community Development Department	Land use and other comprehensive plan compatibility
	Community Redevelopment Associations	Redevelopment plans
Housing	Regional Planning Councils	Regional coordination
	Building and/or Zoning Department	Building moratoria, permitting procedures
	Code Enforcement Department	Damage assessment, enforcement of redevelopment standards
	Neighborhood or Homeowner's Association	Community representation
Economy	Homebuilder's Association	Rebuilding housing
	Economic Development Organization or Chamber(s) of Commerce	Economic recovery
	Tourism or Visitor's Bureau	Economic recovery
Infrastructure	Major employers	Recovery and resilience of local businesses
	Public Works Department	Infrastructure restoration, mitigation projects
	Solid Waste Department	Debris removal
	Public and/or Private Utilities	Utility restoration, mitigation and relocation
	Metropolitan Planning Organization (transportation)	Regional transportation coordination, mitigation
	Transit Organization/ Company	Transit restoration, connection with temporary housing/ business sites
Health and Social Services	Aviation and Port Authorities	Regional transportation coordination, resumption of trade
	School District and Higher Education Facilities	Transition from sheltering to schools reopening, population return
	Health Department or Medical Organization	Hospital and medical recovery
	Human or Social Service Agencies	Special needs populations
Environment	Non-governmental Organization Service Providers	Coordinate volunteers, special needs populations
	Environmental Resources or Parks and Recreation Department	Land acquisition, environmental protection
	Water Management District	Flood mitigation, environmental protection

PILOT COMMUNITY EXAMPLES OF STAKEHOLDER PARTICIPATION

Small Community

Panama City organized a PDRP Executive Committee consisting of City department representatives, Bay County representatives of countywide services (e.g., Emergency Management), VOADs (e.g., American Red Cross, Catholic Charities, and the United Way) and other local and regional organizations (e.g., Economic Development Alliance, Tyndall Air Force Base, and the West Florida Regional Planning Council). Since this was a single-jurisdiction Plan, the size of the stakeholder group was manageable for conducting most planning meetings with the entire Executive Committee rather than breaking into subcommittees. Toward the end of the planning process, the project team held several topic-specific meetings in which only particular Executive Committee members were asked to participate along with additional stakeholders from outside the Executive Committee (e.g., economic recovery meeting with local business leaders). This allowed for more detailed action identification to take place without overly burdening members of the Executive Committee who did not have expertise in that topic.

Medium Community

Polk County held six large-scale meetings of approximately 30 stakeholders, numerous smaller, one on-one coordination meetings, and stakeholder conference calls with discipline-specific members. The large-scale meeting format consisted of a short plenary session with a brief project overview, followed by breakout sessions by the six discipline-specific workgroups for approximately 2 hours. Following these focused discussions, the workgroups would reconvene, and a spokesperson from each workgroup would highlight important points from the assigned discussion topics. Based on the project goals, Plan criteria, and current issues, the project leadership developed a series of structured questions for each discipline-specific workgroup. This meeting structure was considered effective in producing a large quantity of information for inclusion in the Plan, keeping participants engaged, and generating a cross discussion of information and ideas between the workgroups.

Large Community

Hillsborough County had a very large Stakeholder Group of over 100 active members. To function, the large group was broken into eight topic-specific Technical Advisory Committees (TACs) based on expertise. Due to the number of them and their need to meet frequently over an 8-month period, the TACs were given a set of planning tasks and asked to proceed somewhat autonomously. A chair and vice-chair were chosen for each TAC from the pool of Redevelopment Task Force Representatives (a pre-existing group named in the County's Redevelopment Ordinance 93-20). All meetings were recorded for use by the project team and a project team member was present at each meeting, but the productiveness of each meeting relied on the TAC members' understanding of the subject and ability to brainstorm what needed to be done. The project team provided technical assistance to the TACs by answering questions and furnishing additional information.

CAPACITY ASSESSMENT

All Florida communities have existing plans, programs, and resources that are compatible with post-disaster redevelopment, and one of the first steps of the planning process should be to review this existing capacity. This review will provide a basis for assessing the community's ability to implement the Plan and identify any potential gaps in capacity. This initial review also gives the project team the opportunity to collect required information and analysis from existing sources, which will prevent duplication of research during Plan development.

Review Plans and Programs

There are several key local plans and programs that should be consulted as part of the PDRP planning process. These include the local comprehensive plan(s), local development regulations, LMS, CEMP, Long-Range Transportation Plan, and, if available, economic development strategies, debris management plans, and temporary housing plans. When reviewing local plans, there are several items you should look for that will be relevant to the PDRP planning process:

- What existing data and analysis is there to draw from for the PDRP vulnerability analysis? Is the data current or is it in need of updating?
- What are the current standards for rebuilding or redeveloping private property?
- Are there existing redevelopment plans (not related to disaster) that could shape post-disaster redevelopment, such as a Community Redevelopment Agency Master Plan?
- Are there components of any plans or programs that could be advanced through post-disaster redevelopment, such as incorporating better building techniques through hazard mitigation or energy efficiency?
- Do any of the local plans or programs have associated staff, volunteers, or participants that could also be useful in preparing or implementing the Post-Disaster Redevelopment Plan?
- Are there already formalized networks or methods of communication between agencies, jurisdictions, non-profits, and/or private-sector organizations that could be used to help prepare or implement a Post-Disaster Redevelopment Plan, such as an active Chamber of Commerce with an interest in long-term redevelopment?
- Are there policies, procedures, or programs that could aid in preparing for or implementing post-disaster redevelopment, such as a streamlined process for issuing building permits?
- Are there existing policies, procedures, or programs that might conflict with the goals of a post-disaster redevelopment strategy, such as plans to build new infrastructure in highly vulnerable areas?
- Are there gaps or weaknesses in the local plans and programs that might lessen the success of post-disaster redevelopment, such as the lack of an approved disaster debris plan?
- Are there procedures or programs that will need to transition into or out of long-term redevelopment, such as Emergency Operations Center central communications procedures?

More details on specific issues to look for in local plans are included in **Chapter 3**.

According to Rubin (1985), three types of resources are critical to be able to act effectively and efficiently following a disaster:

1. *Administrative Capability*
Competent local administrators, a smoothly functioning administrative system, and adequate methods of monitoring and record keeping.
2. *Technical Knowledge*
Land use controls, enabling legislation for needed authorities to manage recovery activities, mutual aid agreements, and urban development plans and maps.
3. *Tangible Resources*
Grant money, money from local taxes, and local government supplies and equipment.

Assess Resources

Early in the planning process, the project team and the stakeholders should identify resources that can be used during the planning process, pre-disaster implementation, and post-disaster implementation of the Plan. Resource identification should include financial (both local funds and potential outside funding) and human resources (e.g., staff, stakeholder volunteers, and non-governmental organizations and private-sector support). Later in the planning process, the resource assessment can be used to determine if there are anticipated gaps in resources needed to accomplish the Plan's identified strategies in either the pre- or post-disaster implementation periods. **Chapter 4** includes more details to consider for financing implementation.

VULNERABILITY ANALYSIS

The term Vulnerability Analysis may conjure expectations of having to gather copious amounts of data and contract an expensive analysis. The vulnerability analysis for a Post-Disaster Redevelopment Plan, however, shouldn't overwhelm anyone because much of the base work has already been done in other planning efforts and the community can choose how rigorous they want additional analysis tasks to be during the initial planning process. The purpose of the vulnerability analysis is to provide estimations of disaster scenario impacts that would affect long-term redevelopment so that actions to address those impacts can be anticipated and included in the Plan. The suggested analyses included in this section have been organized by levels of achievement (see **page ii**) so that an incremental approach can be selected and the vulnerability analysis can be enhanced with each Plan update.

Minimum Tasks ●○○○

When doing a Capacity Assessment, the hazard vulnerability information from the LMS, CEMP, and comprehensive plan(s) should be reviewed and referenced in the Post-Disaster Redevelopment Plan as the basis of the Vulnerability Assessment. The LMS identifies the hazards that the community is most vulnerable to, which should serve as the basis of what to plan for in the PDRP. Depending on the timing of the planning process in relation to these plans' last updates, the hazard vulnerability data may not be the most current available. If a community has sufficient funding to perform a vulnerability analysis as part of the PDRP development, it is recommended that any updating of basic hazard vulnerability information be performed so that it will be compatible with the LMS update.

Another source of information for the vulnerability analysis is the stakeholder group's expertise. Once all readily available hazard vulnerability information is gathered, the stakeholder group should review and discuss. As part of the discussion, the stakeholder group should determine which data and analysis would be useful in developing the Post-Disaster Redevelopment Plan so that the project team can determine whether any of the information already exists and if it doesn't exist if it is within the project budget to perform an analysis. If it is not within the budget, ideas for additional analysis can be included as actions in the Plan to increase capacity at a later date when funding has been obtained or during the update process. Through an effective facilitation process, the project team can achieve much of the initial PDRP planning process using the hazard vulnerability knowledge of the stakeholder group.

See the **Resources** for information on the companion report *Case Studies of Analyzing Vulnerability for Post-Disaster Redevelopment Planning*.



Do not delay the planning effort in order to obtain detailed data. An adequate plan can be based on generalized information (Schwab, 1998).

VULNERABILITY ANALYSIS AT A GLANCE

The vulnerability analysis is meant to provide estimations of disaster scenario impacts that would affect long-term redevelopment so that actions to address those impacts can be anticipated and included in the Plan. The following are recommended actions that your community can take during this phase of the post-disaster planning process. Detailed information on each action can be found on **pages 26-34**.

Minimum Tasks ●○○○

- Review hazard vulnerability information from LMS, CEMP, and comprehensive plan(s)
- Use stakeholder expertise to determine appropriate hazard vulnerability information for long-term redevelopment

Recommended Additional Tasks ●●○○

- Develop one or more scenarios that include descriptions of long-term impacts
- Analyze the land uses within a defined hazard zone
- Analyze your community's nonconforming structures
- Ensure a solid understanding of the infrastructures and facilities likely to be damaged
- Analyze your community's social vulnerability to disasters

Best Practice Advanced Tasks ●●●○

- Analyze your local economic vulnerability to disasters
- Conduct a financial impact analysis
- Conduct an environmental or habitat impact analysis
- Analyze your community's designated historic sites and structures
- Conduct an analysis of future sea level rise inundation and increased storm surge

Integration of Hazard Mitigation Planning Project

In 2005, the Florida Department of Community Affairs completed a project to assist local governments in integrating hazard mitigation into the comprehensive plan. As part of this project, a mitigation profile was created for each county that detailed hazard data (flood, coastal and hurricane hazard zones, wildfire, and sinkholes) in relation to existing and future land uses. This hazard vulnerability information can provide planning participants with an understanding of how development patterns will be impacted by a disaster. These profiles and the map series created for each are available at www.dca.state.fl.us/fdcp/dcp/hazardmitigation.

Recommended Additional Tasks ●●○

If time and budget permits, it is worthwhile to pursue additional vulnerability analysis tasks. Determining which additional tasks to pursue depends on your community's needs.

If your community or stakeholder group is relatively new to hazard planning or has insufficient existing hazard risk scenarios:

Developing one or more probable disaster scenarios that include descriptions of long-term impacts can be a valuable planning tool. Scenario planning gives every participant in the planning process a common vision of the problem in a format that is readily understood. It can create excitement about the planning process and be used as a tool for public education as well. If a community uses a disaster scenario as the basis of the Plan's vulnerability assessment, it is important to qualify the accuracy and probability of the scenario impacts and use it as snapshot of what could happen to the community without a plan for post-disaster recovery and redevelopment. See **Figure 6** for a HAZUS Disaster Scenario.

If your community anticipates post-disaster property acquisition through FEMA Hazard Mitigation Grant Program, has a land acquisition program, or would be interested in pursuing transfer of development rights or other land use adjustments after a disaster:

An analysis of land uses within a defined hazard zone (e.g., FEMA flood zone, the Hurricane Vulnerability Zone and the Coastal High Hazard Area) would help to inform redevelopment strategies concerning land use (see **Chapter 3** for more on potential strategies). An analysis such as this may assist in prioritizing limited funding for land acquisition to remove vulnerable property from hazardous zones and create natural buffers.

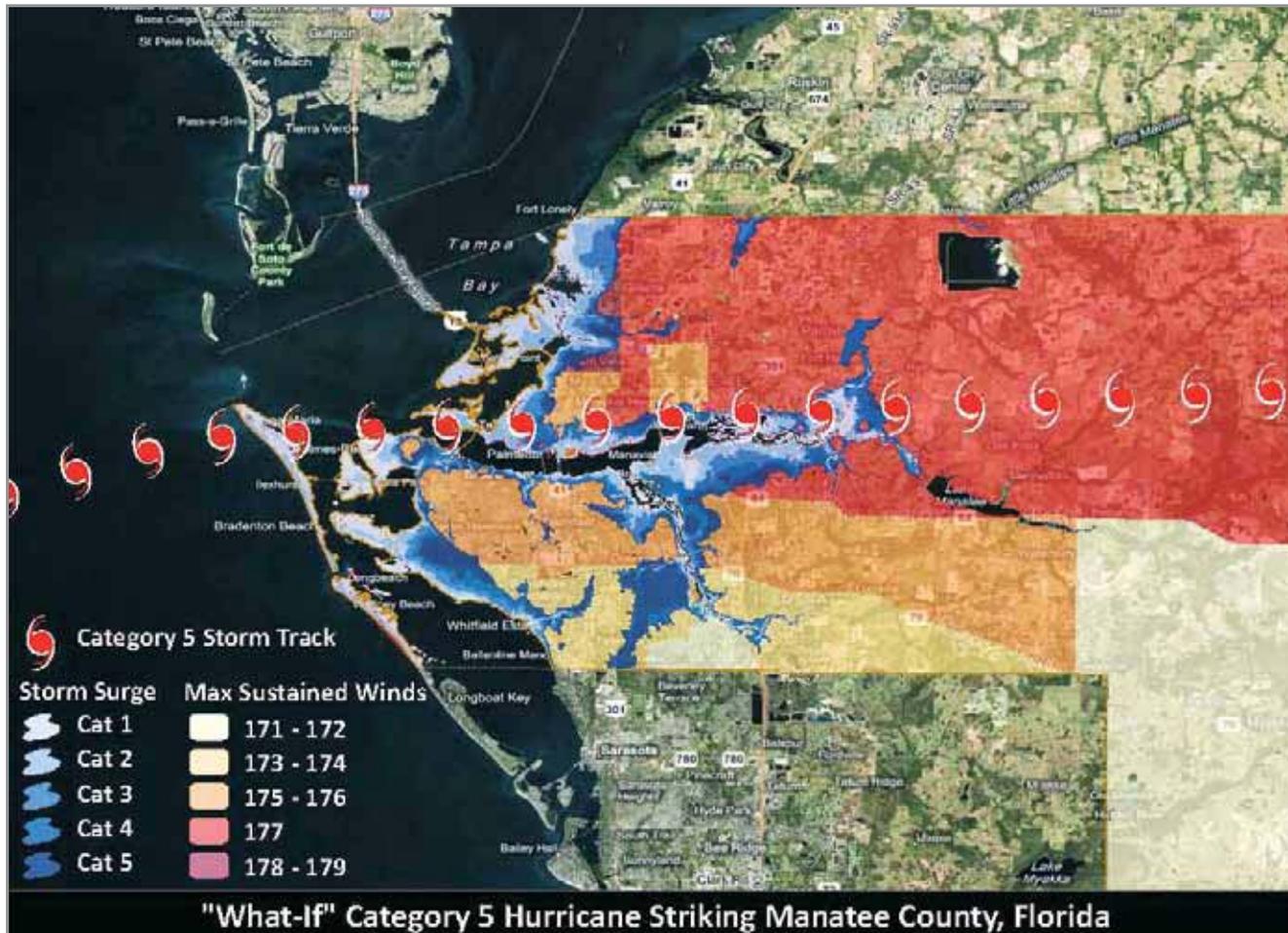


Figure 6. Using HAZUS to Develop a Disaster Scenario.

HAZUS-MH is a risk assessment methodology available from FEMA that can be used to analyze potential losses from floods, hurricanes, wind, and earthquakes. HAZUS-MH was used in the pilot communities, Manatee, Nassau, and Polk counties, to estimate damages that could be incurred from different hurricane scenarios. HAZUS-MH analyses are most accurate when local data is incorporated into the model. Presented here is the Category 5 Scenario used during Manatee County’s planning process.

Results from Category 5 HAZUS-MH Scenario						
Category	Capital Stock Losses			Business Interruption Losses		
	Total Building Damage	Total Contents Damage	Inventory Loss	Income	Relocation	Rental
Residential	\$15,440,764,000	\$7,630,860,000	NA	\$25,288,000	\$1,675,503,000	\$696,833,000
Commercial	\$2,674,046,000	\$2,919,204,000	\$66,459,000	\$556,509,000	\$365,232,000	\$252,874,000
Industrial	\$741,953,000	\$1,015,644,000	\$184,409,000	\$14,342,000	\$32,082,000	\$8,396,000
Other	\$652,958,000	\$670,840,000	\$14,812,000	\$12,048,000	\$96,959,000	\$13,122,000
TOTAL	\$19,509,721,000	\$12,236,548,000	\$265,680,000	\$608,187,000	\$2,169,766,000	\$971,225,000

Vulnerable Infrastructure and Public Facilities Inventory

Hillsborough County's PDRP Infrastructure TAC developed a spreadsheet for public and private infrastructure, utility, and facility participants to record details on vulnerable infrastructure and facilities, such as whether it was located in a flood zone, the priority level, whether it should be rebuilt in same location, and its operational dependencies. The participants who were able to gather all of this information during the planning process shared a summary table for use in drafting the Plan that did not specify locations or other identifying factors and kept specific data secure for their own use in disaster preparations.

If your community wants to estimate vulnerable residential structures to determine possible temporary housing and permitting needs:

As communities progress through the planning process, most will find that an analysis of nonconforming structures will help them understand the magnitude of rebuilding associated with different disaster scenarios. The percentage of nonconforming structures may impact decisions on how strict rebuilding standards should be without burdening the community's capacity for recovery. This type of analysis can vary in degree of difficulty from a complete inventory of non-conforming structures and uses to a GIS estimate based on available property appraiser data and simple assumptions. **Figure 7** presents the latter type of analyses.

If your community has not already assessed vulnerable infrastructure and public facilities:

Pre-disaster planning can provide opportunities for modifying infrastructure systems and public facilities during restoration and repairs. A solid understanding of the infrastructure and facilities that are likely to be damaged is necessary to be able to assess opportunities for hazard mitigation and relocation as well as to determine any delays in rebuilding that may be caused by severe infrastructure damage. Vulnerable infrastructure assessments can also provide insight for prioritizing redevelopment areas based on estimated restoration timeframes. A community can use GIS to identify infrastructure within disaster scenario impact zones (e.g., flood or storm surge). For other hazards, such as wind damage, infrastructure, and facilities, stakeholders should be able to provide information on specific structures that can be used for estimating vulnerable inventory. For homeland security considerations, only summaries of these analyses should be made available for public dissemination.

If your community has a large special-needs population or is concerned about capacity for social recovery programs:

Researchers at the University of South Carolina developed a method for analyzing social vulnerability to disasters called the Social Vulnerability Index (SoVI). The Index synthesizes 42 socioeconomic and built environment variables that research literature suggests contribute to a reduction in a community's ability to prepare for, respond to, and recover from hazards. The socioeconomic and built environment variables were standardized and input into a principal components analysis to reduce the number of variables to a smaller set of indicators, including socioeconomic status, elderly and children, development density, rural agriculture, race, gender, ethnicity, infrastructure, employment, and county debt/revenue. The data sets were culled from national sources, primarily those from the Census Bureau. Geospatial social vulnerability data can provide stakeholders with a better idea of what actions may be needed in the Plan to prepare for long-term social recovery.

More information on the Index can be obtained from www.sovius.org.

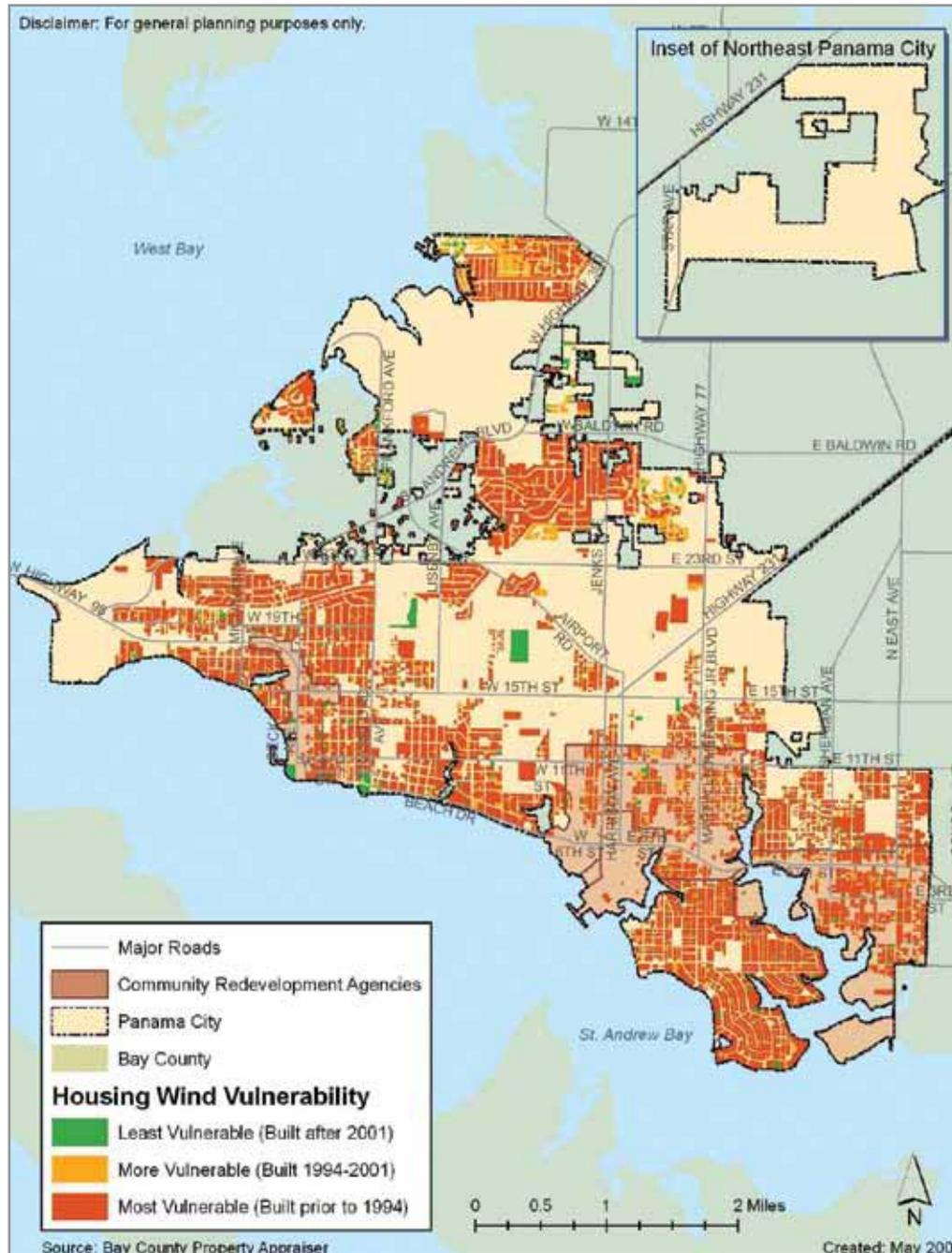


Figure 7. Housing Vulnerability in Panama City.

An analysis of housing vulnerability to wind damage was conducted as part of the PDRP planning process in Panama City. A majority of Panama City's housing stock are single-family homes built prior to the Florida Building Code (FBC). While some of these homes may adequately stand up to hurricane-force winds, studies show that homes built to current codes are less likely to sustain damages from a hurricane.

Best Practice Advanced Tasks ●●●

Other vulnerability analyses may go beyond the basics of redevelopment and provide detailed information about specific aspects of disaster impacts. These analyses may not be appropriate for every community's initial planning process depending on time, budget, and data availability. They can, however, be considered for actions to include in the Plan for future implementation.

If a major focus of your Plan is going to be economic redevelopment initiatives or your community is a regional economic hub:

Analyzing your local economic vulnerability to disasters can be complex. Most communities will probably want to start with reviewing what data are available in local economic development reports as part of the Capacity Assessment and ask their economic development leaders to provide insight on which industries and major employers may be vulnerable. If a more detailed analysis of geospatial business vulnerability is required to identify concentrations of local businesses in vulnerable areas, then data for rough estimations can usually be obtained from business license or property appraiser databases. Analyses more advanced than this, which try to quantify regional economic output impacts, timing of business recovery, and business interdependency vulnerabilities, may require contracting an economic analyst to run a model with specific disaster scenario assumptions.

If local government is concerned about financing redevelopment and wants to know which local fiscal resources may be impacted by a disaster:

A financial impact analysis would be useful for any local governments developing a Post-Disaster Redevelopment Plan. Outside funding sources will be a principal source of recovery financing in a major disaster, but local resources will be essential for sustaining long-term redevelopment. Analyzing revenue impacts can lead the local government to make smarter post-disaster decisions and prepare for budget shortfalls. An analysis could be a simple qualitative review of revenue vulnerability by local government financial administrators or it could be a more detailed quantitative analysis of expected property and sales tax impacts based on different disaster scenarios.

If your community's assets include sensitive habitats that are important for long-term recovery of the local quality of life or economy:

An environmental or habitat impact analysis can provide information to assist conservation land managers in understanding restoration needs after a disaster. Analyses could be focused on beach erosion or wetland degradation from storm surge, wind impacts on urban forests, hurricane debris accumulation impacts on wildfire risk, or many other specific environmental resource vulnerabilities.

Economic Recovery Scenarios

Hillsborough County analyzed economic impacts from Category 3 and Category 5 hurricane scenarios using a customized econometric model (REMI Policy Insight) created for the Tampa Bay region and data from the Mapping for Emergency Management, Parallel Hazard Information System (MEMPHIS). The County is conducting further research into economic impacts and recovery timeframes from recent urban disasters for future updates and enhancements of the economic vulnerability analysis.

If your community has historic sites and structures:

An analysis of a community's designated historic sites and structures can provide information to preservationists about the vulnerability of significant sites and structures that they could use to make damage estimates, develop specific procedures for ensuring debris clearance and repairs do not undermine historic resources, and prioritize mitigation projects. GIS can be used to identify which structures are within disaster scenario impact zones (e.g., flood or storm surge). For other hazards, such as wind damage, assessments of individual structures may need to be conducted. Your community can also coordinate with the State Historic Preservation Officer or the local historic preservation organization to address unique considerations for maintaining aesthetic historical integrity such as using in-kind materials for repairs and restoration. **Figure 8** presents vulnerable historic buildings in Fernadina Beach, Florida.



See **Resources** for further historic preservation information.

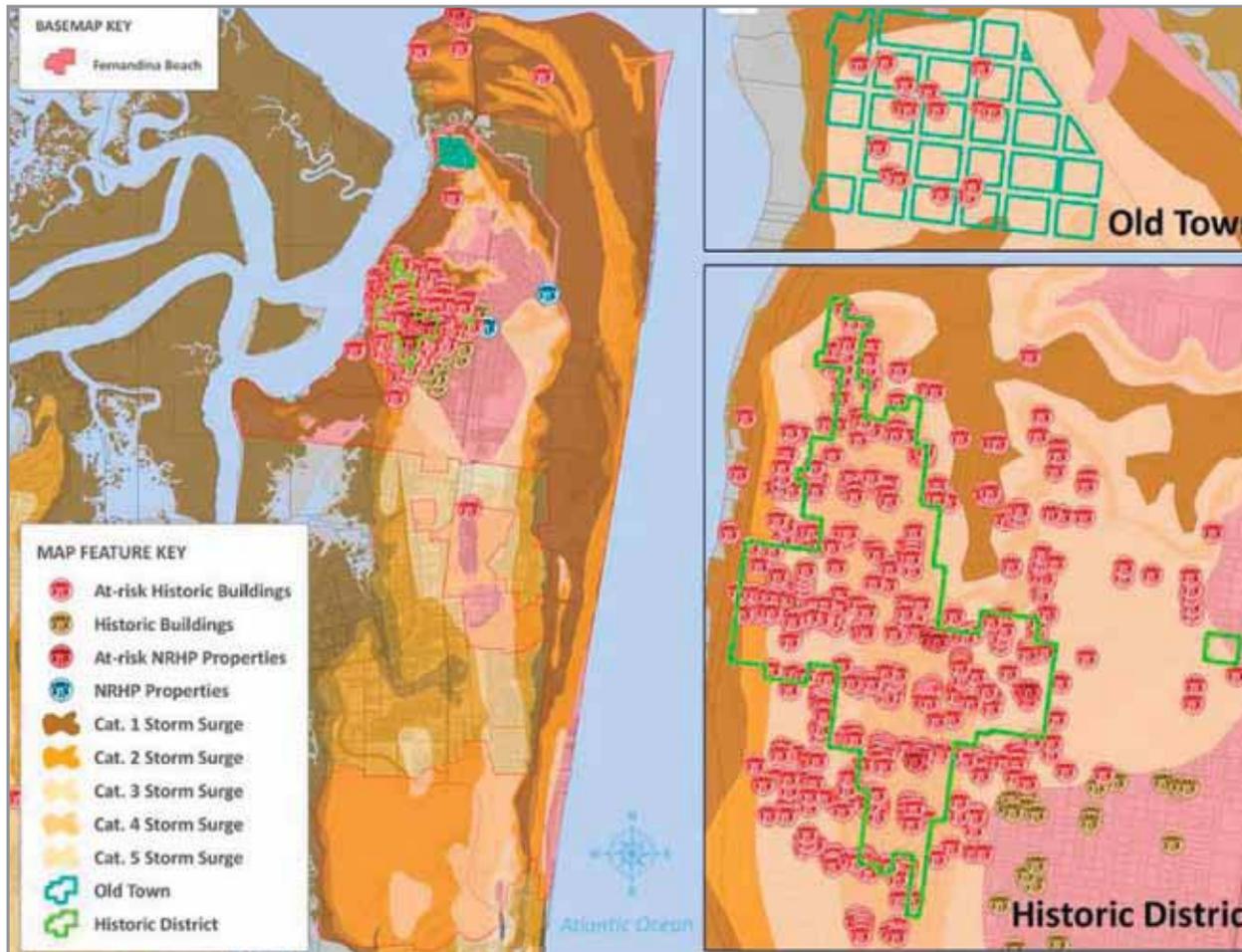


Figure 8. Vulnerable Historic Buildings in Fernadina Beach, Florida.

The Nassau County Plan includes an analysis of historic districts at risk from storm surge.

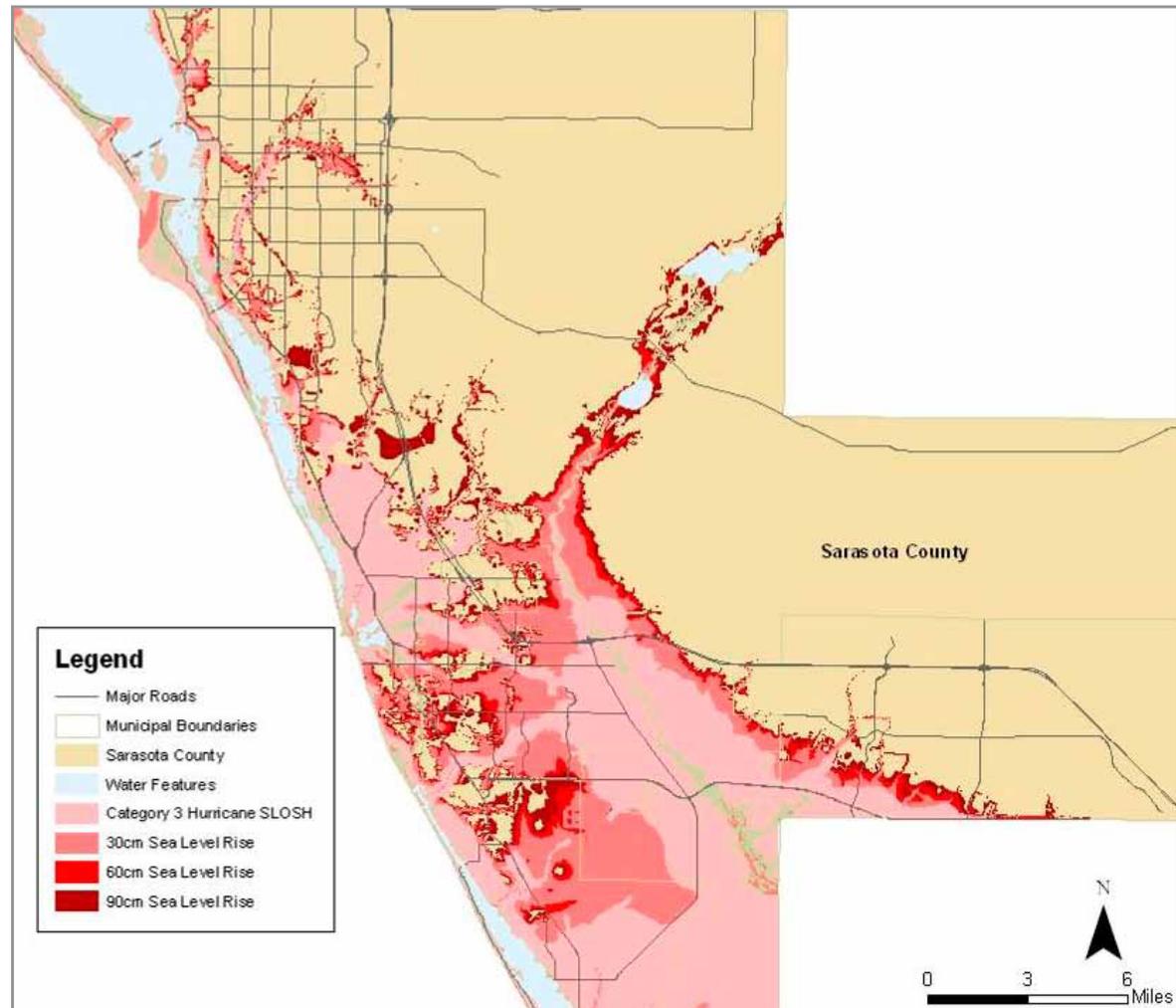
2. PLANNING PROCESS

If you are a coastal community:

An analysis of future sea level rise inundation and increased storm surge will be an important planning tool for coastal communities in the coming years. Post-disaster redevelopment is an opportunity to proactively adapt to accelerated sea level rise in a cost-effective manner as opposed to rebuilding in areas likely to be impacted in the future. Most communities will probably want to begin their planning process with disaster scenarios that are of immediate concern, such as hurricanes, but as the Plan is further developed, sea level rise considerations will be a valuable enhancement. Sarasota County was able to use an analysis of sea level rise and associated increases in sea level rise during the planning process for their Post-Disaster Redevelopment Plan (see **Figure 9**).

Figure 9. Estimated Category 3 hurricane storm surge increased by different sea level rise scenarios in Sarasota County.

Sarasota County was the subject of a study by Pennsylvania State University researchers that included analyzing the increased storm surge levels that will result from future sea level rise scenarios. Some of the data from this study were used in the planning process for the Sarasota County PDRP to better understand coastal disaster vulnerability.



FACILITATING INPUT

Issues to Address

Holistic long-term redevelopment of a community or region is a complex process that covers a wide range of topics. During the planning process, your project team and stakeholder group must be able to translate this complexity into implementable actions to achieve the goal of successful long-term redevelopment after a disaster. One way to do this is to define and prioritize a set of issues that the community foresees having to solve to accomplish successful long-term recovery. **Chapter 3** provides a list of potential issues for each recommended planning topic; however, the appropriate issues to address will vary by community. That is why defining the issues and prioritizing them is a key first step for local stakeholder input and can also be a useful public participation activity.

Once the capacity and vulnerability assessment findings have been presented as the basis of the planning process, the issues provided in this Guide can be used as a starting point for discussion at one or more stakeholder or subgroup meetings. If your stakeholder group is large, perhaps over a dozen participants, it is recommended that they divide into topic-specific subgroups to better facilitate detailed debate over the issues to address. Topics presented in **Chapter 3** are suggested for subgroup breakouts; some topics can be paired depending on the size of the group and expertise of participants. However, if your stakeholder group organizes into subgroups, it is imperative that representatives from the individual subgroups periodically come together to discuss issues that are relevant to more than one topic and to facilitate collaboration between their individual subgroups to ensure that overlapping issues are not being discussed in isolation.

Something that the stakeholders should keep in mind as they choose issues to address in the Plan is that not all of the issues have to be fully developed during the initial planning process. Using prioritization criteria, stakeholders can include many issues in the Plan and leave commencement of strategy development for lower-priority issues until future planning sessions.

Suggestions for issue prioritization criteria:

- Degree to which the issue has immediate (life and safety) and/or public safety implications (increasing community resiliency).
- Estimated impact of the issue on ability for local disaster recovery.
- Rough percentage of community's population that would be impacted by the issue.
- Timing of the issue – Is addressing the issue a prerequisite for dealing with other issues?
- Ability of the issue to be addressed by local actions versus something that might require State or Federal policy.
- Public perception of the issue as an important local quality of life factor.

Post-Disaster Redevelopment Issues

An issue, as used in this planning process context, is a problem that the community may face in redeveloping after a disaster and can be addressed through implementation of the PDRP.



Potential issues you can use are provided in **Chapter 3**.

TIPS FOR KEEPING STAKEHOLDER INPUT FOCUSED ON THE PDRP

At one time or another during the planning process, all of the pilot communities experienced the frustration of a stakeholder meeting discussion slipping away from PDRP topics and into the scopes of other plans and disaster phases. To avoid losing valuable meeting time, the pilot communities offer the following suggestions:

- At the project's kick-off meeting, spend some time explaining the purpose of the PDRP as a plan to address the long-term redevelopment disaster phase and emphasize how other post-disaster phases are addressed in the CEMP and managed by the Emergency Operations Center. Chapter 4 includes more discussion on the timeframe of Plan implementation.
- On the project website, prominently include the purpose and timeframe information.
- At the beginning of each project stakeholder or public meeting, remind participants of the Plan goals, the particular tasks that will be tackled during that meeting, and how each task fits into the planning process. Due to the nature of volunteer stakeholder participation, there will often be newcomers or visitors at the meeting who did not attend the kick-off meeting.
- Make sure each meeting and breakout session is facilitated by someone with a clear understanding of the goals of the planning process and that particular meeting's tasks. It may also be beneficial to have the facilitators be persons with authority in the community or an outsider with expertise in the topic who can remain an objective observer.
- Try to keep participants in breakout or subgroups balanced between those with disaster response interests who may be new to the concepts of community redevelopment and those who have experience or knowledge of long-term redevelopment issues for the most productive discussions.

Developing Strategies and Actions

Another major planning task that requires stakeholder input is the development of a set of strategies or actions to address each issue. This is the portion of the planning process where participation from those who may have decision-making authority or a role in implementation is very important for acceptance of the final Plan. For each action, a lead organization should be assigned responsibility for implementation. If a representative of the organization participates in developing the action and volunteers to be the lead in implementing it, then that action has a much greater chance of being adopted in the final Plan and ultimately being implemented. Strategy development meetings should follow the structure used in facilitating input for the issues. Breakout groups or separate topic-specific subgroup meetings are recommended in most cases. Meeting facilitators should be prepared with example strategies and questions to spark group brainstorming (the pilot Plans' actions will be useful in gathering examples). Some of the pilot communities found it useful to assign issues to certain members and asked them to come up with ideas for actions and bring them to the next meeting.

To fully develop a PDRP action, stakeholders should answer as many of the following questions as possible. Most pilot communities found it useful to develop an input form or a matrix that covers these items.

- Would the action be implemented pre-disaster or post-disaster?
 - ◊ If pre-disaster, what is an estimated start date and duration of the action?
 - ◊ If post-disaster, would the action be implemented during the short-term or long-term recovery phases?
- What Post-Disaster Redevelopment Plan issue does the action address? (If the issues are prioritized, this will give the action some level of priority.)
- What would be the agency or organization with lead responsibility for implementation?
- What resources would be needed and are there funding sources available?
- What would be the mechanism for implementation (e.g., policy or regulation, program, procedure, etc.)?
- What is the population or organization that is targeted (e.g., specific jurisdiction, geography, or group)?
- Is participation required or voluntary?

Strategies / Actions

Specific strategies, or actions, are the key to PDRP implementation as they operationalize the Plan. They function much like a to-do list or scope of work for Plan implementation both before a disaster occurs and during the post-disaster period.

See **Resources** for obtaining copies of Plans for examples of Actions and sample Action Forms.

INCREMENTAL PLANNING THROUGH ACTIONS

Identifying post-disaster redevelopment issues (previous planning step discussed above) may leave many stakeholder participants a bit overwhelmed as they discover the scale of topics the Plan should address. However, the development of a series of specific and implementable pre-disaster actions provides a way for the PDRP to address the issues step-by-step over a period of time since not all of the issues can be solved in one planning initiative. For some issues, the stakeholder group might simply record a pre-disaster action to seek out a grant in the coming year to do more research on that topic so that more informed post-disaster actions can be formulated at a later date. For instance, Hillsborough County stakeholders realized that they needed to learn more about potential scenarios in which chemical contamination could be spread through storm surge before they would know what type of long-term, post-disaster actions might be useful to develop.

Planning for Implementation

A critical part of any planning process is determining the mechanisms by which the plan will be implemented. This includes defining roles and responsibilities, timeframes for implementation, details of what will be implemented during different disaster cycle phases, and determining maintenance and update procedures. It is essential that the stakeholder group as well as other local government staff that will be responsible for implementation be involved in deciding the structure and procedures. It is recommended that a basic structure for implementation be discussed early in the planning process, just after the capacity assessment step, so that those who will most likely have roles in implementation will be more actively involved in the Plan's development. At the end of the planning process, the implementation strategy should be re-examined to see if any modifications or more specific items are needed in light of the input gathered throughout the process. More information on Plan implementation is included in **Chapter 4** that will assist in developing an implementation structure.

Pre-Disaster Public Participation

Individual citizen and community-based input provides the planning team with a greater understanding of local concerns. It also increases the likelihood of successfully implementing redevelopment actions by building community buy-in from those directly affected by the decisions of public officials. The first step in receiving useful public input is to raise awareness and educate the public about the purpose of the Post-Disaster Redevelopment Plan and what it will include. As citizens become more aware of how the Plan could impact the redevelopment of their community, they are more likely to take steps to offer meaningful input. Providing information early in the planning process, through a website, media attention, and community presentations, has proven successful in many of the pilot communities.

Public participation in the development of the Post-Disaster Redevelopment Plan is valuable throughout the entire process. However, it is most beneficial during two distinct periods of the planning process: 1) during the drafting stage of the Plan; and 2) upon completion of a final draft Plan but prior to the official Plan approval and adoption. At one or both of these points in the planning process, a public meeting should be held. The best practice is to gather input before a full Plan has been drafted so that the public can truly shape its components.

A good time to solicit public input while still early in the planning process is during the identification and prioritization of the post-disaster redevelopment issues. An interactive activity for the public meeting could be to have attendees rank the order of the issues identified by the stakeholder group. The public rankings could then be considered by the stakeholder group when they recommend a final prioritization of issues.

FEMA recommends in its Long-Term Community Recovery Self-Help Guidance to hold community meetings in an open house format where tables are set up with posters and methods of obtaining input (Department of Homeland Security, 2005). Several of the pilot communities conducted a public workshop in this style. Other common public meeting formats include a mix of presentations, question and answer, and interactive activities such as prioritization. Most local governments already have a process they use for gathering public comment and holding public meetings in relation to local plan development or updates. In most cases, the community can use their typical processes since the citizens will be familiar with these methods.

Early and ongoing involvement throughout plan making and implementation are important factors in influencing better outcomes. By involving and consulting residents in all phases of planning, the pre-disaster recovery planning process helps create a knowledgeable constituency that is more likely to support redevelopment policies and programs that take effect once a disaster strikes.

Berke, 2006, pgs. 199-200

BEST PRACTICE: PUBLIC AWARENESS DURING THE SARASOTA COUNTY PLANNING PROCESS

As part of Sarasota County's planning process, the project team developed an outreach plan at the beginning of the project. The project team was successful in building public awareness of the Post-Disaster Redevelopment Plan through various methods:

- A project webpage with links to project materials and information about upcoming meetings and events.
- An educational video explaining the Plan using the resources of the local public access television station.
- Presentations about the Post-Disaster Redevelopment Plan project at community meetings, such as homeowner association and chambers of commerce meetings.
- Public service announcements on local television and radio stations to advertise the public workshop.
- A public workshop with an introductory presentation followed by open-house booths hosted by stakeholder volunteers.
- Encouraging media attendance at meetings and events, which resulted in the publication of several articles in the Pelican Press, a local newspaper.



Photos (above): Public Workshop in Sarasota County. PDRP Coordinator Laird Wreford gave a project overview presentation, showed the County's PDRP video, and answered questions prior to an open house for attendees to learn more about the topics being explored in the stakeholder subgroups. Photos courtesy of FDEM/Allison Boyd (April 27, 2009, Twin Lakes Park, Florida).



3. Plan Topics

The issues and actions of the Post-Disaster Redevelopment Plan vary by community based on disaster vulnerability and redevelopment needs. Major urban centers do not have the same priorities for long-term redevelopment as rural or suburban areas; coastal communities have different hazard vulnerabilities than inland communities; and variances in local government capacity, economies, and socioeconomic factors provide different foundations for the success of long-term recovery efforts. While no two Plans should be identical, there are, however, overarching topics and issues that each community should consider in determining the content of their Plan. **Chapter 3** provides a list of common redevelopment issues for six topic areas that a community can use as a starting place for developing an original Plan. Also sprinkled throughout this chapter, are best practices and examples of strategies for addressing post-disaster redevelopment issues, where available. Long-term redevelopment planning is a comparatively new planning initiative and for many topics, issues have been identified as integral components of a PDRP, but best practice strategies and actions to address those issues may not have been established yet. Even when there is a successful example or idea for implementing a post-disaster redevelopment strategy, a community may find that they need different strategies to address the same issue based on the uniqueness of their implementation capacity and the community's goals. The key to the content of your Plan is in the planning process and ensuring that local stakeholder input shapes the issues and actions suggested for inclusion.

Photo (opposite page): Physical damage to homes, businesses, and infrastructure are obvious disaster impacts as seen in this Navarre Beach neighborhood due to Hurricane Dennis. For a community to holistically recover, the community should also prepare for long-term recovery efforts to repair damages beyond the physical structures, such as economic and social impacts. Photo courtesy of FEMA/Andrea Booher (July 11, 2005, Navarre Beach, Florida).

PDRP ISSUES...

Suggested post-disaster redevelopment issues are organized in **Chapter 3** by six topics and labeled within each topic based on three levels of achievement: 1) minimum; 2) recommended; and 3) advanced. The best practice would be to consider all topics and issues during your initial planning process and to also assess whether there are additional, less common redevelopment issues that will impact your community. However, not all communities will be able to cover the broad range of issues in one planning process and some may wish to initially address only a few priority issues in-depth, adding more with each plan update process.

LAND USE

- Minimum Achievement Level** ●○○○
- Phased reconstruction and streamlined permitting
 - Build back standards for nonconforming and substantially damaged structures
- Recommended Achievement Level** ●●○○
- Controlling long-term post-disaster blight
 - Reducing disaster vulnerability through voluntary mitigation programs
- Advanced Achievement Level** ●●●●
- Prioritizing areas to focus redevelopment
 - Historic preservation and restoration
 - Reducing disaster vulnerability through land use and development regulations

ECONOMIC REDEVELOPMENT

- Minimum Achievement Level** ●○○○
- Resumption and retention of major employers
 - Small business assistance
- Recommended Achievement Level** ●●○○
- Workforce retention
 - Tourism renewal
- Advanced Achievement Level** ●●●●
- Physical economic redevelopment projects
 - Opportunities to sustainably restore economic vitality

HOUSING

- Minimum Achievement Level** ●○○○
- Temporary housing siting criteria, provision, and removal
 - Ability to reconstruct homes rapidly
- Recommended Achievement Level** ●●○○
- Transitioning residents back to permanent housing
- Advanced Achievement Level** ●●●●
- Rebuilding affordable housing
 - Encouraging homeowners to incorporate mitigation during rebuilding

INFRASTRUCTURE AND PUBLIC FACILITIES

- Minimum Achievement Level** ●○○○
- Infrastructure for temporary recovery operations
 - Debris management
 - Financing infrastructure and public facilities repair
- Recommended Achievement Level** ●●○○
- Infrastructure and public facilities mitigation and historic considerations
- Advanced Achievement Level** ●●●●
- Relocation of vulnerable infrastructure and public facilities
 - Regional infrastructure consideration
 - Enhanced infrastructure capacity to priority redevelopment areas.

... AT A GLANCE

HEALTH AND SOCIAL SERVICES

Minimum Achievement Level

- Health facility restoration
- Social service provision to socioeconomic vulnerable populations
- Public safety service levels re-established throughout the community
- Coordination and assistance for non-governmental organizations and volunteers
- Provide for special needs populations throughout long-term redevelopment
- Public transportation restoration and improvement

Recommended Achievement Level

- Schools, higher education reopened
- Mental and behavioral health assistance
- Medical personnel retention and recruitment

Advanced Achievement Level

- Health-related pollution and environmental justice
- Quality of life factors

ENVIRONMENT

Minimum Achievement Level

- Beach and dune restoration
- Environmental contamination
- Environmental and historical review of temporary sites

Recommended Achievement Level

- Natural land and habitat restoration

Advanced Achievement Level

- Green rebuilding
- Parks and urban forest restoration

Achievement Levels (from page ii)

1. Minimum.

Any items marked as a minimum achievement level are suggested to be undertaken first.

2. Recommended.

If resources are available, these items should be addressed either simultaneously with Minimum items or during the next planning cycle.

3. Advanced.

Items for communities to commence after a solid foundation for hazard mitigation and disaster recovery is already established. Items marked Advanced are considered best practices.

3. PLAN TOPICS

LAND USE

Disaster creates opportunity for new development by destroying some existing development; however, the map is not blank since it comes with “pre-existing property boundaries, competing interests, and the memories of survivors.”

Olshansky, 2002, pg. 453

Post-disaster recovery plans should be a specific application of the relevant portions of the community comprehensive plan, designed to deal with the constraints and opportunities posed by disaster conditions.

Schwab, 1998, pg. 238

Land use is the most central topic to address in the Plan. Post-disaster redevelopment can provide communities the opportunity to change previous development decisions that may no longer be desired, leap forward in implementing its vision for the future, and become more resilient to disasters by avoiding or mitigating development in hazardous locations. Waiting until after a disaster to make land use decisions, a community may not be able to take advantage of these opportunities. On the other hand, making detailed decisions on where and what to rebuild before a disaster occurs is not always practical since the specific areas that actually become a so-called “clean slate” for redevelopment may not be the same as the pre-disaster projections. Implementing changes in land use after a disaster also must recognize private property rights and the financial burden that disaster survivors may face if required to rebuild to a higher standard. The land use actions of the PDRP should establish a flexible strategy for redeveloping in a way consistent with the comprehensive plan and in a manner that will increase the resiliency of the community to future disasters.



Photo (above): Planners and local government officials evaluate land uses and infrastructure in areas vulnerable to coastal storm surge and future sea level rise inundation in the Charlotte County area. From left to right: Richard Duckworth, Charlotte County Public Schools; Mitchell Austin, City of Punta Gorda Planning; Jason Green, DeSoto County Planning, and Mark Gering, City of Punta Gorda Engineering (December 2008, Port Charlotte, FL).

A VARIETY OF AGENCIES AND ORGANIZATIONS WILL PLAY A ROLE IN POST-DISASTER LAND USE CONSIDERATIONS

State/Regional Agencies and Organizations

- Florida Department of Community Affairs, Division of Community Planning
- Florida Department of State, Division of Historical Resources
- Regional Planning Councils

Local Government Departments

- Building and Code Enforcement
- Hazard Mitigation/Floodplain Management
- Historic Preservation
- Legal
- Parks, Recreation, and Natural Resource Management
- Planning/Growth Management/Community Development
- Zoning/Permitting

Other Organizations

- Community Redevelopment Associations
- Environmental Preservation Organizations
- Historic Preservation Organizations
- Local Mitigation Strategy Working Group/Committee
- Property Rights or Developer Associations

Plans and Elements/Topics to Review When Addressing Your Community's Land Use Issues

Comprehensive Plan

All elements are relevant to land use, however specific elements to focus on include:

- Future Land Use
- Coastal Management
- Conservation

Local Mitigation Strategy

- Hazard Analysis
- Vulnerability and Risk Assessment
- Goals and Objectives

Long-Range Transportation Plan

- Multi-Modal, Needs Plan, and Cost-Feasible Plan

Other Local/Regional Plans

- Transfer of Development Rights Program
- Land Acquisition Program
- Land Development Codes
- Community Visioning Plans
- Area-specific Redevelopment Plans

3. PLAN TOPICS

Plans should spell out levels of damage that will trigger the imposition of a building moratorium for a specific area of the community... Where little or no damage has occurred, there is little or no rationale for restraining development.

Schwab, 1998, pg. 106

Phased Reconstruction and Streamlined Permitting



An established provision for a phased building moratorium or other temporary restrictions on processing development orders is a vital tool for a local government after a major disaster. Temporarily modifying the local permitting process can provide for rapid disaster repairs while maintaining a reasonable amount of time for permitting officials and property owners to assess the situation and make smart redevelopment decisions. If there are no procedures in place for differentiating between the types of permit applications and when they will be processed, local government staff could be overwhelmed and the critical permits that need to be processed for recovery to advance could be delayed. It is very important to establish temporary post-disaster permitting procedures during “blue skies” so that public outreach can be conducted to ensure there are no misconceptions.

Moratoria should be phased based on the level of damage and/or the location so that structures or areas with light to moderate damage can quickly proceed with necessary repairs while those with severe damages can consider options for rebuilding to different standards or relocating. For instance, a developed barrier island could be designated to have a longer, temporary moratorium on building permit applications than less hazardous areas of the jurisdiction to allow the necessary time for infrastructure to be repaired and opportunities for hazard mitigation to be explored. Another option is to base the moratorium on the degree of damage to the individual structure. Hillsborough County Ordinance 93-20 provides for an initial moratorium of 72 hours in the case of a disaster declaration, which is then followed by moratoria for destroyed structures (30 days), major damaged structures (10 days), minor damaged structures (4 days), and new development (30 days).

See **Resources** section for more information on Hillsborough County and model ordinances containing moratorium criteria.



PUBLIC PERCEPTION OF BUILDING MORATORIA

“Moratorium” is not typically an endearing term to elected officials and the public. In fact, some communities have adopted other terms to refer to the idea of post-disaster moratorium procedures – Palm Beach County prefers to call it a “Post-Disaster Temporary Permit Suspension,” and Polk County discussed moratorium considerations as a “triaged” system of prioritizing permits and inspections. Regardless of the name given, it is important that the public understand that a post-disaster moratorium is necessary so that the quality of reconstruction will not be compromised. Making the public comfortable with the post-disaster temporary moratorium policy during “blue skies,” will greatly reduce anxieties after a major disaster when the local government will, no doubt, be in need of instituting one. A phased or “triaged” moratorium that is specific to the type of permit will be easier to sell to the public than a generic policy that leaves details to be determined after the disaster.

Build Back Standards for Nonconforming and Substantially Damaged Structures ●○○

Nonconforming and substantial damage policies generally state that a structure must be rebuilt to current adopted standards once it meets a certain damage threshold. Requiring post-disaster rebuilding to meet current safety codes and floodplain regulations is essential to building a more disaster-resilient community, but other standards might not be as necessary and could be a burden to disaster recovery efforts. Many communities require different aesthetic standards and other non-essential requirements, such as yard setbacks or commercial building design, in their land development regulations that a substantially damaged structure may be required to meet depending on the community's build back policy.

Nonconforming uses could also be forced to conform after a disaster depending on the community's policies. It is often unclear what standards a community will enforce concerning nonconformities when rebuilding after a disaster and, in some cases, there may be conflicting standards among community plans. A review of policies and codes is recommended so that hard choices between what is fair to disaster survivors and moving the community further down the road to its vision for the future are decided pre-disaster. Whatever a community decides, it is important that build-back standards are clearly understood before a disaster occurs to ensure that they are enforced and do not become a matter that delays the redevelopment process.

This was a priority pre-disaster action in Hillsborough County's PDRP. They began the implementation work of reviewing build back standards immediately after Plan adoption.

COMPROMISING FOR NONCONFORMING ISSUES

In the aftermath of a disaster, it is both politically and practically unlikely that the community will want to take an uncompromising stand against allowing the repair and reconstruction of all nonconforming uses. Disasters may pose an opportunity to eliminate nonconforming uses or even reshape existing patterns of development along lines deemed more desirable, but they also generate enormous pressures from property owners to allow the re-establishment of the existing development pattern, complete with nonconforming buildings and uses... Under such circumstances, the community may need to face the question of where and how to compromise and for what reasons. The solution or at least an amelioration of the problem may lie in establishing criteria for allowing the re-establishment of nonconforming uses under disaster-related circumstances.

Schwab, 1998, pg. 53

Substantial Damage and Flood Mitigation

Each jurisdiction that participates in the National Flood Insurance Program (NFIP) is subject to requirements for rebuilding in a special flood hazard area. When damage repair costs or improvements exceed 50% or more of the structure's market value, the substantial damage rule goes into effect. Under this rule, the structure must be brought into compliance with current floodplain management standards. This could mean raising the elevation of the existing structure, reconstruction, or other taking measures.

City of New Orleans Strategic Code Enforcement and Blighted Property Redevelopment.

The City's Office of Recovery Management realized that addressing blight after Hurricane Katrina was integral to stabilizing recovering neighborhoods. To better deal with the long-term problem, the City made numerous programmatic changes and proposed a new chapter for its city codes in an effort to streamline administrative hearings, increase enforcement capacity, and expand enforcement options for public nuisance and blighted unoccupied properties. Blight hearings are still ongoing 5 years after the event; however, the City is dealing with more vacant property than any other city in the country.

*City of New Orleans Office of
Recovery Management*

Controlling Long-Term Post-Disaster Blight ●●○

After a major disaster, some residents may choose to not return to their homes or lack the necessary funds to repair them and many damaged commercial spaces may remain damaged and vacant as tenants go out of business or relocate to better locations and newer buildings – resulting in sporadic blight throughout the community. This could lead to weakness in investor confidence as well as public safety concerns and the inability of area residents to feel a return to normalcy. Blight abatement after a major disaster could be beyond the capability of traditional local code enforcement procedures. Communities should review their protocols for the demolition of destroyed structures for opportunities to streamline the process so that unsafe, blighted structures do not remain in neighborhoods for unacceptable timeframes. The community should also consider alternative methods for demolition cost reimbursement since the typical method of property liens may not be adequate to maintain demolition operations if condemnations are widespread and extended beyond Federal reimbursement program timeframes. Pre-disaster public awareness as well as outreach early on in post-disaster recovery will be integral to successful blight removal timelines. A key issue in dealing with blight is also ensuring that the abandoned property is made available to those who can and will rebuild it. Local government attorneys will need to determine the best way of streamlining the acquisition and reselling of adjudicated blight properties after a disaster.



Photo (above): Since Hurricane Katrina, blighted houses have become dangerous eyesores in neighborhoods throughout New Orleans, some threatening collapse. Source: The Times-Picayune.

Reducing Disaster Vulnerability Through Voluntary Mitigation Programs ●●○

A community's resilience to future disasters can be greatly increased by taking advantage of post disaster opportunities to build back differently in high hazard locations. This can be accomplished through regulations (see **page 53**) or through voluntary programs, such as acquisition, transfer of development rights, and mitigation incentives, thereby avoiding concern over private property rights infringement. A major opportunity to reduce vulnerability may result from hazard mitigation grant funding for land acquisition of highly vulnerable or damaged properties after a disaster or even pre-disaster. These properties can be used to further efforts of environmental restoration or public recreation as well. Similar results can be obtained by establishing a transfer of development rights program that includes criteria for decreasing development rights in hazardous locations by transferring them to more sustainable areas. A key issue that all coastal communities must deal with in post-disaster redevelopment planning, however, is the difficult paradox that the most valuable real estate is also the most hazardous area of the community (Godschalk, 1985). The ability of coastal communities to make major increases in disaster resilience is limited by a strategy that only utilizes acquisition or transfer of development rights due to the high costs of compensating coastal property owners and the difficulty in finding willing sellers.

Another method of reducing vulnerability is to offer incentives for structural hazard mitigation during reconstruction (also discussed in relation to homeowner education on **page 60**). For each hazard, there is a multitude of proven building techniques that can mitigate disaster damages but are typically not required during repairs or reconstruction. Post-disaster monetary incentives in addition to education is a recommended strategy if you intend to encourage enough property owners to voluntarily rebuild to a higher standard such that it results in a discernible reduction in your community's vulnerability. This type of strategy would be an ideal crossover initiative between the LMS and Post-Disaster Redevelopment Plan, using the LMS as the tool for obtaining funding and for a pre-disaster education campaign while the PDRP lays out the strategy for preparing and implementing the post-disaster actions.

Recommended actions for implementing an acquisition strategy include the following:

- Designate areas where acquisition of property would be most effective and establish priorities to guide those purchases
- Enact a temporary moratorium for reconstruction in areas most likely to be acquired

Schwab, 1998, pgs. 63 and 82



See the **Resources** for information on State of Florida guidebooks and other sources that provide details on hazard mitigation techniques for various situations such as wildfire mitigation or examples of storm surge mitigation for working waterfronts.



Photos (left): A house that was elevated as part of an HMGP grant funded project to mitigate repetitive loss properties in the Coral Strip Parkway. Photo courtesy of Santa Rosa County (August 30, 2010).

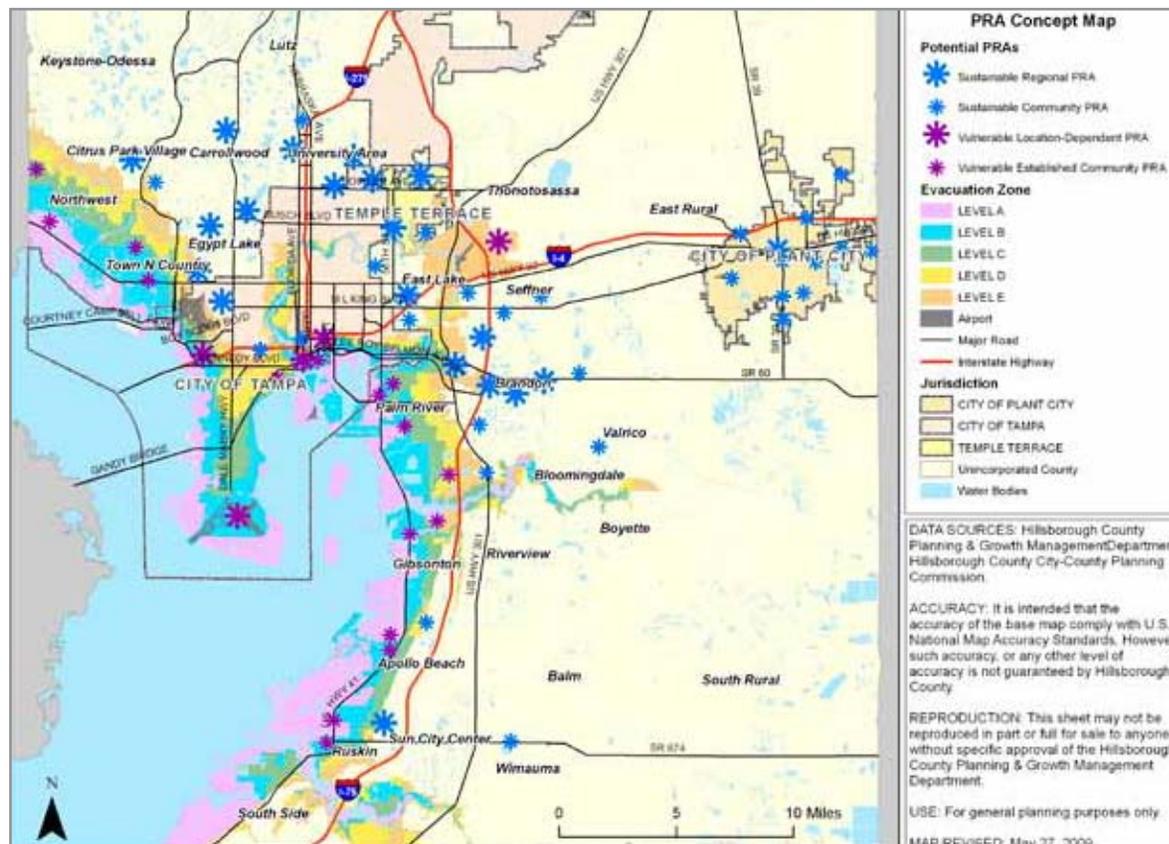
Prioritizing Areas to Focus Redevelopment ●●●

Limited time, funds, and materials are going to make simultaneous redevelopment of all damaged areas difficult. Communities may want to encourage redevelopment in areas that correspond to their vision for the future and those less vulnerable to disasters by prioritizing and incentivizing development in these areas. The best way to build resiliency to disasters is to direct future development to safe locations while minimizing or mitigating highly vulnerable types of development in hazardous areas. After a disaster, targeted sustainable redevelopment areas can provide immediate opportunities for redevelopment since they will have sustained less damage and can be prioritized for infrastructure restoration and expedited permitting. Allowing for rapid redevelopment in safe areas intended for increased future development can provide time to minimize vulnerable redevelopment or plan the sustainable reconstruction of areas severely impacted from the disaster. Designated priority recovery and redevelopment areas can also provide opportunities to locate temporary post disaster uses more efficiently and consistent with future land uses. **Figure 11** and **page 51** provide more information on the Priority Redevelopment Area (PRA) strategy developed as a central component of Hillsborough County's Plan.

Figure 11. Hillsborough County Priority Redevelopment Area Concept Map.

Hillsborough County is currently working on further developing the concept of designating Priority Redevelopment Areas before a disaster by analyzing potential locations and choosing pilot sites to assess the capacity of infrastructure and development allocation to understand what modifications would be needed for it to support the goals of a priority redevelopment area strategy.

Hillsborough County Post-Disaster Redevelopment Plan, 2010



HILLSBOROUGH COUNTY DEVELOPED THE FOLLOWING TYPOLOGY OF PRIORITY REDEVELOPMENT AREAS TO TEST OVER THE NEXT SEVERAL YEARS

A Priority Redevelopment Area (PRA) is a regional or community center or a critical installation essential for disaster recovery and consistent with future land use plans. Priority Redevelopment Areas will receive focused and prioritized attention during the short-term recovery and long-term redevelopment periods and will serve one or more of the following redevelopment functions:

1. Rapidly restore centers of economic activity and critical facilities,
2. Provide a staging area for restoring nearby impacted communities,
3. Locate recovery services in efficient and convenient hubs, and
4. Facilitate growth into disaster resilient centers.

Sustainable Priority Redevelopment Areas are areas that can be sustainably redeveloped to a higher intensity than current conditions and are a focus of future land use plans for the jurisdiction. These areas are consistent with regional visions for economic development and public transit. Most importantly, they meet the following resilience criteria:

1. Not in a floodplain or include minimal flood-prone property that can be addressed through best practice hazard mitigation techniques.
2. Not vulnerable to storm surge from a tropical storm or Category 1-3 hurricane (outside Category 3 evacuation zone).
3. Include a substantial amount of structures that meet current Florida Building Code standards and would be less likely to have severe wind damage.
4. Include infrastructure and services that have been assessed for their ability to be rapidly repaired and restored.

Vulnerable Priority Redevelopment Areas contain essential location-dependent facilities, are well-established community centers integral to economic recovery and returning to normalcy, and/or are planned growth areas critical to regional visions for the future. Vulnerable PRAs, as the name implies, are more vulnerable to severe disaster damage than the Sustainable PRAs due to location and/or lack of resiliency factors. These areas may take longer to recover than Sustainable Priority Redevelopment Areas because damages will most likely be more severe. It is the intention that any area designated as a Vulnerable Priority Redevelopment Areas will also be a priority for pre- and post disaster hazard mitigation investments to build disaster resilience and enable future redevelopment of these Priority Redevelopment Areas to be even more rapid after a disaster. The emphasis on Vulnerable PRAs will be to function as recovery hubs and restore economic vitality, not necessarily to facilitate increases in density from redevelopment.

For the purposes of the Florida Building Code (Sec. 1102), a historic structure is defined as:

- Individually listed in the National Register of Historic Places;
- A contributing property in a National Register listed historic district;
- Designated as an individual or contributing historic property by a local, State, or special district; or
- Determined to be eligible by the State Historic Preservation Officer for listing in the National Register.

Historic Preservation and Restoration ●●●

The loss of historic resources due to a disaster can have a major impact on the community. Some losses may be unavoidable, but others could occur accidentally during recovery operations if procedures are not in place to watch for these concerns. Details on developing expedited historic preservation review procedures and restoration tools and considerations are included in the guidebook *Disaster Planning for Florida's Historic Resources* (see Resources section for more information). Historic structures can be particularly vulnerable to damage due to their age, and repair of these structures must meet certain requirements to maintain their character and historic designation. Due to considerations for historical integrity, historic structures have more options for meeting Florida Building Code standards during repair than non-historical buildings. There may also be funding opportunities before or after a disaster for implementing mitigation measures to prevent further damages to historic resources. Engagement of local historic preservation organizations into the planning and implementation process can ensure that the unique considerations involved with preserving and restoring historic structures and archeological sites are included in your Plan's actions.

COMMON HISTORIC PRESERVATION CONCERNS AFTER A DISASTER

- Restorable buildings are torn down.
- Irreplaceable architectural elements that could be salvaged are carted away with debris.
- Property owners make hasty decisions and inappropriate repairs.
- Archaeological resources are disturbed by heavy equipment.
- Construction applications may overburden officials, as there may be insufficient staff to carefully review all the applications.
- Inspections of historic structures may be carried out by persons without appropriate qualifications with respect to the preservation of historic resources.

Florida Division of Historical Resources, 2006, pg. 18

Photos (right): The Ca d'Zan Mansion, built in 1925, is a part of the Ringling Museum of Art, a subunit of Florida State University. As a result of Hurricane Charley in 2004, the bayfront dock of the mansion was damaged, corroding the concrete structure supporting the dock and washing away many of the tiles. Because the mansion and deck are historical, repairs had to utilize in-kind materials, such as Italian marble tiles, to match the historical look of the dock and mansion. The repairs were completed using funding supplied by FEMA's Public Assistance program. Photos courtesy of Florida State University.



Reducing Disaster Vulnerability Through Land Use and Development Regulations ●●●

The best practice for post-disaster redevelopment is to restrict rebuilding in hazardous locations and require mitigation where vulnerable redevelopment cannot be precluded. While this plan of action would ensure optimal community resiliency to disasters, it would also be very difficult to achieve and may not be a good choice for the first action to be tackled when implementing your Plan. However, with careful consideration of legal implications concerning property rights and extensive public outreach, there are many regulatory tools for increasing disaster resiliency that may be a possibility for your community, especially if pursued during the post-disaster “window of opportunity” for future reductions in disaster vulnerability. Potential regulatory methods could include reduced intensity or density of use, special permit requirements, increased setbacks from hazard sources (e.g., beach or waterway), hazard-specific site design requirements, and increased structural mitigation requirements. These methods could be implemented through policies instituting lower damage thresholds requiring nonconforming uses/structures to meet current standards (in certain zones or throughout the jurisdiction), zoning overlay districts, post-disaster specific land development codes, and/or special assessment districts to fund mitigation projects that benefit more than one property, such as beach renourishment.

PRIVATE PROPERTY RIGHTS AND POST-DISASTER REDEVELOPMENT

The United States Constitution forbids the taking of private property for public use without due process of law and just compensation. A taking may include physical appropriation of land or regulation of land to the extent that all economically viable uses of the property are eliminated.

The 1995 Bert Harris Act (§ 70.001, Florida Statutes) creates a separate and distinct cause of action from takings law. Under the Act, the Legislature recognized that some laws, regulations and ordinances of the state and political entities in the state, as applied, may “inordinately burden, restrict or limit private property rights” without amounting to a taking under the State Constitution or United States Constitution. The remedy may include compensation for the actual loss to the fair market value of the land resulting from the government regulation. It applies to any law, regulation or rule noticed for adoption or adopted after May 11, 1995.

In determining changes to land use or development regulations for post-disaster redevelopment, local governments should always consider potential private property impacts and legal ramifications.

Why Widespread Land Use Changes Typically Don't Occur After a Disaster

- Fee simple ownership has created a virtually indestructible organization of space – property lines can be recreated if the legal documents still exist
- Insurance industry encourages speedy reconstruction of what existed before
- Networks of urban infrastructure typically are not completely wiped out

Campanella, 2006

3. PLAN TOPICS

A housing disaster results when there is no reasonable alternative housing available for [survivors] and/or there is no capacity to finance the repair or reconstruction of units lost within a reasonable timeframe.

Comerio, 1998, pg. 161

HOUSING

After a disaster, one of the most basic foundations of community recovery is the timely provision of temporary housing and rapid repair and reconstruction of permanent housing that meets the needs of all residents' income levels. Housing disaster survivors is a prerequisite to all other components of long-term post-disaster recovery. At the same time, the success of housing recovery efforts depends on other aspects of post-disaster redevelopment such as infrastructure restoration, job recovery, social service provision, and land use controls. In order to take advantage of opportunities to do more than just replace the damaged housing to pre-disaster conditions, such as providing safer and more affordable and sustainable housing options, public outreach and intergovernmental and stakeholder coordination are essential components of the process.



Photo (above): A line of mobile homes at the FEMA temporary housing staging area in Pensacola await to be delivered to residents who lost their homes due to Hurricane Ivan. FEMA Photo/Mark Wolfe (October 12, 2004, Pensacola, Florida).

A VARIETY OF AGENCIES AND ORGANIZATIONS WILL PLAY A ROLE IN POST-DISASTER HOUSING RECOVERY

State/ Regional Agencies and Organizations

- Florida Community Loan Fund
- Florida Department of Community Affairs, Division of Housing and Community Development
- Florida Department of Financial Services
- Florida Home Partnership
- Florida Housing Finance Corporation
- Florida Insurance Commissioner's Office
- Florida Manufactured Housing Association
- Florida Retailers Association
- Volunteer Florida

Local Government Departments

- Affordable Housing
- Building/Construction Services
- Code Enforcement
- Historic Preservation
- Homeless Services
- Housing Authority
- Planning/Growth Management/Community Development
- Zoning/Permitting

Other Organizations

- Apartment Associations
- Builders/Contractors Associations
- Non-Governmental Organizations
- Realtor Associations
- United Way

Plans and Topics/Elements to Review When Addressing Your Community's Housing Issues

Comprehensive Plan

- Housing
- Future Land Use

Local Mitigation Strategy

- Hazard Analysis
- Vulnerability and Risk Assessment

Local/Regional Plans

- Disaster Temporary Housing
- Affordable Housing
- Density Bonuses
- Transfer of Development Rights Program
- Land Development Codes

3. PLAN TOPICS

During the planning process, Polk County stakeholders decided to develop siting criteria *in lieu* of designating specific sites pre-disaster. Through an effort between the Building, Housing, and Historic Preservation and Land Use/Environmental Workgroups, the County's Disaster Temporary Housing Plan was revised to include parameters by which potential sites can be compared to determine suitability. By not committing to any specific temporary housing sites, the County hopes it will be able to use its siting criteria to choose ideal locations depending on the disaster event and extent and location of damage.

Temporary Housing Siting Criteria, Provision, and Removal



A quick and efficient transition of residents out of shelters and into safe, interim housing following a disaster is imperative to prevent the emigration of population to other communities. A best practice, when safe and feasible, is for communities to allow individual placement of interim housing on private property during repair and rebuilding as well as allowing employer-supplied temporary housing on commercial properties (also see the Economic Redevelopment discussion on **pages 61-70**). Temporary group housing sites will be necessary for disaster victims that live in areas where on-site interim housing is not logistically feasible (e.g., infrastructure is severely damaged or the area is within the 100-year floodplain) and to accommodate displaced renters. Although temporary in nature, group sites may be active for 2 or more years and can require a large investment in infrastructure, including roads, sewer and water treatment, and electric distribution (also see the Infrastructure discussion on **pages 71-80**). To ensure that interim housing is well placed, communities can choose sites before a disaster or develop siting criteria that can be used to guide the designation of these sites to the optimal locations after a disaster. Criteria can be used to ensure that housing sites are consistent with the Future Land Use Map, are located near employment centers, and have access to public transportation. An ideal scenario would be for a temporary group housing site to be designed in such a way that it could do double duty – provide temporary housing to disaster survivors and then transition into a permanent, affordable housing development (affordable because the developer could save money on site preparation and infrastructure previously paid for through disaster funding). Indiantown Non-Profit Housing, Inc. partnered with FEMA to attempt such a project in Martin County after the 2004 hurricanes, but unfortunately the final permanent development was unable to come to fruition immediately afterward. It is also important to ensure that disaster housing is, in fact, temporary and that removal timeframes and procedures are in place and enforced. Experience shows that assistance in transitioning to permanent housing (see **page 58**) may need to be provided to disaster survivors to ensure that interim housing can be removed in a timely manner.

Photo (right): Several travel trailers have been provided by FEMA to serve as on-site temporary housing for residents of Barefoot Bay as they rebuild their homes destroyed by Hurricanes Frances and Jeanne. FEMA Photo/Mark Wolfe (October 26, 2004, Bayfoot Bay, Florida).



Photo (far right): It is preferred to have several small group sites close to the disaster survivors' neighborhoods. The large 550-unit park known as FEMA City that housed Hurricane Charley survivors was not ideal for residents due to its remote location, and the large number of occupants resulted in law enforcement concerns. While intended for only 18 months, the last residents moved out 2.5 years later. FEMA Photo/Mark Wolfe (October 22, 2004, Port Charlotte, Florida).



Ability to Reconstruct Homes Rapidly ●○○○

Having an adequate supply of materials and labor is important to prevent delays during reconstruction. The high demand for supplies needed for repair work after a disaster often results in a sharp rise in prices for materials as well as shortages. This, coupled with the high demand for licensed contractors and skilled construction workers to do repair work after a disaster, could result in a lag in the rebuilding progress. During short-term recovery, efforts to recruit qualified workers to the area, process their credentials, and educate residents on hiring licensed contractors is an important factor in setting the speed of redevelopment. An organized volunteer force can assist in this initial push for speedy repairs, and the County Emergency Support Function (ESF) 15 and Long-Term Recovery Organization serve a critical role in planning for volunteer resource use (see the Health and Social discussion on **pages 81-92**). Long-term rebuilding, however, provides an opportunity for retaining or developing a local construction workforce that can help to revitalize the disaster-weakened economy (see the Economic Redevelopment discussion on **pages 61-70**)

Expedited post-disaster repair permitting and inspection processes can increase a community's ability to reconstruct homes rapidly. An important pre-disaster action for the Plan is to analyze permitting and inspection procedures for opportunities to make temporary changes post-disaster that will allow for faster operations without compromising quality. Augmented staffing will likely be necessary post-disaster. Memorandums of agreement with other local governments can be pursued as well as cross-training of other local government staff for short-term increases while new, temporary hires may be needed for the duration of the redevelopment period.



Photo (above left): Volunteers from the Mennonite Disaster Service are helping rebuild housing damaged by hurricanes. FEMA Photo/Ed Edahl (May 25, 2005, Arcadia, Florida).

Photo (above right): AmeriCorps volunteers work on repairing a roof damaged by Hurricane Dennis. FEMA Photo/Leif Skoogfors (July 21, 2005, Milton, Florida).

The State of Florida requires that contractors be licensed in state (with exceptions for post-disaster volunteers). One strategy to ensure that residents are able to find qualified contractors is to create an easy system that allows residents to post their needs and contractors to advertise their skills. Local government-regulated message boards or databases in public places like Disaster Recovery Centers could offer residents the assurance that they are dealing with properly licensed contractors and give contractors a simple way to find business. These locations are ideal to disseminate other helpful information to the public, such as resources available through the Florida Disaster Contractors Network website (www.dcnonline.org) and license verification offered through the Florida Department of Business and Professional Regulation (www.myfloridalicense.com).

3. PLAN TOPICS

A 2009 U.S. Government Accountability Office report found that households living in FEMA group sites encountered various challenges in transitioning to permanent housing, including the availability of affordable rental housing. Other challenges that were cited included insufficient financing to fund home repairs, significantly higher insurance premiums, and the availability of full-time employment to support disaster [survivors'] return to permanent housing.

U.S. Government Accountability Office, 2009



Transitioning Residents Back to Permanent Housing



Many residents will have the means to repair or rebuild their homes on their own, but will need clear guidance from local government on the process and methods they can use. Others in the community will require much more assistance on issues such as understanding disaster assistance programs, navigating insurance claims, finding reputable contractors, understanding their renters' rights, and making decisions on whether to rebuild. Navigating insurance matters and Federal assistance can be complicated, and even more so following a disaster. Community outreach and counseling services, such as legal assistance to survivors in interpreting insurance policies to help ensure that the maximum benefit can be obtained from their claim, are important for the success of housing recovery. The Plan can include a local strategy to organize and target various resources for public education, counseling, and case management throughout long-term redevelopment to ensure that government assistance is fairly and equitably provided to disaster survivors who need help moving out of temporary housing.

FLORIDA LEGISLATURE APPROPRIATIONS FOR POST-DISASTER HOUSING ASSISTANCE

In 2004 and 2005, the Florida Legislature appropriated one-time hurricane housing recovery funds. These were administered by the Florida Housing Finance Corporation through two main programs: 1) Rental Recovery Loan Program, established to leverage existing Federal rental financing programs to provide additional rental stock to the areas of Florida hurt by the 2004 hurricanes, and 2) Hurricane Housing Recovery Program, established to accommodate the different housing needs of each impacted community through the State Housing Initiatives Program for households with incomes up to 120% of the area median income, with 30% of program funds reserved for low-income households.

The Florida Housing Finance Corporation also created the HOME Again Program in 2004 to provide up to \$21 million statewide for the repair, reconstruction, or replacement of homes damaged during the storms. In 2006, the Florida Legislature passed an affordable housing bill (Ch. 2006-69, s. 31, Laws of Fla.) that also contained funding for two more hurricane housing-related programs: 1) Farmworker Housing Recovery Program and 2) Special Housing Assistance and Development Program.

Florida Housing Finance Corporation, 2009

Photo (left): Availability of affordable homeowner insurance is an ongoing problem in Florida. Fears that State Farm, the largest private insurer in Florida, would pull out of providing insurance in Florida have been high since the 2004-2005 hurricane seasons, and in early 2010 the company canceled 125,000 policies after being denied a 47% rate increase by state regulators. FEMA Photo/ Bob Epstein (August 24, 1992, Dade County, Florida).

The issue of transitioning residents back to permanent housing is inextricably tied to many other post-disaster redevelopment issues, such as the socioeconomic issues included in the Health and Social Services topic of this chapter on **pages 81-92**. After the 2004 and 2005 hurricane seasons, there was a jump in homelessness relatively consistent with heavily damaged counties and some people were without homes for years after the events (Skoloff, 2006). Numerous homeowners and renters may find that they are underinsured after a disaster and cannot afford the necessary repairs or replace the destroyed contents of their homes. The average FEMA individual assistance grant is between \$5,000 and \$6,000, with a maximum grant being only \$29,900 for a household. Small Business Administration (SBA) loans can provide additional funds; however, there are credit requirements that, while less stringent than private loan eligibility, may still be unattainable for some portions of the population. Voluntary Organizations Active in Disasters (VOADs), Long-Term Recovery Organizations (LTROs), and other community-driven funding sources are essential in providing case management to assist low-income and under-insured residents with locating and transitioning back into permanent housing. These organizations' roles should be pre-identified in the Plan, and their capabilities assessed and enhanced appropriately.

Rebuilding Affordable Housing ●●●

The affordable housing gap will be wider after a disaster. Low-cost housing tends to be concentrated in older buildings and sections of town, is often disproportionately damaged, and displaced persons from this type of housing might not be able to afford rents in repaired or rebuilt buildings (Spangle et al., 1991). The sense of community and neighborhood fabric could be destroyed if widespread displacement or gentrification occurs after a disaster. Redevelopment projects not only need to include some affordable units, but they also need to include a realistic proportion to meet the needs of the community. Therefore, an effort needs to be made to replace affordable housing, especially in areas that may see a jump in property values after a disaster. There may also need to be post-disaster monitoring of whether the demand for rental housing units is being met. In addition to providing affordable alternative housing to low-income disaster survivors, actions need to be taken to prevent widespread gentrification of damaged neighborhoods through programs that assist low-income homeowners in repairing or rebuilding their homes so that they can remain in them (see previous issue discussing the transition back to permanent housing).

Natural hazard events appear to exacerbate existing trends in urban areas, hastening demographic changes and adding additional pressure for land use succession. Government planners seem slow to recognize those impacts and act accordingly.

Alesch et al., 2001, pg. 24

AFFORDABLE HOUSING AFTER A HURRICANE

After Hurricane Andrew in 1992, there was a shortage of affordable housing for displaced residents in Miami-Dade County. To help fill this need, the Metro Dade Department of Environmental Resources Management and the Homestead Habitat for Humanity collaborated to build Jordan Commons – a 200-home, affordable and sustainable community model for low-income families that were left vulnerable to homelessness by Hurricane Andrew. Jordan Commons is designed to provide affordable, quality housing for low-income residents and demonstrate the application of energy-efficient technologies and their corresponding energy and financial savings for residents. For more information, visit <http://www.smartcommunities.ncat.org/success/jordan.shtml>.

Encouraging Homeowners to Incorporate Mitigation During Rebuilding ●●●

One of the main purposes of the Post-Disaster Redevelopment Plan is to further disaster resiliency goals. Efforts to include hazard mitigation in the repair and reconstruction of disaster-damaged housing stock are integral to building a more resilient community (also see **page 49**). After a disaster, there will be a rush to rebuild, as residents wish to return to normalcy. Due to this rush, a lack of information, or the perceived costs, residents may overlook opportunities to include hazard mitigation and prevent repetitive loss. The window of opportunity for encouraging homeowners to voluntarily exceed building requirements and include more mitigation only lasts a short time after a disaster. There are a multitude of proven and cost-effective hazard mitigation techniques and information, educational materials, and even training available through several nonprofit organizations and government agencies (e.g., FEMA, Institute for Business and Home Safety, Federal Alliance for Safe Homes, Firewise, etc.). A public outreach strategy for reaching homeowners at the right moment with this hazard mitigation information and technical assistance can be included in the Plan. The strategy should be integrated with pre-disaster education strategies in the LMS and relevant short-term recovery operations detailed in the CEMP can be coordinated with the long-term strategy.

See **Resources** for more information on hazard mitigation education.



Photo (above left): “Operation Rebuild” organized by FEMA is held to help educate residents affected by Hurricane Charley about storm resistant construction techniques. FEMA Photo/Mark Wolfe (September 19, 2004, Port Charlotte, Florida).

Photo (above right): FEMA mitigation specialist Steven Bailey (blue shirt) describes the building techniques used to construct this mitigation model to a local resident. FEMA promotes rebuilding damaged homes and building new homes in ways that resist damaging winds. FEMA Photo/Mark Wolfe (February 26, 2007, Port Orange, Florida).

ECONOMIC REDEVELOPMENT

The ability of a local economy to rebound after a disaster dictates the success of the community's long-term recovery. The return of jobs, tourism, capital investments, and other indicators of economic health are interdependent with housing recovery, infrastructure restoration, environmental restoration, and social service provision. The involvement of the private sector in the post-disaster planning process is imperative for determining the priorities and actions that will be beneficial in restoring your local economy. Consideration must be given to the different obstacles that could potentially hinder economic recovery, such as those that small businesses will face, decisions large employers will have to make on whether to relocate, opportunities for sustainable diversification of the economic base, and job training and workforce recruitment to meet changed market conditions after a major disaster.

Disasters do not completely change pre-disaster economic conditions, instead they simply magnify trends or conditions in place before the disaster struck (Comerio, 1998; Haas et al., 1977; Spangle, 1991).



Photo (above): A sign near Pensacola Beach after Hurricane Dennis warns of resident-only access to the beach due to damage. Tourism dependent businesses are often unable to reopen after a disaster until major investments have been made to revive tourist attractions and regain tourists' confidence in visiting the area. These activities usually occur after the recovery needs of the residents have been met. FEMA Photo/ Jocelyn Augustino (July 16, 2005, Pensacola Beach, Florida).

Business reopening is generally dependant on three variables:

1. Ability to recover assets lost in the disaster;
2. Extent of adverse effects to business dependencies (e.g., suppliers, customers, employees); and
3. Ability to adapt quickly and appropriately to new realities in a post-event environment.

Alesch, 2008, pg. 50

Plans and Elements/Topics to Review When Addressing Your Community's Economic Issues:

Comprehensive Plan

- Economic Development

Local Mitigation Strategy

- Hazard Analysis
- Vulnerability and Risk Assessment

Comprehensive Emergency Management Plan

- ESF 18: Business, Industry, and Economic Stabilization

Local/Regional Plans

- Business Retention
- Business Continuity Planning
- Economic Development
- Community Revitalization
- Economic Stimulus
- Target Industries
- Tourism Development

A VARIETY OF AGENCIES AND ORGANIZATIONS WITHIN FLORIDA HAVE A ROLE IN POST-DISASTER ECONOMIC REDEVELOPMENT

State/Regional Agencies and Organizations

- Enterprise Florida, Inc.
- Florida Department of Agriculture and Consumer Services
- Florida Department of Financial Services
- Florida Hotel and Lodging Association
- Florida Office of Tourism, Trade, and Economic Development
- Florida Retail Association
- Florida Small Business Development Center Network
- Regional Planning Agencies
- Workforce Florida

Local Government Departments

- Economic Development Departments

Other Organizations

- Chambers of Commerce
- Community Redevelopment Agencies
- County Economic Development Council/Commission
- Local or regional tourism organizations
- Port Authorities
- Small and minority-owned business assistance organizations
- Workforce assistance organizations

Resumption and Retention of Major Employers ●○○○

Rapid resumption of existing major employers is key to a community's economic recovery after a disaster, especially as employment provides a reason for most residents to return and rebuild quickly. Typically, the major employers in your community are already going to have business continuity plans and will not need the basic disaster preparedness education necessary for smaller businesses. These companies will be able to work with the local government as partners in planning for post-disaster redevelopment and provide insight as to what government assistance they could use to ensure rapid resumption. Major employers may also have the means to assist in actions to support workforce retention if included in the planning process (see **page 66**). While large company recovery assistance will vary based on the industries and vulnerabilities of your community, typically businesses located in hazardous areas or older structures may need assistance to reopen or relocate, temporarily or permanently, within the area. Actions such as the credentialing of major employers' Business Continuity Managers so that they can enter the disaster zone before the general public to assess what it will take to resume operations and the implementation of procedures for the expedited permitting of disaster repairs for businesses can provide large companies the tools they need for rapid resumption of business, thereby contributing to long-term recovery by getting people back to work and recreating demand for all of the smaller, supporting companies.

If businesses do not feel a sense of connection to the community or fear that recovery will not be successful, there is a chance that they will relocate their company elsewhere after a disaster. This is especially the case for corporate headquarters and industries that are not location-dependent or whose location choice is tied to quality of life factors. The PDRP can provide the private sector with confidence in the community's ability to recover and continue providing the market environment necessary for them to conduct their business. Some factors that may aid the retention of major employers include a high level of communication before and after a disaster about post-disaster redevelopment goals and expectations and/or incentives to ensure retention, if necessary.

There is a mutual interdependency between government and industry. When one has a problem, the other needs to provide support. When both are affected, they need to work together to fully recover. Events that happen in the community can affect any organization.

Minnesota Department of Public Safety, 2007

PUBLIC-PRIVATE PARTNERSHIPS FOR DISASTER RECOVERY

Networking tools like Florida International University's Business Continuity Information Network (BCIN) (www.bizrecovery.org) are available for public and private sector coordination post-disaster. BCIN is a web-based service where local businesses, county emergency management, and organizations that assist businesses can gather to share critical information and support continuity efforts before, during, and after a disaster. The Private-Public Partnership of Palm Beach County, a group working to prepare for post-disaster economic recovery in conjunction with the County's PDRP strategy, is a participant in the South Florida roll out of the BCIN system. Other participating organizations include FloridaFIRST, an organization of financial institutions dedicated to improving business continuity, and Miami-Dade Business and Industry Development Committee (ESF 18). ESF 18 is a relatively new function of Florida County Emergency Operation Centers, charged with coordinating local, State and Federal agency actions that will provide immediate and short-term assistance for the needs of business, industry, and economic stabilization. The long-term success of economic recovery relies on strong support and communication between the public and private sectors as soon as possible after a disaster. The economic redevelopment strategy of the Plan should incorporate coordination with ESF 18 and a method of transitioning from or extending its lead role in economic recovery to long-term redevelopment.

The strongest predictor of preparedness levels among businesses is size, followed by previous disaster experience and owning rather than leasing business property.

Mileti, 1999, pg. 218

Small Business Assistance ●○○○

A “small business” is often perceived as a family-owned business that provides services solely to the local community. In reality, small businesses usually comprise the majority of businesses in a community and are a component of most industry sectors in Florida. Small businesses are more likely than large businesses to either never reopen after a major disaster or fail shortly after reopening. Several factors may be involved in these failures, including the extent of damage to a community, timing of reopening, and lack of financial reserves.

Short periods without cash flow can be damaging, and small businesses often find that restrictions and timing of loans do not meet their needs. The Florida Small Business Emergency Loan Program can assist businesses in the struggle to stay afloat until normal economic conditions resume or a longer-term loan can be secured. It offers State-funded bridge loans to businesses with 100 or fewer employees, lending companies up to \$25,000 interest free for 6 months. However, in order to qualify for a bridge loan, a business must have suffered “physical” damage (e.g., damage to a facility, loss of equipment, inventory, etc.). Small businesses without interruption insurance and who only experience indirect disaster impacts may still struggle during short-term recovery. The SBA gives disaster loans to small businesses with up to 500 employees that qualify. Qualifying businesses must have reasonably good credit; but, if the business has assets and credit that exceed a threshold, the business is required to get a commercial loan. Loans are typically based on the pre-event business and tax returns of the firm and require extensive collateralization. Post-disaster market changes, however, may mean the company isn’t able to do as well as it did pre-disaster, and the loan, even at below-market interest rates, sometimes becomes a burden to the long-term survivability of the business (Alesh et al., 2001, pg. 85-86).

Photo (right): The Safari, a local deep sea fishing boat, doubles as a ferry for residents of south Hutchinson Island that have been cut off from their houses by a washed out road. Small businesses can benefit by looking for creative opportunities to make money after a disaster while they wait for their pre-disaster customer base to rebound. FEMA Photo/Mark Wolfe (September 29, 2004, Stuart, Florida).



Pre-disaster outreach to the small business community is an important component of any economic recovery strategy. The local offices of the Florida Business Continuity and Risk Management Program provide free assistance from Certified Business Analysts to small businesses to develop business continuity plans. There are a lot of disaster awareness resources available (see **Resources** section of this Guidebook) and many communities already have programs for their particular needs. It can be determined whether additional pre-disaster efforts are needed as part of the capacity assessment discussed in **Chapter 2**. Post-disaster outreach is also essential and, in most communities, fewer of these actions have been planned. Business recovery centers and services such as counseling can assist small businesses in making decisions on when to reopen, whether they should temporarily pursue other types of business, and what financial assistance sources it is advisable to pursue.

OPEN FOR BUSINESS

The City of Hollywood, Florida provides an example of a community that has a business disaster preparedness program in place that is meant to help local businesses rebound in the event of a disaster. The “Open for Business Program” assists residents, businesses and the City in identifying businesses that are safe, structurally sound, and open for business after a natural disaster. Through this Program, businesses will receive free marketing after a disaster in order to drive business and generate revenues, and will be provided with recovery information and resources. Additionally, the Small Business Development Center provides counseling and assistance to help businesses recover that have closed or experienced damage. These programs provide a means by which the local economy can rebound and long-term redevelopment can be accelerated.

Business properties may escape direct damage and yet suffer extensive disruption as a result of lifeline service outages. Business owners must also take into account sources of business interruption that originate off-site, such as flow of materials and loss of customers.

Tierney, 1995, pgs. 215-217



Photo (far left): Businesses in Melbourne suffered an economic loss after being hit by two hurricanes. FEMA Photo/Michael Rieger (September 29, 2004, Melbourne Beach, Florida).

Photo (left): These Tropical Storm Fay affected potential applicants for a Small Business loan are getting information from SBA Disaster Reservist Yvonne Williams. FEMA and SBA are partners in disaster response. FEMA/George Armstrong (August 27, 2008, Melbourne, Florida).

Workforce Retention ●●○

At the same time as trying to retain existing businesses, efforts must also address retaining the workforce that supports those businesses. Actions such as ensuring that schools reopen and childcare is available, allowing temporary on-site housing for employees, and communication of a community's post-disaster plan can assist in getting employees back to jobs as soon as the businesses have reopened.



After a disaster, the market for certain businesses may decrease or be eliminated due to financial troubles or customer demand changes. However, other industries may provide employment opportunities, such as the construction industry, which will boom temporarily due to rebuilding needs. Workforce training programs are important to provide residents with appropriate skill sets to fill newly available positions due to recovery efforts and to adjust workforce skills to other industries that may take a more permanent hold in the community due to post-disaster business recruitment efforts (see **page 69**). Providing locals with first preference for temporary recovery work is important for keeping workers in the tourism industry who may be temporarily out of work until tourism levels rebound (see **following issue**) from moving out of the area.

Photo (above): After Hurricane Francis, volunteers for Indiana Companies Assisting and Responding to Emergencies (ICARE), help residents in West Palm Beach apply for disaster recovery related jobs in their mobile facility. Hiring local residents for redevelopment activities, especially rebuilding contracts, is a way to retain local workforce. FEMA Photo/Mark Wolfe (September 13, 2004, West Palm Beach, Florida).

EMPLOYER SUPPORT FOR WORKERS AFTER A DISASTER

With some preplanning, private sector companies can lead the effort to assist their employees with recovery and ensure their speedy return to work. PGT Industries of Venice, Florida, a leading manufacturer of custom and impact-resistant windows and doors, is a best practice example of taking care of employees after a disaster. The forward-thinking company had a mitigation and business continuity plan in place and had encouraged their employees to develop their own readiness plans before Hurricane Charley threatened the region. Due to this planning, PGT was able to communicate and provide relief to its employees during short-term recovery operations, such as providing hot meals and shower and laundry facilities, so that they could return to work quickly after the storm. They also supported the long-term recovery of employees whose homes were damaged by allowing maintenance department workers to help fellow employees with home repairs and office workers to assist in finding temporary housing for displaced employees while on company time.

PGT Industries was an active participant in the Sarasota County planning process, sharing ideas for additional ways to ensure business and workforce retention.

Tourism Renewal ●●○

Tourists tend to be apprehensive about planning vacations to a community that has recently experienced a disaster; however, many Florida communities' economies are dependent on tourism and will need to re-establish this revenue stream as soon as possible. Redevelopment strategies should not overlook aspects of the community that draw tourism, whether that be natural attractions, such as the beaches, or entertainment and cultural establishments. Coastal communities will also need to assess whether tourism-based businesses, such as accommodations and service industry establishments, need assistance in understanding land use strategies to reduce vulnerability and finding ways to assist them in rebuilding in a less vulnerable way. This was a topic of discussion during the Sarasota County planning process due to the importance of the barrier islands' tourism industry and its unique draw of condo accommodations over beach resorts for many of the area's vacationers.

Many communities that have had disasters have turned to marketing campaigns to build public confidence in the recovery efforts and advertise the community as it opens back up for business. Areas that rely on "place branding" will likely benefit from a unified marketing strategy that maximizes the use of marketing dollars while comprehensively promoting the overall region. The media outlets may be more interested in portraying visual images, negative reports, and shortfalls in response rather than accurately depicting the status of the region. A unified regional effort may be more successful in publicizing the areas and markets that have successfully recovered and reopened their doors for business. While spending time and energy organizing local festivals and cultural activities may seem like a low priority in the aftermath of a disaster, these events are good opportunities to attract positive media attention and tourists to the area while showcasing the successes of recovery and redevelopment efforts. Celebrations are also beneficial to residents as they restore a sense of normalcy to the community.

Photo (right): This motel sustained significant damage during Hurricane Charley. Undamaged tourism accommodations are often used for temporary housing after a disaster; however, it is important that accommodations are available for visitors once tourist attractions and conference facilities are ready to resume business. FEMA Photo/ George Armstrong. (August 18, 2004, Orlando, Florida).



There must be a commitment by both public and private entities to rebuild recreational amenities and arts, culture, and conference facilities that draw tourists and business travelers back to the region in the months and years after a hurricane.

Puszkin-Chevlin et al., 2007, pg. 121

After the 2010 Deepwater Horizon oil spill, VISIT FLORIDA, the official tourism marketing organization for the State of Florida, launched the "Florida Live" campaign to restore tourists' confidence in planning vacations to the Gulf Shore and allow them to see beach conditions at popular destinations through streaming video and daily photos on its website.

Physical Economic Redevelopment Projects ●●●

In some circumstances, opportunities may arise after a disaster to move forward with planned physical economic development projects or to create new projects that take advantage of post-disaster funding, available land, or public will. Economic development projects that are disaster-resilient and fill a need in the community after a disaster should be a priority for post-disaster funding. In addition, the community can prioritize projects that incorporate energy efficiency and other “green” building design considerations. Community Redevelopment Agency districts, Enterprise Zones, and other business districts can be prime locations to focus post-disaster redevelopment projects since these districts offer financial tools or incentives, such as tax increment financing, reductions on impact fees, and State tax incentives. Economic leaders can also consider ways to expand these business districts and leverage funding that would be available through disaster programs from several Federal agencies, including the Community Development Block Grant program and Economic Development Administration disaster assistance program.



Photo (above); Traditionally, business incubators are assistance programs that help new businesses by providing them with an affordable yet prime location and on-site support services while they are starting up. Communities recovering from disasters have successfully used business incubators to encourage economic development in devastated areas. For example, in an attempt to revitalize its downtown after it was destroyed by a tornado in May 2007, Greenburg, Kansas opened a business incubator. The city secured \$3 million in funding from the U.S. Department of Agriculture and Frito-Lay to build a facility with enough office space for 10 businesses. The success of this incubator has contributed to the revival of the downtown area (Carney, 2009). Photo courtesy of the City of Greenburg.

HANDBOOK FOR LOCAL GOVERNMENTS AFTER A DISASTER

The Minnesota Homeland Security and Emergency Management Division drafted a handbook to assist local governments recovering from disasters. The following considerations are to assist local communities in making economic redevelopment decisions:

In considering a redevelopment project to provide new business space for displaced or new businesses after a disaster:

- Where do existing businesses want to locate?
- What can they afford to pay in rent/mortgage based on previous business and future projections?
- What are their square footage requirements?
- How many businesses depend on nearby residential neighborhoods or other complementary businesses?
- How are the businesses affected by existing non-downtown commercial development?
- What are their road access and parking needs?
- How many businesses would prosper from proximity to local attractions (e.g., a river)?

In considering how regional disaster impacts will affect local demand for economic redevelopment projects:

- How much retail and office space did neighboring communities lose?
- What are their plans to replace/expand the amount of retail and office space?
- How are their business recovery efforts progressing?

Opportunities to Sustainably Restore Economic Vitality ●●●

Retaining existing businesses is the first priority after a disaster; however, post-disaster redevelopment may also present an opportunity for businesses to assess their long-term applicability in the local market and take advantage of any changes in demographics or business incentives that may occur due to disaster impacts and an influx in outside funding to the area. For instance, a business that was already struggling before the disaster may need to rethink its business plan and use the disaster as an entrepreneurial impetus unless it happens to be engaged in one of the few economic activities that benefit from a disaster, such as the development industry. Inevitably, some large and small businesses that receive a significant amount of damage or indirect losses are going to fail or choose to relocate after a major disaster. This can affect the unemployment rate of the county if new businesses do not replace those that relocate. Ideally, a community would have a diverse spectrum of businesses so that if one industry sector is severely impacted by a disaster, the majority of the workforce will not be affected. Efforts to diversify the local economy with industries that are less vulnerable to disasters can be integrated into typical ongoing economic development activities (see **Figure 12** for the different clean technology industries spread throughout the State of Florida). Industries targeted for attraction and incentive programs after a disaster should be those that will provide a more disaster-resilient and sustainable economy for the community and are appropriate for the post-disaster circumstances. Many of the leading industry clusters for recruitment in Florida can be sustainable with business continuity and mitigation planning, such as clean technology, life sciences, information technology, manufacturing, and homeland security and defense (Florida Enterprise, Inc., 2010). These industries, however, are very dependant on a skilled workforce and quality of life factors that will attract talented workers. Therefore, in order to pursue new economic opportunities after a disaster, the PDRP needs to plan for a holistic recovery of all aspects of the community and post-disaster opportunities for community improvements.

Businesses whose owners were able to adjust to changes in consumer demand were much more likely to survive than those whose owners simply pursued their pre-disaster activities in the same old way.

Alesch et al., 2001, pg. 9

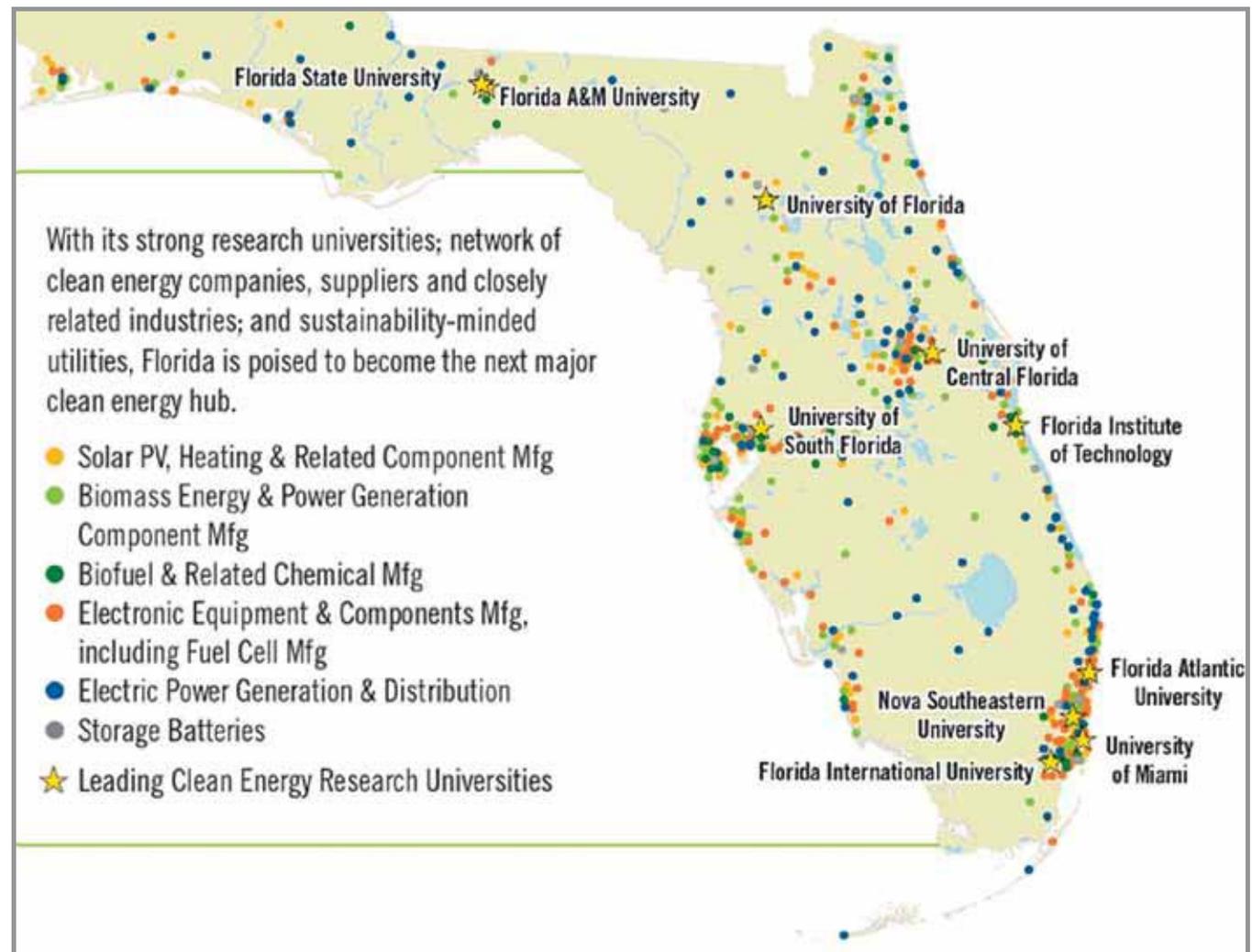


Photo (left): A damaged shopping plaza after Hurricane Andrew. FEMA Photo/ Bob Epstein (August 24, 1992, Dade County, Florida).

Figure 12. Florida's clean technology industries.

Funding and/or political support for post-disaster business attraction incentives could provide additional opportunities to bring more environmentally-friendly and alternative energy industries to the community and provide workforce training for environmentally sustainable jobs.

Enterprise Florida, Inc., 2010



INFRASTRUCTURE AND PUBLIC FACILITIES

Restoration of infrastructure and critical public facilities after a disaster is a prerequisite for recovery –one that is addressed in local government and private utility and infrastructure companies' emergency response and short-term recovery plans. There are long-term redevelopment considerations for infrastructure restoration, however, that must be weighed in conjunction with land use, environment, housing, and economic redevelopment issues. Taking advantage of opportunities to upgrade, mitigate, or even relocate infrastructure or public facilities after a disaster should be addressed in the PDRP. Advanced planning allows a community to make deliberate decisions about redevelopment that they may otherwise have had less opportunity to do during the post-disaster rush to rebuild. Decisions about infrastructure reconstruction will influence private redevelopment decisions, and using disaster repairs as an opportunity to include hazard mitigation allows a local government to lead by example.

There are many agencies, jurisdictions, and stakeholders involved in providing infrastructure, public facilities, and utility services. Before and after a disaster, these private and public entities need to establish communication and coordination procedures to ensure that long-term recovery and redevelopment occurs in an efficient and organized manner. Each agency or company should have its own recovery plan; however, if any opportunities for directing redevelopment are to be pursued then coordination and communication are critical.



Photo (above left): Public facility damage from Hurricane Andrew. FEMA Photo/Bob Epstein (August 24, 1992, Dade County, Florida).



Photo (above right): Crews make emergency repairs to this damaged road after Hurricane Katrina washed away a rock sea wall that was built to protect it. After the storm, many homes and roads were flooded or damaged and residents were displaced. FEMA Photo/Marvin Nauman (August 31, 2005, Cape San Blas, Gulf County, Florida).

3. PLAN TOPICS

Plans and Elements/Topics to Review When Addressing Infrastructure Issues:

Comprehensive Plan

- Sanitary Sewer
- Solid Waste
- Stormwater
- Potable Water & Natural Groundwater Aquifer Recharge
- Capital Improvements
- Transportation

Local Mitigation Strategy

- Hazard Analysis
- Vulnerability and Risk Assessment
- Project list

Comprehensive Emergency Management Plan

- ESF 1: Transportation
- ESF 2: Communications
- ESF 3: Public Works and Engineering
- ESF 12: Energy

Local/Regional Plans

- Debris Management
- Truck/Haul Routes
- Water Districts
- Aviation Authorities
- Port Authorities
- Energy/Utilities
- Public Facilities Continuity of Operation Plans

A VARIETY OF AGENCIES AND ORGANIZATIONS WILL PLAY A ROLE IN POST-DISASTER PLANNING FOR INFRASTRUCTURE

State/Regional Agencies and Organizations

- Florida Department of Transportation
- Florida Division of Emergency Management
- Regional Metropolitan Planning Organizations

Local Government Departments

- Environmental Protection
- Facility Management
- Historic Preservation
- Parks and Recreation
- Public Works
- Solid Waste/ Sewer/Water Resources
- Transportation

Other Organizations

- Aviation Authorities
- Port Authorities
- Public and private transit organizations
- Public and private utility and telecommunication entities
- Shipping/rail companies

TYPES OF INFRASTRUCTURE AND PUBLIC FACILITIES TO ADDRESS IN POST-DISASTER REDEVELOPMENT PLANNING

A community's infrastructure is made up of a number of different systems and structures, each of which should be considered in addressing the infrastructure and public facilities issues presented in this chapter:

- **Transportation systems** – The repair of roads, bridges, railroads, airports, seaports, and public transit is essential to establishing normal operations within a community. The repair of these and other types of infrastructure is often necessary for other redevelopment efforts to take place. Post-disaster redevelopment can be used as an opportunity to modify, improve, and add to existing transportation networks. Incorporating hazard mitigation into the repair and reconstruction of transportation facilities can ensure that when disaster strikes again, the infrastructure is better able to handle the impacts. (These systems fall under Public Assistance Category C.)
- **Potable water, sewer, and stormwater systems** – Damage to potable water, sewer, and stormwater infrastructure can weaken a community's ability to recover. Like with other infrastructure, the community can take the opportunity to include hazard mitigation or other improvements during repairs. In cases of severe damage to infrastructure in highly hazardous locations, relocation could be considered. These opportunities may be missed if pre-planning is not conducted. (These systems fall under Public Assistance Categories D and F.)
- **Power, natural gas, and telecommunications** – Recovery from a disaster cannot begin until major utilities, especially electricity, are restored. (These systems fall under Public Assistance Category F.)
- **Public facilities** – Rebuilding after a disaster provides an opportunity to mitigate future hazard impacts and build back a more resilient community. Public facilities, such as schools, libraries, and government offices must be rebuilt to current building codes. However, above-code hazard mitigation may also be a good investment, and post-disaster funding sources may allow these expenditures. Some public facilities in highly hazardous areas could potentially be targeted for relocation during pre-disaster planning. (These structures fall under Public Assistance Category E.)
- **Parks and Recreation Facilities** – While parks and recreation facilities like beaches, docks and marinas, are typically not a priority for recovery, they are important for regaining quality of life as part of long-term redevelopment. Park properties also are often used in staging recovery efforts, such as temporary vegetative debris storage (Category A for debris). (These facilities fall under Public Assistance Category G.)

Infrastructure for Temporary Recovery Operations ●○○○

After a disaster, temporary recovery needs for infrastructure arise, particularly related to temporary housing (discussed in detail on **page 54**). The long-term implications of temporary recovery operations are often related to the precedent set by providing infrastructure to a location. For instance, a temporary housing group site that is placed in a greenfield outside of the jurisdiction's urban service area could easily lead to public pressure to develop the area since it is demonstrated that infrastructure can be extended and the site has already been cleared and given transportation access. Using infrastructure in a temporary manner is wasteful when the expense of placing that infrastructure could have been spent on placing or enhancing infrastructure capacity to a site encouraged for permanent development. Local government utilities and public works staff can collaborate with emergency managers to come up with creative ways that temporary recovery operations could be pre-planned in a way that would also benefit community capital investment goals. The need for flexibility and to use property that is available to meet unique post-disaster demands will require that this sort of collaboration happen on an annual basis to brainstorm scenarios for creative, temporary infrastructure reuse depending on current opportunities.



Photo (above left): Infrastructure for the temporary housing site under construction in Arcadia is ready for installation. The site is to house residents affected by Hurricane Charley until their homes can be repaired or replaced. FEMA Photo/Mark Wolfe (October 22, 2004, Arcadia, Florida).

Photo (above right): A new entrance/exit road is being cut for the temporary housing site being constructed in Arcadia. The site is needed to house residents affected by Hurricane Charley. FEMA Photo/Mark Wolfe (October 23, 2004, Arcadia, Florida).

Debris Management ●○○

A massive amount of debris can be generated from a major disaster and will need to be properly disposed of to prevent long-term impacts. Depending on the type of debris being handled, precautions have to be taken to limit soil and water contamination as well as air pollution (also see Environment topic in this chapter on **pages 93-99**). Debris that contains chemical contaminants will require separate processing and disposal. Coastal and waterway debris can pose a threat to plant and animal species, block water channels, and disrupt navigational operations. Landfill capacity is often limited, and incineration is not always an option due to emissions standards and the potential for air pollution. Debris removal should ensure that environmental areas do not suffer from prolonged exposure to pollutants, and clean-up procedures should consider sensitive environmental areas to minimize additional impacts. Where practical and appropriate, debris may be processed through a recycling and reuse program. A dedicated debris management plan and staff training is necessary to plan for these concerns during “blue skies” and to implement a best practices debris operations when a disaster occurs. For more information about debris management guidance, see the **Resources** section.

DEBRIS MANAGEMENT PLANS

Local governments are encouraged to create debris management plans. An important part of preparedness efforts, debris management plans enable entities to be better prepared and aware of their capabilities related to debris removal. In addition, preplanning for debris operations may mitigate some of the common errors applicants face in FEMA’s Public Assistance Program and decrease the likelihood of ineligible work.

Components of a debris management plan may include the following:

- Debris assumptions and forecasting;
- Debris collection plan;
- Potential debris management sites, recycling methods, and final disposal locations;
- Identification of priority routes and critical facilities to be cleared first;
- Procedures for contracting services; and
- Process for conducting private property debris removal.

Florida Division of Emergency Management, 2010



Photo (above): Workers gather aluminum from structures damaged and destroyed by Hurricane Charley for recycling. A debris removal plan that incorporates strategies for recycling and reusing material not only reduces volume at landfills, but also provides more access to materials for rebuilding the community. When developing recycling and reuse strategies, communities should not only include processes for separating these types of materials out, but also a process for making them available to the community. FEMA Photo/Mark Wolfe (August 27, 2004, Hardee County, Florida).

Understand and Plan for Debris Removal Reimbursement

Tropical Storm Fay dislodged thousands of lobster pots from their anchors in the Keys. A project was written for removal of the lobster pots by Monroe County as a Category A Public Assistance Debris Removal project because the lobster pots were causing a hazard to navigation in the waterways. During the Environmental and Historical Preservation Review, the question of jurisdiction came up. Monroe County was proposing to remove them, therefore, documentation was provided stating that Monroe County had the authority and obligation to maintain the waterways of the Keys, including the removal of debris that may cause a safety hazard to the boating public. In the infrastructure planning process, it is wise to document facilities that are shared resources where jurisdictional determinations may come into question. Advanced planning would include having the jurisdictional determination documentation on file.

3. PLAN TOPICS

See **Chapter 4** and **Resources** for more on post-disaster funding.

Currently, the Federal government pays for at least 75% of all local infrastructure damages through Public Assistance funds; however, just as private homes and businesses are insured, local governments could insure infrastructure. The premium should be aligned with the level of risk across hazard zones. The local government could establish special assessment zones that would levy property taxes in accordance with degree of risk which could pay for infrastructure insurance.

Berke and Campanella, 2006, pg. 203



Financing Infrastructure and Public Facilities Repair



When a community starts to make decisions about which structures to relocate after a disaster or which mitigation projects it should invest in pre-disaster, they should consider funding availability. Knowing where to prioritize spending requires some basic knowledge of what is covered under insurance policies, which projects will be eligible for Federal reimbursement through the Public Assistance Program, which projects can be funded through grant programs, and if there are financial reserves that can be targeted for grant matching funds or local investment. When a community begins to address its infrastructure issues as part of the initial planning process (see **Chapter 2**) or as a pre-disaster implementation action, it can launch an assessment of county or municipal insurance policies to determine which facilities are covered and for what extent of damage. They can then use this assessment to make decisions about increasing coverage or financing repairs to uninsured structures. They can also determine whether mitigation enhancements would be covered under current policies and Public Assistance or whether additional funding, such as HMGP, would be needed. The assessment should be updated annually.

PUBLIC ASSISTANCE: IMPROVED AND ALTERNATE PROJECTS

Occasionally an Applicant may determine that improvements should be made while restoring a damaged facility; or even that the public would not be best served by restoring a damaged facility or its function at all. FEMA refers to these projects respectively as improved and alternate. All requests for these projects must be approved prior to construction.

Possible Alternate Projects

- Repair or expansion of other public facilities;
- Construction of new public facilities;
- Purchase of capital equipment; and
- Funding of hazard mitigation measures in the area affected by the disaster.

Possible Improved Projects

- Relocation of public facilities;
- Using improved materials;
- Expanding capacity, and
- Rebuilding to higher codes and standards

For example, the University of Florida, IFAS chose not to repair damaged facilities like shadehouses and greenhouses, but utilized alternate project funds to purchase research equipment instead.

After Hurricane Wilma, The Key West Utility Board was able to utilize improved project funds once it determined it was in the public's best interest to install a more efficient cooling system for engines in the electric generating substation.

Photo (left): Florida Division of Emergency Management staff survey damage to roads in Holmes County. Severe flooding throughout North Florida resulted in 22 counties receiving Public Assistance Presidential declarations and at least \$5.4 million dollars obligated for repairing or replacing storm-damaged public facilities and infrastructure, as well as debris removal and emergency services. Photo courtesy of the Florida Division of Emergency Management.

Infrastructure and Public Facilities Mitigation ●●○

A community can capitalize on opportunities post-disaster to mitigate damaged infrastructure and public facilities so that they are more resilient to future disasters. With pre-planning, mitigation can be included during repairs or rebuilding of the facility. If it is a critical infrastructure or facility that must be rapidly restored, the repairs can be done with the knowledge that they are going to be temporary until a more comprehensive rebuild can be done. For less critical facilities that are priorities for mitigation, the potential for delaying restoration in order to include mitigation should be considered in coordination with any plans for phasing private redevelopment as discussed in the Land Use issue **Phased Reconstruction and Streamlined Permitting** on **page 46**.

There are several funding sources available for infrastructure mitigation depending on the specific project the community is pursuing. FEMA's Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation (PDM) Program can both provide assistance to conduct infrastructure retrofitting, as long as, 1) the project's end result is to protect and mitigate public/private property from natural hazards, and 2) there is a clear cause and effect relationship between the natural hazard and the damage. Infrastructure retrofit projects include measures that reduce risk to existing utility systems, roads and bridges.



Photo (above): Hurricane Winds from Katrina took down power and utility poles that crews have to clean up. Here, one of many convoy utility crews heads into the damaged area. FEMA Photo/Marvin Nauman (August 27, 2005, Florida Turnpike, Florida).

Photo (left): Energy crews work to restore power along HW A1A. FEMA Photo/Michael Rieger (September 29, 2004, Melbourne Beach, Florida).

When the Avenida Menendez seawall in St. Augustine received storm damages, the city had to consider the unique materials of this historic structure. Built in the 19th century and constructed with coquina stone and granite, this structure is considered by the State Historic Preservation Office to be eligible for listing in the National Register of Historic Places. In order to maintain the historic integrity and aesthetic of the structure, the city was able to recover and reuse some of the coquina blocks with new mortar.

Five years after Hurricane Wilma caused significant damage to electric utility lines in South Florida, the City of Coconut Creek is continuing to implement its goal to mitigate the power issues they experienced from the storm. The City Commission just approved a \$464,505 payment to Florida Power and Light for the second of a three-phase project to place a significant portion of utility lines in the city underground.

Feller, 2010

Relocation of Vulnerable Infrastructure and Public Facilities ●●●

In order to prevent repetitive damage to infrastructure and public facilities, a community should consider relocating severely damaged infrastructure to less vulnerable areas instead of rebuilding in the same location. Relocating infrastructure may also serve community goals to direct development away from vulnerable locations such as the Coastal High Hazard Area. While relocation decisions ultimately will need to be made after a disaster, a community can develop standards or criteria pre-disaster in order to assist in making post-disaster decisions about which facilities should be relocated based on factors such as damage, cost, and location. Preliminary plans for new facilities can even be drafted pre-disaster to speed relocation in the event of a disaster. Local government staff can also prepare for relocation opportunities by being aware of eligible funding requirements as discussed on **page 76**. A community could also consider investing in relocation projects for vulnerable facilities identified in the planning process before a disaster instead of funding major renovation or maintenance projects for those facilities.

Relocating a Damaged Wastewater Treatment Plant

In fall 2010, the Emerald Coast Utilities Authority is scheduled to complete construction of a new Central Water Reclamation Facility to replace its 73-year-old Main Street Wastewater Treatment Plant in downtown Pensacola that was severely impacted during Hurricane Ivan, resulting in the discharge of untreated sewage. Rather than repairing the facility at the original location, the Authority applied for an Improved Project that would relocate the facility 25 miles north, reducing the threat to future storms. This involved extensive environmental review and coordination, including an Environmental Assessment, which resulted in the obligation of over \$150 million through the FEMA Public Assistance grant program.

While abundant post-disaster funding may be available for public works projects that mitigate hazards, communities should carefully choose projects based on whether they further their resiliency goals. As Burby (1988) points out, communities' investment in flood control works also tends to stimulate floodplain development leading to heightened property value expectations on the part of landowners and to increased purchase of floodplain sites for speculation and future subdivisions.



Regional Infrastructure Considerations ●●●

After a major disaster, smaller communities will be dependent on the ability of larger communities that are home to regional infrastructure systems to recover quickly and efficiently before they can recover. The speed of restoration for facilities, such as international airports and seaports, and infrastructure, such as bridges and truck routes, in neighboring jurisdictions can greatly impact the timing of your community's recovery. In addition, some communities will become host to long-term evacuees from neighboring jurisdictions, which may require increased infrastructure capacity. A best practice for post-disaster redevelopment planning is to coordinate regionally; this is especially important for infrastructure and public facility recovery. The FEMA-sponsored Florida Catastrophic Planning Initiative, which began in November 2006, may be a resource for understanding and integrating regional planning on infrastructure and facility restoration into your Post-Disaster Redevelopment Plan.

Enhanced Infrastructure Capacity to Priority Redevelopment Areas ●●●

If your community identifies Sustainable PRAs as a strategy for its Plan (see **pages 50-51**), advanced planning for equipping these areas with the infrastructure necessary to support targeted redevelopment after a major disaster is essential to the strategy's success. Priority Redevelopment Areas may require new infrastructure service or enhanced capacity if the intensity or density of development is to be increased to accommodate the transfer of population and businesses from more hazardous areas of the community (or neighboring communities) to sustainable redevelopment areas. Communities may be able to enhance or mitigate infrastructure and facilities in Priority Redevelopment Areas with post-disaster funding and waive impact fees as an incentive for residents and businesses to relocate to sustainable areas. **Figure 13** presents an example planning scenario for infrastructure enhancements for redevelopment.

Photo (opposite page far left): FEMA inspectors John DeGroof (left) and Rob Velasco (center) speak with Randy Blessinger (right) of Escambia County about damages to the sewage treatment plant due to Hurricane Ivan. FEMA Photo/Mark Wolfe (October 15, 2004, Pensacola, Florida).

Photo (opposite page left): Winds from Hurricane Charley in August 2004 tore off the roof of the Charlotte County Emergency Operations Center. Emergency personnel were forced to evacuate and essential communication equipment was ruined (Scarcella, 2005). Charlotte County relocated its Emergency Operations Center to a state-of-the-art \$11.5 million dollar, 31,000-square foot building that has a 200-mph wind rating and is no longer located in a 100-year flood zone (ESi Acquisition, Inc, 2010). Photo courtesy of the Florida Division of Emergency Management.

During the pilot planning process, Hillsborough, Manatee, Polk, and Sarasota Counties took advantage of their close proximity to gather for several regional meetings hosted by the Tampa Bay Regional Planning Council. Pinellas and Pasco Counties also joined the meetings. One of the major topics of discussion was the interdependency of each county on regional infrastructure systems and how critical this was to economic recovery after a disaster. They also discussed the vulnerability of Pinellas to hurricane damage and the unavoidable need for neighboring counties to absorb some of its residents and businesses, at least temporarily. These discussions were continued as part of the Tampa Bay Catastrophic Planning Summit in early 2010.

3. PLAN TOPICS

Figure 13. Planning Scenarios for Infrastructure Enhancements for Redevelopment

Susan Mueller, Chair of the Hillsborough County PDRP Infrastructure and Public Facilities Technical Advisory Council and stakeholder representative of TECO Energy, developed a mock scenario of how infrastructure planning could contribute to implementation of the County's Priority Redevelopment Area strategy. The scenario led to various questions that would need to be answered to implement such a concept: What permits would you need? How long would it take to build infrastructure? Who are your partners?



Example
Redevelopment
Area



Mock
Post-Disaster
Development

HEALTH AND SOCIAL SERVICES

It is the socially and economically vulnerable who are affected most severely during a disaster event. Researchers have found that while disasters do not create or fundamentally change the existing social and economic trends in communities, they do magnify them (Kates, 1977). A community's level of social vulnerability and the extent to which health and social services are effectively provided will determine the success of long-term community recovery. Every community will have a different set of issues to address that should be developed based on the current demographic and socioeconomic characteristics of its residents. Post-disaster redevelopment actions and strategies should address long-term recovery health and social needs that will be exacerbated by a disaster and prepare for providing the best possible services in such a situation. A challenge for communities may be ensuring the smooth transition of health and social services from short-term recovery operations to long-term redevelopment assistance.

Some communities are going to want to focus the majority of their PDRPs on topics of health and social services while others will need to just address a few relevant issues. Below is a list of questions to help gauge the necessity of addressing these topics during the planning process:

- Are your health care facilities likely to sustain major physical damage during a disaster event?
- Does a significant proportion of your population currently depend on social services?
- Does your community contain a large percentage of socially vulnerable populations, including the disabled, senior citizens, racial and ethnic minorities, language isolated, single parents, impoverished, etc.?
- Do socially vulnerable populations reside in areas that are likely to be devastated by a disaster?
- Does your community have the capacity and procedures in place to coordinate a large influx of volunteers throughout long-term redevelopment?



Photo (left): A 1993 survey conducted by the Centers for Disease Control and Prevention found that after Hurricane Andrew households in the most heavily hurricane-damaged areas had an increased need for health and social services relative to residents of less-damaged areas (McDonnell et al., 1995). FEMA News Photo/Bob Epstein (August 24, 1992, Dade County, Florida).

Social Vulnerability

Social vulnerability is the product of social inequalities. It is defined as the susceptibility of social groups to the impacts of hazards as well as their resiliency or ability to adequately recover from them. This susceptibility is not only a function of the demographic characteristics of the population (age, gender, wealth, etc.), but also more complex constructs such as health care provision, social capital, and access to lifelines (e.g., emergency response personnel, goods, services, etc.).

Cutter and Erich, 2006

The Hillsborough County PDRP places an emphasis on long term health and social service needs. During the development of their Plan, stakeholders with a range of expertise split into four sub-committees that addressed one of the following topics: health and medical, social services, education, and safety and security.

3. PLAN TOPICS

Plans and Elements/Topics to Review When Addressing Health and Social Service Issues:

Comprehensive Plan

- Public School Facilities (Public School Concurrency)
- Economically Disenfranchised Groups (optional)
- Health and Human Services (optional)
- Livable/Healthy Communities (optional)

Local Mitigation Strategy

- Hazard Analysis
- Vulnerability and Risk Assessment
- Project list for Health and Social Services facilities

Comprehensive Emergency Management Plan

- ESF 6: Mass Care and Human Services
- ESF 8: Health and Medical Services
- ESF 15: Volunteers and Donations

Local/Regional Plans

- Hospital and medical facilities' Continuity of Operation Plans (COOPs)
- COOPs for health and social services-related government agencies and non-governmental organizations
- Private hospitals

A VARIETY OF AGENCIES AND ORGANIZATIONS WILL PLAY A ROLE IN POST-DISASTER PLANNING FOR HEALTH AND SOCIAL SERVICES

State/Regional Agencies and Organizations

- Florida Department of Children and Families
- Florida Department of Education
- Florida Department of Elder Affairs
- Florida Department of Health

Local Government Departments

- Agency for Persons Living with Disabilities
- Aging Services
- Children and Family Services
- Health Department
- Homeless Services
- Public Transit
- School District
- Social Services Agency

Other Organizations

- Local private advocacy/philanthropy groups
- Local volunteer organizations, including Community Emergency Response Teams (CERTs) and Community Organizations Active in Disaster (COADs)
- Major local health and medical facilities

Health Facility Restoration ●○○

After disasters, medical services are in high demand, but providers can have trouble meeting payroll and keeping up with need due to staffing shortages, facility damages, and inadequate financial resources. Factors that could potentially influence the ability to restore health services may include the ability to repair essential utilities and infrastructure, the change in patient demographics needing care, the location of the facility in relation to population densities, the availability of qualified contractors, and other variables. Through substantial pre-disaster planning, reconstruction from a major disaster can provide opportunities to fix and upgrade existing health and medical systems that will benefit residents long-term. During response and short-term recovery, there will likely be temporary medical service increases, including temporary public and faith-based clinics. Planning to integrate any temporary resources, labor, or funding into the existing local healthcare structure can improve local capacity and prevent disruptions during long-term redevelopment when the temporary increases are terminated.

Health Care Facilities Mitigation

Mitigating damage to health care facilities from wind and flood can be a worthwhile investment for Florida communities to consider in an effort to prevent significant damage during hurricane events. During Hurricane Charley, a Charlotte County hospital sustained major damage to the roof and windows of a four-story building that housed patients and a two-story building that housed operating rooms, laboratories, and valuable equipment. The resulting rainwater intrusion forced evacuation of patients from these areas. However, a newer, one-story building nearby that housed the emergency room sustained no damage. A major reason was the use of impact-resistant window glazing systems. In this case, compelled in part by the enforcement of stricter building codes, the designers of the new emergency room were able to mitigate the detrimental effects of wind-borne debris that often cause much of the damage to a building.

Bailey and Gould, 2004

Homestead Hospital sustained a relatively small amount of structural damage during Hurricane Andrew in 1992, but was significantly impacted from the effects that the storm had on the lives of the hospitals staff and patients. A year after the hurricane struck, 70% of Homestead's 500 employees had left. Charity care spiked from 11% to 26% of hospital patients. The hospital went from years of profitability to an \$8 million loss.

Colias, 2005



Photo (right): Genesis Nunez sits on her father's, Juan Nunez, lap after having her leg in a splint by a member of the FEMA Disaster Medical Assistance Team (DMAT) at the JFK Medical Center. The DMAT is set up in the entry way of the hospital to assist in seeing the increase flow of patients due to Hurricane Wilma. FEMA Photo/Jocelyn Augustino (October 29, 2005, Boynton Beach, Florida).



Social Service Provision to Socioeconomic Vulnerable Populations ●○○○

Socially and economically vulnerable populations (including the financially disadvantaged, homeless, children, senior citizens, racial and ethnic minorities, single-parent households, etc.) are likely to become more dependent on assistance after a disaster event, and their needs will change throughout the different phases of redevelopment. Potential challenges to successful service provision include the lack of available adequate programs and insufficient access. Systems that are functioning to maximum capacity before a disaster will become inadequate as more residents need assistance. To accommodate for this increase, communities need to be prepared to increase capacity while altering services to meet the change in need. Service provision is only successful if populations have access to available programs and facilities and if this access is maintained consistently as programs change during long-term redevelopment. Populations are going to shift during redevelopment, and locating facilities near temporary housing will be a necessity as is ensuring that residents have adequate transportation options.

As a Post-Disaster Redevelopment Plan evolves into a more complex plan, the issue “Social Service Provision to Socioeconomic Vulnerable Populations” may need to be broken down into more focused issues, each with a topic-specific strategy. The issues will vary by community, depending on the specific population and its needs. Some of these issues that a community may want to address include the following:

- Low-income assistance – Low income residents are often hit the hardest by disasters and will require more government assistance than usual. This may require an increase in social service personnel or identification of additional funding for assistance programs.

Households and businesses at higher socioeconomic levels are more likely to recover to pre-disaster levels, and those who are better integrated into economic and social networks will recover faster. Conversely, those with fewer resources get less attention from aid organizations and get it later in time. Lower income groups always have a weaker voice in recovery decisions, unless explicitly integrated into the decision processes (Olshansky, 2006, pg. 148).

- Homeless programs – There is often an increase of the homeless population after a major disaster due to the destruction of a significant amount of affordable and older housing stock. The already existing homeless population should not be overlooked during post-disaster recovery.

After the 2004 hurricanes, there were nearly 15,000 additional homeless people on the west coast of Florida (Nova Southeastern University, 2009).

- Children and family services – Disasters may cause an increase of families seeking assistance, while service providers may have fewer personnel and resources available. Unfortunately, studies of recent disasters have shown that domestic abuse often increases during the stressful recovery period after a disaster. Also, children have been found to do poorly in school many years after a disaster due to changed living circumstances and other issues deriving from the event.

Photo (above): FEMA Deputy FCO Justo Hernandez goes over the days plan for a diversity outreach project in the hard hit Indian River County. FEMA Photo/Michael Rieger (September 27, 2004, Fellsmere, FL).

Children are particularly vulnerable to the stress and anxiety that follows a natural disaster, and their symptoms may linger much longer than those of adults (FEMA, 2003).

- Targeted assistance for senior citizens – Over 17% of the population of the State of Florida is over the age of 65 and potentially less able to successfully recover from a disaster due to financial or health reasons. Many senior citizens live on fixed incomes and may not have resources for home rebuilding or preparatory measures. Also, there is an increased likelihood that seniors may be more susceptible to fraud and exploitation than other populations during times of crisis. They may need additional assistance due to a variety of chronic health problems, including cognitive impairments and diminished mobility.
- Assistance programs targeted towards racial and ethnic minorities – While racial and ethnic minority concentration alone is not an indicator of social vulnerability, racial and ethnic minority populations are likely to be more vulnerable to disasters due to factors such as economic situation, housing patterns, building construction, community isolation, and cultural insensitivities (Fothergill et al., 1999). Language can be a barrier impeding some ethnic minority concentrations from adequately navigating the available relief system. Public outreach initiatives will need to be translated into other languages for those whose native language is not English.
- Services for women – Research has shown that the experience of women and men differ in the post-disaster environment; however, most disaster work assumes a gender-neutral social system (Morrow, 1996, pg. 6). Female-headed households may need targeted assistance post-disaster. Of the thousands who lost their jobs after Hurricane Andrew, women were not likely to find substitute work related to clean-up and reconstruction activities. Most women hold low-wage jobs with working conditions that allow little job security, making them particularly vulnerable after a disaster. While few were able to find work related to recovery, in general, it was much harder for women to find replacement employment (Morrow, 1996).

After Hurricane Andrew, researchers Walter Gillis Peacock and Chris Girard found that blacks and Hispanics were less likely than whites to receive sufficient insurance settlement amounts due to the fact that they were less likely to have insurance policies with major companies (Fothergill et al., 1999).

Public Safety Service Levels Re-established Throughout the Community ●○○○

It is imperative that public safety service levels are quickly re-established after a disaster. This may necessitate a temporary increase in local safety personnel despite revenue losses that may strain the resource availability and public safety funding during long-term recovery. The location of public safety facilities can also have an impact on re-establishing adequate levels of service. Public safety facilities are sometimes located in areas that may make them vulnerable to severe damage during a disaster event. Communities can reconsider the location of public safety facilities and capitalize on opportunities after a disaster to permanently move them if they are temporarily unable to operate (see **page 78**).



Photo (right): Local police check cars that are coming out to Miami Beach because of the curfews set up in neighborhoods due to Hurricane Wilma. FEMA/Photo/Jocelyn Augustino (October 29, 2005, Miami, Florida).

3. PLAN TOPICS

Volunteer Florida is a statewide initiative focused on developing, promoting, and implementing volunteerism and service. (www.volunteerflorida.org)

Rebuild Northwest Florida (REBUILD) is a Long-Term Recovery Organization (LTRO) established in January 2005 in response to the un-met needs of citizens in Escambia and Santa Rosa Counties after Hurricane Ivan. The organization began as a grass-roots effort of concerned local residents and grew due to the efforts of private citizens, non-profit organizations, faith-based groups, social service agencies, government entities, and private business. REBUILD formed as a 501(C) 3, non-profit organization with the goal of coordinating the need-based recovery initiatives for economically disadvantaged families in the area. Since Hurricane Ivan, REBUILD has successfully returned more than 1,700 families to safe and habitable living conditions through the services of 4,600 volunteers who have contributed more than 251,357 hours of labor. REBUILD currently remains active, but has shifted from their successful Hurricane Ivan recovery to mitigation.

Rebuild Northwest Florida, 2010

Coordination and Assistance for Non-Governmental Organizations and Volunteers



Immediately following a disaster, there could be an influx of volunteers to aid in short-term recovery efforts, which can be a substantial asset to the recovery process with coordination and organization. Typically, as the media attention tapers after the initial response and recovery, so does the interest of potential volunteers. However, if a volunteer effort is particularly well-promoted and organized, it could be extended into the long-term redevelopment phase. Many Florida communities already have existing capacity in the form of Community Emergency Response Teams (CERTs), Unmet Needs Committees, and Long-Term Recovery Organizations (LTROs) that can be utilized to coordinate and organize the volunteer effort. The capacity of these groups should be bolstered pre-disaster so that they can provide optimal services when a disaster occurs.

Long-Term Recovery Organizations are critical to the recovery of the community. Not only do they provide a mechanism to assist individual survivors directly, but particularly progressive LTROs may be able to take on advanced redevelopment functions, including: coordinating Community Development Block Grants on behalf of local governments, taking responsibility for FEMA travel trailers, assisting in the rebuild of permanent housing stock and implementing mitigation measures for the economically disadvantaged. But at the most basic level, LTROs that are able to express their future actions and needs to the volunteer community, with help from the Volunteers and Donations Emergency Support Function, will be more likely to obtain additional donations and volunteer assistance to address long-term needs more quickly.



Photo (top left): Red Cross volunteers learn how to operate the new Client Assistance Card System at the Red Cross command Center. This system allows a victim's information to be put directly into the system and Red Cross can give them a Master Card with their money credited to the card on the spot. FEMA Photo/Michael Rieger (September 21, 2004, Orlando, Florida).



Photo (top right): Volunteers from Mandelville, Slidell, and Covington, Louisiana wind down after a day of providing between 3,000-4,000 meals to Warrington, Florida residents affected by Hurricane Ivan. FEMA Photo/Mark Wolfe (October 16, 2004, Warrington, Florida).

Provide for Special Needs Populations Throughout Long-Term Redevelopment ●○○

Special needs populations, including those living in nursing homes and assisted-living facilities as well as homebound populations, will require distinct assistance after a major disaster. Disabled populations are going to need special accommodations and temporary housing during evacuation and recovery. Many communities have these residents registered on emergency management special needs lists to receive assistance. However, there may be many, registered or not, that will need long-term assistance dealing with the traumatic changes and returning to normal circumstances in which they do not need special assistance. Attention should be given to nursing home and assisted-living facility residents during long-term redevelopment as evacuated residents return to their home facilities. There is likely to be a shortage of qualified staffing and suitable facilities. The return of these residents must be closely coordinated with emergency management personnel, and financial assistance or mutual aid agreements may be needed. According to Global Action on Aging, after Hurricane Katrina medical clinicians in Louisiana reported that the health status of patients returning to their care had declined significantly. Facilities should take into consideration the length of time it takes to improve the health status of many returning nursing home evacuees who may be experiencing functional and mental decline. This will affect the number of staff and their required expertise that facilities need to have on hand throughout the redevelopment phase.

F.A.C. Rule: 64-3.010

A “person with special needs” means someone, who during periods of evacuation or emergency, requires sheltering assistance due to physical impairment, mental impairment, cognitive impairment, or sensory disabilities.



In the State of Florida, there are 746 nursing homes with 81,986 licensed beds. There is an estimated 333,492 citizens that may be considered “frail elderly” – about 2% of the State’s population (Florida Division of Emergency Management, 2009).

Photo (left): A sign near the Orange County Convention Center directs people to the entrance of the Special Needs Shelter. FEMA Photo/Jocelyn Augustino (September 14, 2004, Orlando, Florida).

Public Transportation Restoration and Improvement



After a disaster, changes in the locations of housing and employment centers (temporary or permanent) may alter a community's public transit needs, or the population dependent on public transit may increase. Post-disaster redevelopment projects may present unique opportunities to expand existing transit capabilities consistent with the multimodal needs of the Long-Range Transportation Plan. Any changes to public transit should be closely coordinated with stakeholders with expertise relative to the Land Use and Infrastructure topics.



Photo (above): A mother and her child get on a Free Courtesy Bus. Disasters are devastating to the natural and man-made environment. FEMA provides federal aid and assistance to those who have been affected by all types of disaster. FEMA Photo/Bob Epstein (August 24, 1992, Homestead, Florida).

PUBLIC TRANSIT RESTORATION IN SARASOTA COUNTY PDRP

The Sarasota County Post-Disaster Redevelopment Plan includes several actions to address public transit restoration and adapt to new needs:

Pre-disaster Actions

- Meet with Sarasota County Area Transit to ensure that their recovery plans include long-term redevelopment.
- Determine which populations would require public transit following a disaster and identify potential alternate routes and means for supplying uninterrupted services.

Post-disaster Actions

- Incorporate changes into reconstruction plans that make roads better suited for public transportation.
- Realign bus routes to account for shift in population and/or newly constructed temporary housing complexes.
- Increase public transit fleet to account for increased ridership due to a large number of personal vehicles damaged or destroyed during storm.

Schools, Higher Education Reopened ●●○

It is important for schools to reopen quickly after a disaster to establish a sense of normalcy and consistency in students' lives and to continue providing the community with a quality education. During recovery, some public schools located in less vulnerable areas are likely to be used as community shelters during the event, but the transition of residents to interim housing is usually handled by emergency managers as soon as possible, leaving the schools available to reopen. These schools will likely need to accommodate a higher capacity of students post-disaster, including those that attend facilities that were damaged during the event.

Higher education and private facilities may also need assistance in reopening whether through permitting, assistance with repairs, or providing adequate services for faculty and students returning to the area. Furthermore, they can be instrumental in providing workforce training. During the pre-disaster preparation and mitigation phase, communities can take the time to reduce the vulnerability of higher education institutions and the local school system through locating facilities in less vulnerable areas or reinforcing those facilities that must remain where they are currently located. Local school districts can also prepare for a disaster by creating continuity of operation plans that are viable during long-term redevelopment to prevent a gap in essential functions, including payroll and student data.

Due to a concerted effort of local, State, and Federal agencies, Florida schools opened in record time after Hurricane Charley despite the fact that seven Charlotte County schools were completely destroyed and there was serious damage to schools in at least three other counties. The State's plan to get schools back up and running included coordination between the Department of Education, FEMA, and local officials to deliver portable classrooms, school buses, books and other instructional materials, furnishings, and computers to affected schools. Governor Bush also signed an executive order allowing for waivers of certain requirements, which allowed affected school districts to cope with the aftermath of Hurricane Charley and provide immediate services to students.

Examples of waivers included the following:

- Accountability requirements under the class size amendment;
- Flexibility with regard to minimum 180-day attendance;
- Extension on provision of documentation for pre-enrollment requirements, such as immunizations;
- Collective bargaining requirements for teachers;
- Eligibility requirements for scholarship students;
- Teacher certification requirements;
- Facilities specification requirements;
- Extension for reports due to the Department of Education;
- Mandatory calendar for Community Colleges; and
- Extension on initial tuition payment for college students.

Department of Education, 2004



See **Resources** for programs related to higher education institutions.

After years of nomadic uncertainty, many of the children of Hurricane Katrina are behind in school, acting out, and suffering from extraordinarily high rates of illness and mental health problems...The key to giving these children a future is providing them with a sense of stability — a home that seems permanent, a school where they can put down roots. The recommendation is underscored by the gains made by those families that have found a toehold (Dewan, 2008).

3. PLAN TOPICS

Mental and Behavioral Health Assistance ●●○

Disasters are emotionally traumatic for many survivors. Caring for the mental and behavioral health and well-being of residents could include providing special services through county and non-governmental programs as well as ensuring that mental health providers have the resources they need to deal with the influx of patients. Many people are not going to seek counseling, so programs may need to be readily available in temporary housing communities and other long-term recovery assistance centers.

There is evidence that demand—or at least clinical need—for mental health services exceeds the available supply in many parts of the country, even without surges in need following a disaster. Population-level implementation would almost certainly exceed local provider capacity. In the U.S. public sector, mental health providers are primarily oriented to persons with severe and persistent mental illness such as schizophrenia, while private sector systems more familiar with disorders like depression that are common after disasters, have limited experience caring for disadvantaged or displaced populations, and often have little mandate to do so. In addition, there is generally weak infrastructure for reliably delivering the types of psychotherapy known to be effective in post-disaster situations (Schoenbaum et al., 2009, pgs. 911-912).



Photo (left): Audubon Park Elementary. FEMA-funded volunteers stage puppet shows for children. Puppet therapy is one technique for dealing with the trauma of hurricanes. FEMA Photo/Ed Edahl (May 25, 2005, Orlando, Florida).

Although a disaster may leave most people physically unharmed, it affects everyone who experiences it. During a disaster, both individuals and communities experience a range of emotional highs and lows that typically are associated with the phases of disaster recovery. Communities may move from a sense of heroism and altruism to a sense of hopelessness and abandonment, all in a short period of time. A key step to recovery is regaining a sense of control. Supportive, educational, face-to-face interventions with individuals and communities can empower survivors and support long-term recovery.

Adapted from the FEMA Crisis Counseling Assistance & Training Program Guidance Version 1.1.

Psychological Effects

The psychological effects of disasters can sometimes disrupt residents' lives as much as the physical damage. Following Hurricanes Frances and Jeanne in 2004, Treasure Coast residents initially suffered from the shock of experiencing two disasters within a month. During short-term recovery, healthcare professionals were engaged in the practical aspects of recovery. Many months later, however, psychologists were seeing patients still suffering from panic attacks, sleeplessness, and other symptoms. Schools were also dealing with problems with children, who can often have a difficult time processing their fears. In some cases, the post-traumatic stress disorder was so severe that it permanently changed communities. Some Indian River County residents never moved back to their 55-plus residential park that was severely damaged, feeling too scared of the threat of hurricane to buy another home in the area.

Copsey, 2009

Medical Personnel Retention and Recruitment ●●○

In many communities, attracting sufficient qualified medical personnel is an issue even during pre-disaster periods, and this trend can be exacerbated in the post-disaster environment, especially during long-term redevelopment after the initial influx of emergency medical professionals has dissipated. Communities may also have a difficult time keeping health care facilities open, especially neighborhood doctor offices and clinics, if medical professionals have not returned to the area. Recruitment programs that can be used post-disaster may need to target a range of positions, including but not limited to providers, nursing, mental health, laboratory, radiology, pharmacy, administrative, financial, and facility as well as any other specialized or general occupations. Long-term, the availability of local medical professionals is tied to the continuation of medical education and training in a post-disaster environment, ensuring a presence of qualified medical professionals entering the job force in years to come. National health and medical organizations such as the Medical Reserve Corps can provide assistance, volunteers, and resources to help prevent lapses in education programs after a disaster.



Photo (above left): Members of the Massachusetts 2, Disaster Medical Assistance Teams work in the Command Center set up at Sacred Heart Hospital. The team is at the hospital to help with the increase in patients at the hospital due to Hurricane Dennis. FEMA Photo/Jocelyn Augustino (July 14, 2005, Pensacola, Florida).



Photo (above right): Florida Disaster Medical Assistance Team member, Dr. Lisa Dewitt, assists patients in Orange, TX in response to Hurricane Rita. Photo courtesy of John Caprio.

Physicians face the temptation of relocating after a major disaster, especially when their patients vanish overnight. Many Florida hospitals that have survived big storms say it's imperative to promptly provide financial support to physicians. Some say they footed the bill for temporary physician offices for as long as two years following hurricanes (Colias, 2005).

To assist and attempt to retain staff after Hurricanes Francis and Jeanne in September 2004, Health First's Cape Canaveral Hospital in Cocoa Beach put tarps over more than 200 employees' houses, provided shelter for displaced staff, offered dry locations to store furniture to prevent water damage, distributed cash advances, and provided free 24-hour childcare (Cassidy, 2004).

3. PLAN TOPICS

A healthy community is one that continuously creates and improves both its physical and social environments, helping people to support one another in aspects of daily life and develop individually to their fullest potential. Healthy places are those designed and built to improve the quality of life for all people who live, work, worship, learn, and play within their borders – where every person is free to make choices amid a variety of healthy, available, accessible, and affordable options (Centers for Disease Control, 2009).



Health-Related Pollution and Environmental Justice ●●●

A major contributor to post-disaster health issues that may not be obvious or thought to be a health hazard immediately is mold, which can quickly grow to unhealthy levels in a home, business, or public building that has had flood damage. Other environmental health concerns include contact with hazardous water or soil; disposing of household hazardous waste; addressing problems with private water wells; and poor air quality due to demolition, construction dust, debris reduction, or other causes. It is often low-income housing and neighborhoods that are impacted the worst by health-related problems, and these areas are often the slowest to receive immediate attention. According to the U.S. Environmental Protection Agency, “environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies... It will be achieved when everyone enjoys the same degree of protection from environmental and health hazards and equal access to the decision-making process to have a healthy environment in which to live, learn, and work” (U.S. Environmental Protection Agency, 2010). Environmental justice can become a significant issue post-disaster in regards to the clean-up of health-related pollution. In order to stop unhealthy conditions before they can begin, special consideration must be given to planning for timely cleanup and remediation, especially among the economically disadvantaged.

Quality of Life Factors ●●●

Quality of life factors encompass a breadth of topics that vary widely in every community. Some examples include the restoration of recreation and cultural activities, community wellness programs, neighborhoods, after school activities, child care programs, and other features and amenities that provide community residents with a sense of well-being and make a community a desirable place to live. Restoring quality of life after a disaster is an imperative step to attract displaced residents, eventually revive population growth, and rebuild social networks.

After a disaster, communities have the opportunity to incorporate healthy community principles into redevelopment plans as opposed to rebuilding previously unhealthy infrastructure that limits opportunities for daily exercise, creates inefficiencies, and challenges maximizing the health of its residents. The U.S. Department of Health and Human Services defines a healthy community as one that embraces the belief that health is more than merely an absence of disease; a healthy community includes those elements that enable people to maintain a high quality of life and productivity. For example, a healthy community offers access to healthcare services that focus on both treatment and prevention for all members of the community; a healthy community is safe; a healthy community has infrastructure, including roads, schools, playgrounds, and other services to meet the needs of the people in that community; and a healthy community has a healthy and safe environment (U.S. Department of Health and Human Services, 2001).

Photo (left): The excessive moisture and water from Hurricanes Frances and Jeanne promoted rapid growth of mold and mildew in homes throughout Florida. Mold growth presents potential health hazards like allergic reactions, asthma, and other respiratory complaints. Thousands of residents could not continue to live in their homes because mold growth made the homes unsafe and uninhabitable. FEMA Photo/Alonzo E. Scott, Jr. (November 16, 2004, Ft. Pierce, Florida).

ENVIRONMENT

Coastal and inland ecosystems throughout Florida provide numerous ecological services and contribute to the quality of life enjoyed by residents and tourists. Natural areas such as waterways, woodlands, beaches, dunes, and wetlands protect communities from flooding, buffer coasts from storm surge, filter environmental pollutants, and provide prime habitat for a variety of species. These natural areas also support a host of industrial, commercial, and recreational activities that are essential to the economic livelihood of the State. Major events such as a coastal storm, catastrophic wildfire, or storm surge can damage these ecosystems. The risk of pollution, debris accumulation, and other disaster impacts is a threat to wildlife, public safety, and activities dependent on natural areas. Restoring the natural environment in the aftermath of a disaster is a key component of ensuring a community's long-term recovery.

This topic will be of considerable importance to communities who:

- Are vulnerable to environmental pollutants from seaports or other waterway debris;
- Have a significant concentration of urban forests, parklands, or other conservation areas;
- Support industries such as fishing, ecotourism, agriculture, and forestry; or
- Rely on wetlands, dunes, or beaches for flood protection and tourism.



Photo (left): A stake shows the previous extent of the property that was eroded away by the storm surge and wave action of Hurricane Jeanne. (Floridana Beach, FL, October 26, 2004 FEMA Photo/Mark Wolfe).

Environmental Compliance

All applicants seeking federal reimbursement are required to comply with the National Environmental Policy Act (NEPA), as well as all other federal, state and local environmental laws and regulations. The Florida Division of Emergency Management has environmental specialists available to provide technical assistance in meeting these requirements.

Plans and Elements/Topics to Review When Addressing Environmental Issues:

- Comprehensive Plan
- Coastal Management
- Conservation
- Recreation and Open Space
- Future Land Use
- Sanitary Sewer
- Solid Waster
- Storm Water
- Potable Water
- Aquifer Recharge

Local Mitigation Strategy

- Hazard Analysis
- Vulnerability and Risk Assessment

Comprehensive Emergency Management Plan

- ESF 10: Hazardous Materials and Contamination

Local/Regional Plans

- Water or Air Quality
- Sea Level Rise
- Wetlands
- Beach Management
- Urban Forests
- Habitat Conservation/Sensitive Lands

A VARIETY OF AGENCIES AND ORGANIZATIONS WILL PLAY A ROLE IN POST-DISASTER PLANNING FOR THE ENVIRONMENT

State/Regional Agencies and Organizations

- Florida Department of Community Affairs
- Florida Department of Environmental Protection
- Florida Division of Emergency Management
- Florida Division of Forestry
- Florida Fish and Wildlife Conservation Commission
- Florida Water Management Districts

Regional Branches of Federal Agencies

- National Marine Fisheries Service
- U.S Army Corps of Engineers, Jacksonville District
- U.S. Coast Guard, Florida Sectors
- U.S. Environmental Protection Agency, Region 4
- U.S. Fish and Wildlife, Region 4

Local Government Departments

- Emergency Management
- Environmental Protection
- Health and Public Safety
- Parks and Recreation, Conservation
- Planning/ Growth Management/ Community Development
- Public Works Department
- Social Services Agency

Other Organizations

- Local Mitigation Strategy Working Group
- Port Authorities

Beach and Dune Restoration ●○○

Beach and dune systems provide natural protection from coastal flooding, particularly on barrier islands, among other economic and ecological services such as providing nesting grounds for endangered sea turtles. Storm surge and wave action can cause extensive erosion to beach systems, especially those that are among the 59% of the State's beaches already experiencing erosion. Although erosion is a natural process to these dynamic systems, heavy shoreline development and the construction of navigation inlets have impaired their natural ability to recover. Acceleration of sea level rise over the coming years will exacerbate erosion, increasing the vulnerability of coastal development and damaging the environmental benefits of the beaches and dunes. Without a recovery strategy, tourism, recreation, and the protection that the beach and dunes provide coastal development will also be severely impacted. Coastal communities' Long-Term Beach Management Plans should be integrated into the PDRP to address this issue. Post-disaster redevelopment policies should emphasize non-structural methods of mitigating beach erosion, and public outreach should be conducted to discourage post-disaster demands for emergency armoring that can result in long-term negative impacts. The Coastal Construction Control Line (CCCL) Program is also an essential element of enforcing beach and dune protection after a disaster.

To receive funding for beach renourishment projects under FEMA's Public Assistance Program, a beach must be improved and routinely maintained – meaning that the beach is designed and constructed by placement of imported sand of a proper grain size and a maintenance program is established to preserve the original design. Unimproved or natural beaches are not eligible for funding for renourishment, but may be eligible for emergency placement of sand if necessary to protect improved property. Creative partnerships can also be forged between local, state, and other federal entities to secure funding for beach renourishment projects. For more information see FEMA Disaster Assistance Policy 9580.8, Eligible Sand Placement on Public Beaches (www.fema.gov/pdf/government/grant/pa/9580_8.pdf).



Photo (left): A bulldozer works to repair the sand dune on Pensacola Beach. The dune was destroyed by Hurricane Ivan. FEMA Photo/Mark Wolfe (December 4, 2004, Pensacola Beach, Florida).

Brevard County is a best practice example of Coastal Management Element policies that use the CCCL to protect natural beaches and dunes. The County Commission also funded a recent study on how it could use a Municipal Services Benefit Unit, or special taxing district, to fund dune restoration, beach nourishment, and oceanfront acquisition shore protection options for its southern beaches. See **Resources** for more information on beach management tools and best practices.

Coastal Barrier Resources Act

A potential issue for beach restoration projects is limitation of federal funding. The Coastal Barrier Resources Act (CBRA) was established to encourage conservation of barrier islands by restricting federal expenditures within designated units. Planners should consider these restrictions when thinking about implementing beach restoration projects in CBRA zones.

3. PLAN TOPICS

When Hurricane Andrew hit Florida in 1992, concentrations of ammonia, dissolved phosphate, and dissolved organic carbon increased in waterways. Phytoplankton blooms resulted, and dissolved oxygen decreased. This, along with contaminants from runoff and hydrocarbon spills, resulted in large fish kills off the southeastern coast of Florida.

Guntenspurgen, 2005



Environmental Contamination ●○○○

High winds, storm surge, and flooding can cause spills, leaks, or discharges of toxic chemicals into the environment. Seaports that handle hazardous material cargos, such as petroleum-based products, chemicals, or other environmental pollutants, are particularly vulnerable given their coastal location. Other sources of environmental pollution include wastewater treatment facilities and runoff from inland agricultural areas that process heavy fertilizer loads and gasoline from vehicles or boats. Contamination can lead to the degradation of water, wetlands, soil, and habitats. It also poses a significant public health threat. Certain disaster circumstances may dictate the need to conduct sampling to test contamination levels prior to permitting occupancy by residents. Site contamination often requires a lengthy and costly clean-up process and may impede long-term redevelopment efforts. Existing brownfield and hazardous material programs may be able to be adapted to this potential post-disaster scenario.

PILOT PDRP ADDRESSES CONTAMINATION ISSUE

The Port of Tampa and Port Manatee are two major seaport facilities in Tampa Bay. These ports handle petroleum products and hazardous commodities and are the largest potential areas for oil and hazardous materials spill in the Tampa Bay Region. County and regional plans are in place to address immediate response and clean-up operations (e.g., CEMP and U.S. Coast Guard's Area Contingency Plan); however, long-term environmental restoration is not addressed in these plans. Hillsborough County's Environmental Restoration TAC developed pre- and post-disaster actions to ensure a long-term environmental restoration strategy.

Specific actions aim to:

- Initiate inter-county collaboration to discuss recovery from a "toxic soup" resulting from a hazardous materials spill mixing with storm surge;
- Pre-approve contractors specialized in hazardous materials testing, clean up, and disposal; and
- Explore relocating facilities to reduce risk of pollution.

Photo (left): A sign announces flooded conditions on the St. John's River and prohibits most vessels from entering due to polluted water. Tropical Storm Fay dumped 20 inches of water along the coast and it drained to this location. FEMA Public Assistance funds may help local and state government repair damaged public works. FEMA Photo/George Armstrong (August 28, 2008, Geneva, Florida).

Environmental and Historic Review of Temporary Sites ●○○○

After a major disaster, sites are often needed for temporary housing, businesses, and debris management as well as other recovery staging activities. These temporary uses will leave varying degrees of long-term impacts on the sites depending on the precautions taken. As a result of recent disasters, procedures and guidance have been increasing on methods to prevent environmental and historic degradation from recovery operations. For instance, the Florida Department of Environmental Protection and the State Historic Preservation Office must approve sites and any ground-disturbing activity. The Florida Division of Emergency Management's *Florida Greenbook: Environmental and Historic Preservation Compliance* can provide stakeholders with the foundation to determine if any actions related to this issue need to be incorporated into the Plan.

Natural Land and Habitat Restoration ●●○○

Natural, undeveloped lands are vital to Florida communities. Tidal wetlands, marshes, swamps, and mangroves protect against the inundation of flood waters and act as natural filtration system for pollutants and excess nutrients. These natural ecosystems as well as coral reefs, hardwood hammocks, pinelands, and scrubs serve as vital habitats for plants and animals, including endangered and threatened species. These lands also provide passive recreation and environmental education opportunities for the community. A natural disaster can devastate these areas, jeopardizing fragile ecosystems and the species that depend on them. Habitat areas at highest risk to disaster impacts include coastal high hazard areas, areas located near potential sources of debris or contamination, areas prone to flooding, and areas with a high risk for severe wildfires. Accelerated sea level rise further threatens coastal habitats through inundation, increased salinity levels, and increased exposure to storm surge. Programs to protect, re-establish, and restore critical habitats will be essential to their long-term recovery.

There are programs through the Florida Department of Environmental Protection's Northwest District Ecosystem Restoration Section for restoration of coastal habitats. Funding comes from various grants obtained from agencies such as the U.S. Fish and Wildlife Service, NOAA, and the Northwest Florida Water Management District (www.dep.state.fl.us/northwest/Ecosys/section/restoration.htm).

The Bill Baggs Cape Florida State Park on Key Biscayne was severely damaged during Hurricane Andrew in August 1992. The event, which left the Park inaccessible to the public for a year, leveled most of the vegetation, damaged infrastructure, and exposed archeological sites (Florida Department of Environmental Protection, 2005). After the storm, the Florida Department of Environmental Protection, Division of Parks and Recreation developed a plan to restore the natural vegetation types, including beach dune, coastal strand, maritime hammock, interior isolated freshwater wetlands, and a large tract of tidally connected mangrove wetland in the northwest portion of the Park (Milano, 1999). Since 1992, over \$7,000,000 of Federal, State, and private grants have been spent and tens of thousands of hours have been donated by local and out-of-state volunteers to restore the Park. Over 300,000 native plants have been installed, and many more have self-propagated. More than 160 species of bird and 29 kinds of butterflies have been recorded in the Park.

Florida Department of Environmental Protection, 2005; Milano, 1999

Green Rebuilding ●●●

According to the U.S. Environmental Protection Agency, “green building is the practice of creating structures and using processes that are environmentally responsible and resource-efficient throughout a building’s life-cycle from siting to design, construction, operation, maintenance, renovation and deconstruction. This practice expands and complements the classical building design concerns of economy, utility, durability, and comfort (2009).” Green building encompasses measures to make homes and businesses more energy and water efficient, utilize renewable energy and sustainable building materials and construction, and improve indoor air quality. The need for large-scale reconstruction in a community post-disaster provides an opportunity to make strides in achieving goals of sustainability and incorporating green and healthy design components into a large number of both private and public rebuilding projects. Communities can consider offering incentives after a disaster such as fast-tracking major redevelopment projects that meet green standards. Clean technology, which includes environmentally-friendly and alternative energy industries, is one of the leading industry clusters for recruitment in Florida (discussed on **pages 69-70**). Green construction projects would be a way to create employment and grow this field in Florida.

A compilation of the State of Florida’s incentives for renewables and efficiency can be found at www.dsireusa.org.

After Hurricane Charley, Innovative Development of Florida, the Housing Corporation of Charlotte County, and the City of Punta Gorda partnered to construct three affordable homes that were disaster-resistant, green, and energy efficient. The three houses were built to Innovative Development of Florida building standards, which means each home is engineered to withstand 160/mph winds, earned the Fortified...for safer living® designation from the Institute for Business & Home Safety, and meets the Florida Green Building Coalition and Energy Star New Home Program standards.



Photo (above left): Developers of the Alys Beach Community, in Destin, FL, began building with an emphasis on sustainable development. Homes were built to meet both the Florida Green Building Coalition’s Green Home Standard and the community was one of the first to meet the Institute for Business and Home Safety “Fortified...for safer living” standard which exceeds required building codes. Homes are designed to conserve energy, use sustainable materials and even withstand winds of up to 160 miles per hour. Charles Walton IV / Styling: Leigh Anne Montgomery, Todd Childs.

Photo (above right): Alys Beach homes incorporate photovoltaic solar panels to offset energy costs. Source: EcoHome Magazine.

Parks and Urban Forest Restoration



A major wind, fire, or storm surge event can severely damage parks and urban forests. A significant loss of mature trees has economic implications, public health and safety concerns, and environmental impacts – urban trees and forests help reduce energy consumption, filter pollutants from the air and water, recharge aquifers, and provide habitats for many species. The restoration of parks and urban forests will affect the quality of life of residents and can be a symbol of recovery and return to normalcy. Some communities will need to restore parks and urban forests to attract tourists as soon as the community is ready to bring them back.

During the short-term post-disaster recovery period, activities related to tree restoration include a damage assessment, immediate treatment, clean up, and debris removal. Professional foresters, debris removal contractors, and recovery crews will need to coordinate their activities. For example, identifying salvageable trees by professional teams should be performed prior to clean up to avoid unnecessary removal of trees. Vegetation distress from uprooting or saltwater exposure will also require quick treatment to avoid further losses.

Long-term redevelopment efforts require professional care and citizen education to address tree replacement selection, proper re-planting methods, pruning, and maintenance. Re-planting trees quickly without a broader strategy can increase vulnerability to the next storm and produce an even-aged stand of trees that lacks visual variety. Communities may have local groups such as 4-H or gardening clubs that have the expertise and interest to become involved in activities.



Photo (left): Big Lagoon State Park Manager escorting FEMA Juile Bradford through the storm damaged park. Much of the 65 acre park was flooded and littered with debris from surrounding housing. The park is applying for a FEMA Public Assistance Grant for clean-up funds. FEMA Photo/Leif Skoogfors (June 24, 2005, Chanticleer, Florida).



4. Implementation Considerations

The Post-Disaster Redevelopment Plan is designed to be implemented during all disaster phases as introduced in **Chapter 1**. Understanding implementation requirements is critical to creating a Plan that is viable for guiding post-disaster redevelopment and this chapter provides a foundation for the planning team and stakeholders to refer to during the initial planning process. Post-disaster redevelopment is a dynamic and ongoing process, and the Plan will not be effective if viewed as an end product (Berke and Beatley, 1997). Developing realistic implementation roles and procedures should be a major task during the planning process (see **Chapter 2**).

Specific implementation will vary with each community and there is still much research to be done on best practices in this area. There are, however, basic steps to Plan implementation, as presented in Figure 14, that should be considered when drafting the Plan. This chapter is organized by this implementation cycle, starting with pre-disaster implementation.

Photo (opposite page): Workers continue to remove sand and debris left on Pensacola Beach in the wake of Hurricane Ivan. FEMA Photo/Mark Wolfe (December 4, 2004, Pensacola Beach, Florida).

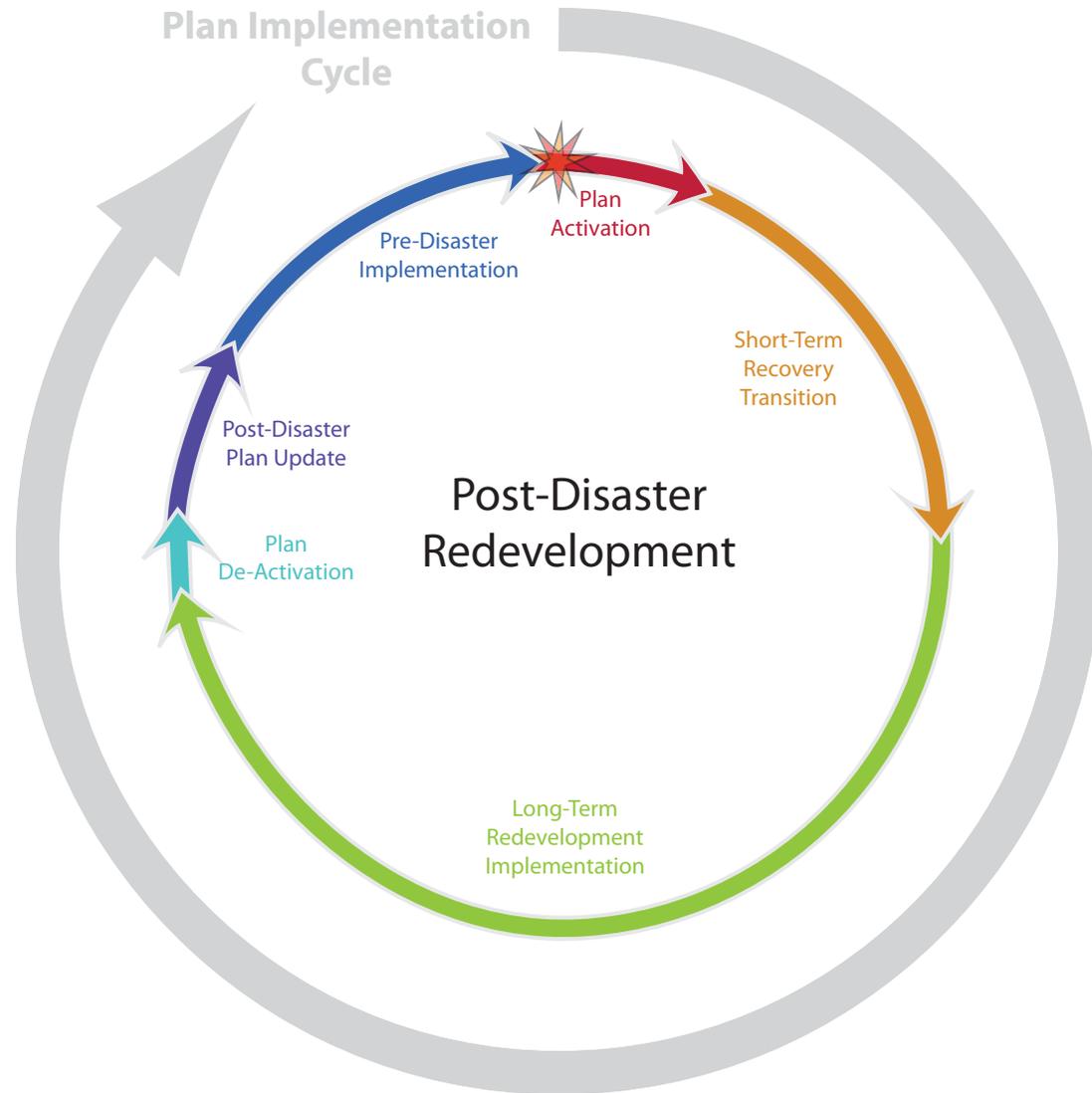


Figure 14. Plan Implementation Steps.

Implementation of the PDRP occurs throughout the disaster cycle phases (see **page 11** in **Chapter 1**). The type of implementation required depends on what phase of the disaster cycle is occurring.

PRE-DISASTER IMPLEMENTATION

One of the purposes of the PDRP is to prepare the community for more successful disaster recovery and redevelopment than could be achieved without pre-planning. Ongoing pre-disaster preparations build disaster resiliency that will result in more rapid and effective redevelopment.

Implementing Pre-Disaster Actions

Pre-disaster implementation actions include adopting necessary redevelopment policies and procedures, conducting additional studies, and training staff and stakeholders. More specific examples of pre-disaster actions are included in **Chapter 3**. Public outreach is also an important pre-disaster action and is discussed in detail later in this chapter.

For pre-disaster actions, the moment of truth comes during implementation. Plan adoption is a great accomplishment and many communities even build a short break into their action timeline to celebrate this milestone and re-energize their staff. However, plan adoption is only the starting point for the real work that will build community resiliency. Communities may face difficulties in finding staff time, funding, or both to get started on implementing its pre-disaster actions; especially with tight local government budgets and other immediate community concerns competing for attention. To ensure these pre-disaster actions do not fall through the cracks, the PDRP Coordinator needs to press for implementation to begin as scheduled in the Plan, whenever possible. Two other methods that can increase implementation accountability are: the inclusion of annual reporting procedures to local elected officials and the public in the Plan (described in more detail on **page 104**) and the securing of grants for implementing pre-disaster actions so that there are particular tasks that must be met by a specific deadline (see the discussion on **Financing Implementation** later in this chapter).

Plan Maintenance

The PDRP is a continually evolving plan and many components will need ongoing maintenance for the community to be best prepared when a disaster occurs. The Plan should be maintained on an annual basis, with a major update every 5 years. Annual assessment and reporting should occur prior to the beginning of the hurricane season each year. Annual monitoring of implementation progress will provide local governments with an opportunity to address the necessary resources for implementation during departmental budget requests. Local governments can combine a PDRP status report with the annual LMS agenda item presented to local elected officials.

The Plan's 5-year major update should be planned to coincide with the LMS update for efficiency of staff and stakeholder time by holding joint meetings and to create synergy between the plans. During the major update, the Plan components are reviewed and edited using stakeholder input much like the original planning process. It should also take into consideration the updates that have or will be made to the CEMP as well as the LMS. The vulnerability analyses used for the PDRP, CEMP, and LMS should all be consistent as should the recovery section of the CEMP with the PDRP. The Plan's major update should also be reviewed in the local comprehensive plan's EAR process so that the plans are consistent. It also ensures that policy recommendations from the PDRP

An evaluation of the effectiveness of the City of Los Angeles Recovery and Reconstruction Plan in its use after the Northridge Earthquake found that the lists of pre-event actions were more valuable than lists of post-event actions by establishing procedures, agreements, knowledge of financing requirements, information systems, roles and contacts in other agencies that were then able to be used after the earthquake.

Spangle, 1997

Efficiencies in pre-disaster implementation can be achieved by connecting the Plan's pre-disaster implementation with that of the LMS where appropriate. The membership of the PDRP Stakeholder Group and LMS Working Group should naturally overlap. This overlap provides opportunities to co-schedule regular meetings of the two planning groups and combine other plan implementation activities, such as public outreach, where the plans complement each other.

4. IMPLEMENTATION CONSIDERATIONS

ANNUAL MONITORING

The following components should be addressed on an annual basis:

- Review stakeholder membership and update as needed.
- Document actions that have been completed and remove them from Plan action lists.
- Include new actions as recommended by the Stakeholder Group.
- Determine if priorities need readjusting and review the actions previously scheduled to be implemented over the next year. Adjust implementation timeframe of actions accordingly.
- Seek resources and funding for actions scheduled to be implemented in the next 2 years.
- PDRP Coordinator will compile a brief report of accomplishments on behalf of the Stakeholder Group for presentation to the Board of County Commissioners. Municipal PDRP liaisons may also want to present this to their city councils.

5-YEAR MAJOR PLAN UPDATE STEPS

- Research to determine if there is new guidance on Post-Disaster Redevelopment planning or new lessons learned from recent disasters in other communities that could be used to enhance the Plan.
- Update vulnerability analysis if any new data are available*.
- Update institutional capacity and plans assessments*.
- Research and update potential funding sources*.
- Review and revise issues, if necessary.
- Reprioritize issues based on current assessments.
- Update actions and add more if applicable.
- Document the planning process, including public participation*.

* Items that can be updated for use in both the PDRP and LMS.

process that have not been made during annual amendments can be considered for inclusion within the local comprehensive plan during adoption of the EAR-based amendments.

Exercising the Plan

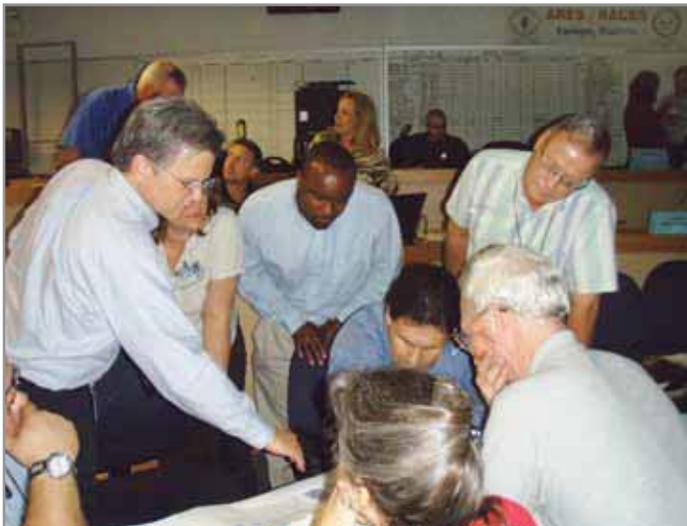
An important component of pre-disaster implementation involves exercising the Plan and training staff for their respective post-disaster roles. The disaster recovery literature clearly demonstrates that communities that are better prepared to recover more quickly. The roles and responsibilities that many will have to assume after a disaster may be different from their usual jobs and will likely require special knowledge of disaster recovery resources. An annual exercise coupled with specific job training will help keep the Plan familiar to those who will need to implement it during the stressful post-disaster environment. The goal of those responsible for long-term redevelopment implementation should be to know their particular role in the Plan so well that they only need to use the planning document as a checklist. In addition, Standard Operating Procedures for disaster roles can be drafted after exercising the Plan to document the responsibilities as exercised for continuity as staff and other team members change.

The annual exercise should be held in conjunction with the county's annual hurricane preparedness exercises. This will allow participants to further explore the Post-Disaster Redevelopment Plan's role in coordinating with the Emergency Operations Center during short-term recovery, as well as, procedures for transitioning to long-term redevelopment implementation. The exercise should focus on determining whether the post-disaster actions included in the Plan are adequate to cover all of the predicted needs. The after-action report from the exercise should identify gaps so that staff and stakeholders can develop actions to eliminate these gaps as part

Exercising the plan is essential. All staff members should ideally be aware of their department's role in recovery and how their job responsibilities will change (Spangle 1997).

Photo (far left): Hillsborough County has been holding an annual exercise for its Redevelopment Ordinance for the last several years. In 2009, the County held a tabletop exercise for its draft PDRP in conjunction with the annual hurricane training exercise held by the Emergency Operations Center. Using a Category 4 hurricane as the scenario, the exercise participants considered their newly developed Plan issues and actions in relation to a timeline of recovery.

Photo (left): In its 2010 annual hurricane exercise, Manatee County held a special session for long-term recovery after the customary response and short-term exercise. During both the short-term and long-term portions of the exercise, they debuted their new Recovery Operations Center functions to exercise how they would coordinate with the ESFs.



4. IMPLEMENTATION CONSIDERATIONS

of the pre-disaster implementation activities. The exercise should also include the sequencing of events to determine if resources will be adequate for all of the actions that will need to be implemented simultaneously. Another component of the annual exercise can be to assess consistency with the LMS. This could include integrating applicable Post-Disaster Redevelopment Plan actions as projects on the LMS Project List and ensuring that priorities for redevelopment are also priorities for pre-disaster mitigation initiatives.

POST-DISASTER IMPLEMENTATION

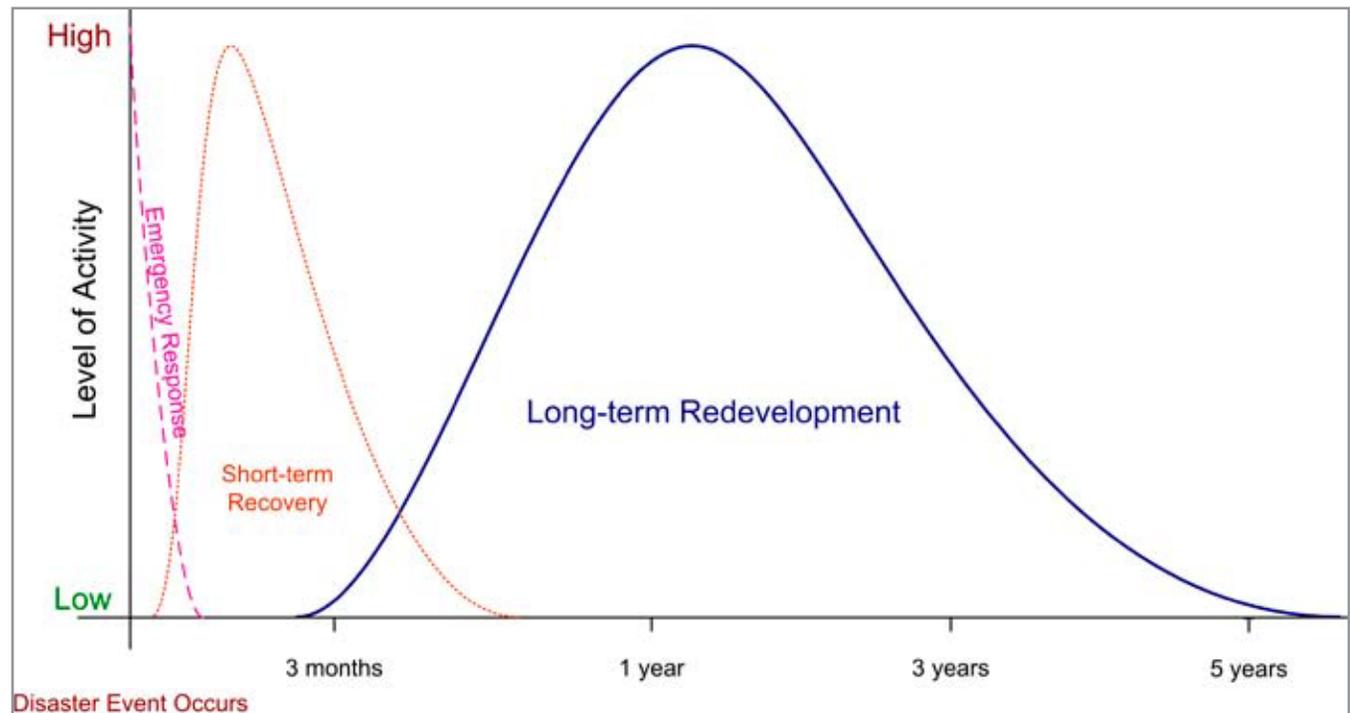
To be effective in post-disaster implementation, the Plan must build in flexibility and be adaptable to the dynamic and changing conditions presented by the recovery and redevelopment process (Berke and Campanella, 2006). **Figure 15** demonstrates the fact that the post-disaster timeline is unknown before the disaster and will only be able to be estimated and continually updated after the disaster.

Post-Disaster Activation

After a disaster occurs, a decision will need to be made to activate the post-disaster implementation procedures and actions of the Plan, basically switching the Plan functions from the pre-disaster to post-disaster phase

Figure 15. Probable Post-Disaster Phased Activity for a Major Disaster Scenario.

The length of time of the disaster phases will vary with each disaster. This may be due to the differences in the severity of impacts or the circumstances of the community at the time of the disaster. For instance, during an economic recession, recovery from a physical disaster would take longer than if the economy was very strong at the time of the disaster. In addition, the phases overlap each other, and there is no clear distinction when one phase ends and another begins. This is especially the case when one is in the midst of recovery efforts.



and giving staff permission to proceed with implementing post-disaster actions. Full activation of the Plan depends on the degree of damages and whether long-term redevelopment will be necessary. The decision to activate the Plan can be tied to preliminary damage assessments and the disaster declaration process. Several of the communities who have developed PDRPs have placed the authority to activate the Plan with the local government's Executive Policy Group. The decision to activate the Plan should be made as soon as possible after immediate response and life-saving efforts have ended so that staff and stakeholders responsible for post-disaster implementation can be contacted and begin preparations.

Post-Disaster Decision-Making Authority

During the initial planning process, it is essential to determine the details of the post-disaster decision making authority and clearly document it in the adopted Plan. There will be new implementation tasks after a disaster that were not previously anticipated and approved. It will depend on the jurisdiction, the phase of the disaster, and the impact of the implementation action whether traditional approval through the local government elected body is necessary. During the emergency response phase, there are special authorities given to local government administrators and emergency management staff due to the importance of timely decision-making. The Incident Command System employed during emergency operations provides a clear and standardized organization that allows for accountability in implementation and clear channels of authority. Organization and authority for the PDRP is less clear cut since Plan implementation spans many phases of the disaster, including those time periods where more deliberate and publically open decision-making is preferred. Most of the pilot communities chose to use a committee or task force organization to serve as an advisory body to the Board of County Commissioners or municipal councils, leaving ultimate approval of implementation actions to the official elected body. The post-disaster structure of these committees closely aligned with the pre-disaster planning process. Any decisions that must be made during the emergency response and short-term recovery period can be coordinated through the Emergency Operations Center as described in the **Coordination and Communication** section of this chapter on **page 113**.

Post-Disaster Organization and Roles

It is recommended that the post-disaster redevelopment organization responsible for Plan implementation be similar to the stakeholder planning body that was formed to draft the plan (see **Chapter 2**) and/or the local government's typical department organization. The implementation chapter of most of the pilot communities' Plans specifies a redevelopment executive committee or task force structure supported by subcommittees specific to various redevelopment topics to be used during post-disaster redevelopment. This is not the only organizational structure that can be used, however, and the type of organization created will probably be directly related to who in the community is leading Plan development and the chosen approach to Plan development as discussed on **pages 10-15**. Some communities are beginning to develop Recovery Functions and other structures within the Emergency Operations Center to complement the ESFs and be integrated into the Recovery Annex of the CEMP. See **Figure 16** for the Monroe County Recovery Functions. This could be an option for organization structure just during the short-term recovery phase or for the entire duration of post-disaster implementation of the Plan.

In their Plans, Palm Beach and Nassau Counties included a table of minor, major, and catastrophic disaster characteristics to assist decision makers in determining whether a partial or full activation of the PDRP would be warranted.

Political bodies need to be explicitly incorporated into the decision making process and this need increases with time from the disaster. Committees function well in this respect but need staff support (Spangle, 1997).

4. IMPLEMENTATION CONSIDERATIONS

Whatever the organizational structure during post-disaster implementation, there are some overarching roles that the body should be responsible for:

- Overseeing post-disaster recovery and redevelopment of the community on behalf of the Board of County Commissioners and/or municipal council.
- Ensuring redevelopment decisions are in line with the community's "vision," found in their local comprehensive plan.
- Ensuring accountability, transparency, and equitability in the recovery process.
- Monitoring progress towards meeting long-term redevelopment goals and objectives as adopted in the Plan and setting a timetable for reaching milestones. As well as, ensuring progress is clearly communicated to the public.
- Reviewing damage assessments and evaluating the need to modify or augment post-disaster actions.
- Reviewing priorities for action implementation on a regular basis during post-disaster phases to adjust as conditions warrant.
- Initiating recommendations for enactment, extension, or repeal of emergency ordinances and procedures that affect long-term redevelopment, such as moratoriums.
- Overseeing coordination between different levels of government as it relates to implementing Plan actions.
- Assigning or reassigning implementation responsibility for new and adopted actions as needed.
- Formulating new subcommittees or modifying subcommittee structure as needed for efficiency of Plan implementation.
- Ensuring resources and staffing are provided in a timely manner to accomplish Plan actions.
- Recommending budget requests and approval of grant agreements for implementation of Plan actions.

In addition to the overarching roles for a larger steering committee or task force, subcommittees that fall under this structure should be responsible for providing subject matter expertise and coordinating the implementation of individual post-disaster actions. Subcommittee structure is recommended to follow something similar to the planning topics addressed in **Chapter 3**.

Long-term recovery functions are logical extensions of normal department functions. The organization for recovery implementation is likely to mirror the jurisdiction's normal organization (Spangle, 1997).

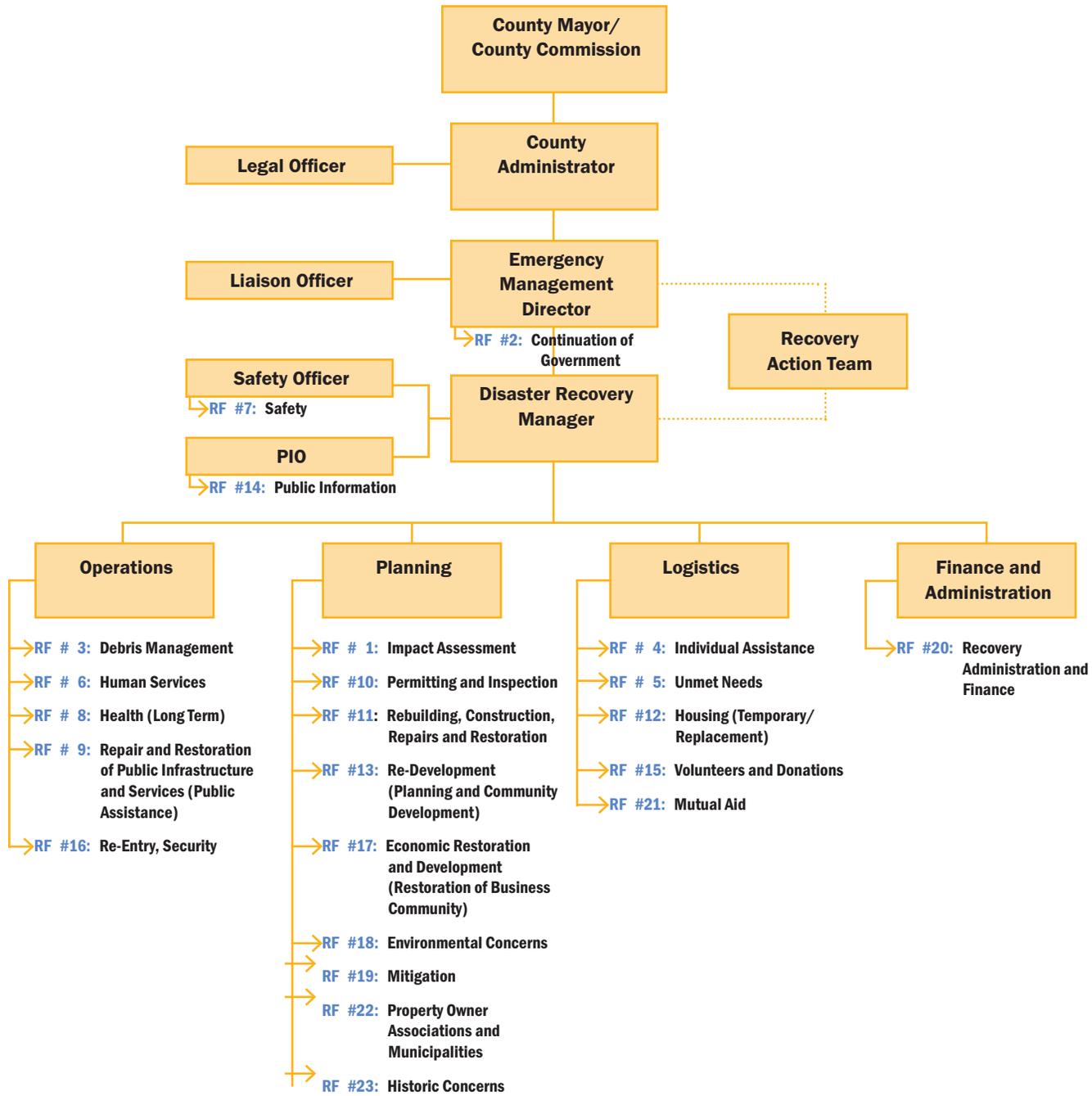


Figure 16. Example of Recovery Function Structure.

Monroe County recently adopted a new Recovery Plan which establishes 23 Recovery Functions (RFs) for implementing short-term and long-term recovery actions after a disaster. The Recovery Functions are separate from the ESFs and both are expected to work in tandem during the overlapping short-term recovery phase.

MILESTONES FOR TRANSITIONING...

There are many activities associated with the Plan that must be prepared for or considered in the early months after a disaster occurs or opportunities could be lost for long-term redevelopment. Even within the long-term redevelopment phase, there are going to be transitions that should be identified because they demonstrate progress toward a return to normalcy. The following describes the different phases and gives examples of milestones within each phase to help determine the transitions between phases.

Emergency Response

The Emergency Response period includes activities that address the immediate and short-term effects of an emergency or disaster. Response activities are contained within the ESFs of the CEMP and include immediate actions to save lives, protect property, meet basic human needs, and begin to restore water, sewer, and other essential services. During the Response period, Plan activation is the only PDRP implementation activity.

Milestones that typically mark the end of the Response period include the following:

- Major streets are cleared of debris to allow for restricted travel;
- Re-entry or at least temporary re-entry of the public to assess damage to their personal property is allowed; and
- Curfews are reduced or lifted (if a minor disaster).

Short-Term Recovery

The short-term recovery period encompasses activities such as damage assessments, public information, the transition from shelters to interim housing, utility restoration, and debris clearance. Short-term recovery does not include the redevelopment of the built environment, economic sector, or normal social networks. Emergency repairs and minor reconstruction, however, will occur during this phase as well as decisions that may affect long-term redevelopment. Long-term implications are where the Post-Disaster Redevelopment Plan plays an important role during short-term recovery. Many of the decisions that will shape how long-term redevelopment occurs must be made during this period.

A short-term recovery milestone that is important for the Plan will be the availability of the results of damage assessments. The staff and stakeholders will want to review these to assist in making decisions about how to proceed with Plan implementation. For instance, damage assessment reports will be necessary to identify candidate properties for acquisition.

...BETWEEN POST-DISASTER PHASES

Milestones that may mark the end of the short-term recovery period include the following:

- Building moratoria are lifted, at least for most areas of the county;
- Power and water are restored to all but the destroyed structures;
- Schools are reopened or temporarily relocated; and
- Most of the road network and traffic signalization is operational.

Long-Term Redevelopment

There are three major components to the long-term redevelopment period:

1. Reconstruction – The long-term process of rebuilding a community’s destroyed or damaged housing stock, commercial and industrial buildings, public facilities, and infrastructure to the same pre-disaster levels and standards.
2. Holistic Long-term Recovery – The recovery of the economy and quality of life factors within the community, including employment opportunities, social networks, cultural events, environmental quality, and educational and recreational opportunities.
3. Community Enhancement – The process of going beyond restoring all aspects of the community to normal functions by creating conditions improved over those that existed before the disaster. Community enhancement is characterized by activities such as implementing hazard mitigation projects during rebuilding, strengthening building codes, changing land use and zoning designations, improving transportation corridors, building more affordable housing, and developing new economic opportunities.

The Post-Disaster Redevelopment Plan plays an integral role in all of these components and is the lead document for guiding these efforts. Part of the communication strategy of the Plan should be to track recovery progress during the post-disaster, long-term phase (see **Post-Disaster Public Outreach** later in this chapter).

Milestones that may show a successful completion of the Long-term Redevelopment period include the following:

- Replacement of housing stock adequate for the post-disaster population such that interim housing can be removed;
- Economic indicators show unemployment has stabilized at a rate near pre-disaster levels or comparative to other similar locations;
- 70% or more of businesses have reopened and remained in business for at least 3 months or have been replaced; and
- The percent of population dependent upon disaster assistance and social assistance programs has decreased to near pre-disaster levels.

Implementing Post-Disaster Actions

While the aim is to formulate and prioritize post-disaster actions before a disaster, it is unrealistic to believe that these will be able to be applied without any post-event review and modification (Pettersen, 1999). A community must be able to adapt their post-disaster actions to the actual conditions specific to the disaster impacts (Mileti, 1999). The stakeholder group, in whatever form this may take post-disaster, will need to meet soon after the disaster event to pull together a specific post-disaster strategy using the action developed pre-disaster and additional one that will most likely be identified after the disaster. Additional planning meetings should be held on a periodic basis during implementation of the Plan, to adjust priorities and identify new actions as post-disaster conditions change and more information is acquired.

THE NATIONAL INCIDENT MANAGEMENT SYSTEM

All emergency operations plans and standard operating procedures are required to be compliant with the National Incident Management System (NIMS) to standardize emergency response operations across jurisdictions. According to the U.S. Department of Homeland Security's NIMS guidance, an emergency operations plan is usually not a mitigation plan and not a recovery plan. The emergency operations plan should however describe and provide the basis for a community's response and short-term recovery operations. The response activities generally take place initially and are designed to save lives, reduce suffering, protect property and the environment. The short-term recovery activities typically follow the response activities and are designed to stabilize the situation and set the stage for re-entry and recovery (U.S. Department of Homeland Security).

The primary function of the PDRP is to guide decisions for long-term redevelopment of the community. The intent of the Plan is not to replace or compete with emergency operations but to provide a strategy and prepare for activities that should occur once emergency operations are complete. Due to this distinction, not all of the NIMS compliance objectives are directly applicable to the Post-Disaster Redevelopment Plan. The Plan does, however, support the intent of the NIMS framework in that it should be sustainable, flexible, and scalable to meet changing incident needs and allow for integration of other resources from various partners through mutual aid agreements and/or assistance agreements (FEMA, 2008). The Plan may also include actions to create standard operating procedures or other emergency management activities such as training for the transition between the CEMP and PDRP. In these cases the output recommended by the Plan would need to be NIMS compliant.

Nassau County included a partial NIMS checklist in their Plan's appendix which included applicable objectives with language adapted to Post-Disaster Redevelopment Plan functions. See the **Resources** to obtain more information on NIMS objectives and the Nassau County PDRP.

Coordination and Communication

Long-term redevelopment issues are complex and interconnected requiring implementation over different phases of the disaster, with various local government agencies and private-sector organizations, possibly with neighboring jurisdictions, and using funding sources from outside of the community. Coordination is an integral part of post-disaster implementation of the Plan. For instance, economic recovery is interdependent on housing and infrastructure restoration and implementation of actions for these different redevelopment topics cannot be successfully accomplished without some interaction between those groups working on the different issues. If the Plan is exercised pre-disaster (see **page 105**), there will be a higher level of understanding of the interconnectedness of implementation and the roles that different groups will be playing in implementation, often simultaneously. Of course, no matter the preparedness of local staff, there are always going to be new players and outside agencies that will need additional communication to understand how they can be integrated into implementation of the many post-disaster actions. There also will be unanticipated disaster impacts and situations that require extensive coordination between PDRP subcommittees or local agency staff for which specific coordination has not been pre-planned. It is, therefore, recommended that the Plan include some basic, flexible mechanisms for internal coordination among subcommittees and/or local agencies/organizations (including private sector and nongovernmental organizations), interjurisdictional coordination, and State and Federal agency coordination.

Another type of coordination that is unique to the Plan, involves coordinating with and transitioning from emergency operations to long-term redevelopment which more closely resembles “blue skies” government functions. After a disaster, there will be some overlap between implementation of the CEMP and PDRP. Some post-disaster actions specified by the PDRP will be happening simultaneously with short-term recovery operations led by the Emergency Operations Center (see **Figure 3**). It is important that those responsible for implementing these actions during the short-term recovery phase are not entirely the same persons responsible for CEMP implementation or there will be overwhelmed personnel and the ability to overlap implementation of these different plans will be impeded. It is equally important to have coordination procedures for the overlapping implementation period and a transition process in place so that there is a clear division of labor and continuity between the CEMP and the PDRP. The Plan actions should always be focused on issues that will have long-term redevelopment implications. The transition process will depend in part on the organizational structure and actions that the local community chooses. The transition process will need to provide a way of continuing actions started during short-term recovery operations. This will require coordination across emergency operations, usually organized through the Incident Command System, and long-term operations, organized under the Post-Disaster Redevelopment Plan.

Manatee County’s PDRP stakeholder group had the opportunity to do an intensive week-long training with FEMA instructors on implementing their newly adopted Plan. From this experience, staff decided to adjust their post-disaster implementation organization to improve upon its Recovery Operations Center so it would be able to seamlessly interact with the ESFs in the Emergency Operations Center.

4. IMPLEMENTATION CONSIDERATIONS

Post-Disaster Deactivation

The length of time that activation of the Plan, or post-disaster action implementation, is needed will depend on the level of the disaster. The PDRP Coordinator should recommend Plan deactivation, or a return to pre-disaster implementation status, to their County Commission and/or municipal councils based on the stakeholder group's combined expertise and training pertaining to redevelopment and the ongoing evaluation of redevelopment progress with which they are charged. Considerations for deactivation should include whether the Plan actions for post disaster implementation or new actions determined after the event have been accomplished satisfactorily or if redevelopment has reached an acceptable level of community normalcy and can be continued without the oversight of the Plan's designated leadership.

Post-Disaster Plan Update

After the Plan has been deactivated and post-disaster implementation has officially come to a close, it should be assessed in light of lessons learned. Updating the Plan to address lessons learned from a recent disaster is an additional update process that may go above and beyond a typical annual update and may not coincide with a regularly scheduled 5-year update. During post-disaster implementation of the Plan, it will be the responsibility of staff and stakeholders to notice anything that should become a lesson learned, as well as any other gaps in information that should be included to make it a better tool for future recovery implementation. Tracking redevelopment progress through pre-determined indicators may be a useful tool for analyzing the strengths and weaknesses of the Plan. Approximately 1 year after a disaster, staff and stakeholders should meet to discuss the success and shortcomings of the Plan up to this point. Whenever recovery implementation has been satisfactorily accomplished and the Post-Disaster Redevelopment Plan is being deactivated, an "after-action" report should be compiled by the PDRP Coordinator with input from the stakeholders to fully examine the lessons learned and how those could be translated into Plan updates. This will most likely include forming new actions and re-examining issues and priorities. Plan updates should be made based on this report shortly after it has been presented to the local elected officials.

Photo (right): Reimbursement checks from FEMA Public Assistance program for debris removal following Hurricane Charley presented to Osceola County Public Safety Director, Tad Stone, County Chairman, Ken Shipley, and Kissimmee Mayor George Grant. FEMA Photo/Andrea Booher (October 7, 2004, Kissimmee, FL).



FINANCING IMPLEMENTATION

Having a plan to finance redevelopment activities as they are needed during the recovery timeline is almost as important as planning for the redevelopment activities themselves. After a disaster, there are many sources of State and Federal aid that are available as well as private donations that can be directed to the most immediate needs. Outside resources may not meet all of the community's needs, however, and many forms of assistance require some level of local matching dollars. To successfully navigate through the financing process, government officials must understand how their revenue streams may be impacted, what available funding options exist, and when to implement financing strategies.

Pre-Disaster Financing

Financing pre-disaster implementation is important to prepare for disaster recovery. Local governments may allocate staff time in their budgets for pre-disaster implementation of the Post-Disaster Redevelopment Plan. Alternatively, a local government can pursue grants to hire temporary staff or consultants to perform tasks necessary for implementing pre-disaster actions.

During pre-disaster implementation, financial staff should assess how the local government's budget may be affected by different disaster scenarios. Some revenue sources may temporarily decrease after a disaster while at the same time certain budget needs are likely to increase due to recovery and redevelopment needs. Assessing the potential for revenue shortages during the pre-disaster phase will allow for post-disaster actions to be formulated that can hopefully mitigate cash flow problems. Additionally, research on the eligibility requirements of post-disaster funding mechanisms and staff training on likely post-disaster funding procedures will save valuable time after a disaster. Finally, communities can better position themselves to receive financial assistance if they establish relationships with potential funding organizations in advance. Proactive partnering and conversations with funding organizations provides the community with an understanding of the organization's policies, timelines, funding uses and restrictions, types of aid, and recipient and project eligibility.



See **Resources** for more information on pre-disaster grant opportunities available in the PDRP Funding Companion Guide.

PRE-DISASTER FINANCING ACTIONS

- Evaluate local government revenues in conjunction with the vulnerability analysis to determine principal revenue sources (e.g., property tax, tourist development tax, impact fees, etc.) and how disruptions to these revenue streams can impact long-term redevelopment.
- Identify core services and determine how post-disaster redevelopment needs are impacted or jobs may be lost due to post-disaster revenue changes.
- Identify bond capacity to fund recovery in the case of unmet budget needs.
- Confirm mutual aid agreements with surrounding local governments and identify additional agreements to pursue.
- Research applicable government hazard mitigation grant programs, financial reserves, revenue sources, and credit and understand any restrictions or limitations.

4. IMPLEMENTATION CONSIDERATIONS

Post-Disaster Financing

One of the principal benefits of having a Post-Disaster Redevelopment Plan is to maintain local control over the entire redevelopment process. One way to maintain local control is by understanding and proactively pursuing creative financing. The Plan contains an overall strategy and specific actions/projects to be pursued so that a community can hit the ground running after a disaster as soon as it obtains funding for those projects. The pre-disaster preparations discussed in the previous section can speed the financing process along, but actually applying for funds and wading through approval processes still must occur after the disaster when the available funds can be allocated based on the actual damages. Local government and stakeholder organizations can simultaneously begin the major funding application processes as they refine estimates of damages and project costs particular to the disaster impacts so that the delay in receiving funding is minimized as much as possible. While the typical grant applications are going through the review processes, other, more creative sources of funding can be pursued, such as public-private partnerships to redevelop affordable housing or environmentally sustainable buildings.

Traditional disaster recovery funding may be easier to obtain for projects that are rebuilding to the status quo than those that are attempting to seize opportunities to build back more sustainably. Pursuing financing for projects that may not fit within the typical funding requirements might take more time, but will result in more effective community redevelopment. In certain cases, funding organizations might allow waivers of certain criteria or creative financing solutions, so it is advisable to inquire as to whether these options exist. These opportunities to do things differently can be pursued because the pre-disaster preparations will have streamlined the overall financing process and, therefore, will be less of an impact to the recovery timeline.

See **Resources** section for guidance on post-disaster funding sources.



POST-DISASTER ACTIONS FOR REDEVELOPMENT FINANCING

- Use the damage assessment and other applicable information to estimate how the local government's financial revenue sources have been impacted by the disaster.
- Project how the local government's financial revenue sources might continue to be impacted by the disaster and for how long.
- Assess the local financial reserves to determine what costs of long-term recovery can be covered while also maintaining jobs and essential services.
- Seek financial assistance from recovery programs and explore alternative revenue sources.
- Explore non-essential cost-cutting actions to prioritize budget allocations to redevelopment activities and maintaining staff and essential services.

MAJOR FEDERAL POST-DISASTER FUNDING SOURCES

Public Assistance

Public Assistance is aid to State or local governments administered by FEMA to pay part of the costs of rebuilding a community's damaged infrastructure. Generally, public assistance programs pay for 75% of the approved project costs. Public Assistance may include debris removal, emergency protective measures and public services, repair of damaged public property, loans needed by communities for essential government functions, and grants for public schools. As discussed in **Chapter 3**, Public Assistance also allows for Improved and Alternate Projects which can provide opportunities for mitigation or other redevelopment needs.

Hazard Mitigation Grant Program

The HMGP provides grants to State and local governments to implement long-term hazard mitigation measures after a major disaster declaration. Authorized under Section 404 of the Stafford Act and administered by FEMA, HMGP was created to reduce the loss of life and property due to natural disasters. The Program enables mitigation measures to be implemented during the immediate recovery from a disaster. A State or local match of 25% is required.

Community Development Block Grants

In response to disasters, Congress may appropriate additional funding for the Community Development Block Grant (CDBG) and HOME programs as Disaster Recovery Grants to rebuild the affected areas and provide crucial seed money to start the recovery process. Since CDBG Disaster Recovery assistance may fund a broad range of recovery activities, the U.S. Department of Housing and Urban Development can help communities and neighborhoods that otherwise might not recover due to limited resources.

Community Disaster Loan Program

FEMA also provides loans to jurisdictions in a designated disaster area that has suffered a substantial loss of tax and other revenue and has a demonstrated need for financial assistance to perform its governmental functions. The loans cannot exceed 25% of the local government's annual operating budget, with a maximum of \$5 million.

FEMA, 2009 and U.S. Department of Housing and Urban Development, 2009

4. IMPLEMENTATION CONSIDERATIONS



INCLUDING THE PUBLIC IN IMPLEMENTATION

The public's involvement in Plan implementation is imperative for it to succeed. A major component of any community's Plan should include strategies to educate and inform residents, business owners, and others on disaster preparedness, recovery, and long-term redevelopment. Implementing these strategies will require active engagement between government agencies and the public throughout each phase of a disaster.

In order for the Plan to remain a document reflective of the mindset of the community, the public needs to be kept involved in any decisions made during implementation. This could include the creation of policies that address a multitude of issues, including home rebuilding, property development, business recovery, and infrastructure restoration. The decision-making process should engage the general public, private-sector partners, non-governmental organizations, and government agencies both before and after a disaster.

Pre-Disaster Public Outreach

Establishing lines of communication before a disaster strikes helps create a sense of assurance throughout a community. Keeping the public informed of the county's and/or municipalities' plans and efforts to implement the PDRP before a disaster can foster security and confidence in the Plan. The community knows that the local government is taking steps to protect their community and they have the ability to give feedback. This will lessen the likelihood of surprises and controversy in the aftermath of an event.

Pre-disaster public outreach should convey an understanding of the basic components of the Plan as well as information about the long-term redevelopment procedures and programs that will become effective after a disaster. For example, if the public is informed of post-disaster permitting procedures during "blue skies," there will be less confusion and residents will need less guidance during the time-limited post-disaster phase.

Post-Disaster Public Outreach

Communication between local government and residents during the response and short-term recovery phases of a disaster is the responsibility of the local Public Information Officer, as described in the CEMP. However, as the recovery effort transitions from short- to long-term, it is important that the community avoids any gaps in communication as responsibilities shift. The involvement of local government in public outreach efforts is particularly crucial during long-term redevelopment activities since the initial surge of media covering the disaster event will have decreased.

Photo (above): Priority Redevelopment Areas (PRA) Map Exercise in Hillsborough County Public Meeting. Hillsborough County held six public meetings throughout the County to introduce the many communities of the county to the PDRP and solicit comments during the drafting phase. The meetings included a booth and handouts for each of the eight TACs, a presentation and video, and an interactive exercise to gather input on the PRA concept map. Photo courtesy of FDEM/Allison Boyd (March 19, 2009, Plant City, Florida).

In the planning process, it is important to plan for the methods, costs, and time required to keep the public informed of recovery operations (Spangle, 1997).

Measuring and Communicating Success

The development and use of an information system to track progress throughout redevelopment can be a helpful way to evaluate the implementation of the PDRP and keep the public informed of the status of redevelopment efforts. A community can measure its redevelopment progress by comparing its current status against pre-established indicators. Local government officials can work with local newspapers or other media outlets to publicize this information and periodically update the public on its progress. This will help both elected officials and the public understand short- and long-term achievement of strategic objectives related to community redevelopment.

Public Meetings and Charrettes

Holding a series of charrettes or other interactive meetings can solicit valuable public feedback and allow residents to provide input on rebuilding efforts that affect their futures. However, many communities will have already engaged in public community visioning processes prior to the disaster and all will have the comprehensive plan to guide redevelopment patterns. The decisions and goals made during these pre-disaster initiatives can be used to lead redevelopment decisions that will save both time and money in the aftermath of a disaster, yet enable local governments to ensure that redevelopment activities reflect the vision of residents. Public meetings or charrettes can then focus on specific disaster recovery projects that were not anticipated pre-disaster or for which public outreach had not yet been sought. For instance, redevelopment of a specific district may be aided by having a neighborhood charrette to gather input on the type of amenities needed in the area or the style of architecture that would be supported by local residents and business owners. Or a series of public meetings may be needed to assist homeowners in severely impacted neighborhoods in understanding build back standards and optional mitigation enhancements.

INDICATORS FOR COMMUNICATING REDEVELOPMENT PROGRESS

The Sarasota County PDRP includes a detailed communication strategy that lays-out a set of general qualitative and quantitative indicators that the community can use to evaluate post-disaster redevelopment efforts.

- Financial expenditure, including tracking outside resources received and how these funds are being used
- Performance and schedule variance from set goals or estimated timeline (that is determined after level of damage is known)
- Contracting statistics – amount of local businesses, small or minority businesses
- Public participation levels – interaction and transparency statistics
- Employment resumption metrics
- Home occupancy and rental rates
- Tourism accommodations' occupancy rates
- Standard of living measurements to judge quality of recovery
- Number of actions and projects started and accomplished, including an estimate of the population that has benefited as a result, if possible

It has been found that the success of any disaster recovery program is enhanced when the public is made aware of rebuilding priorities and kept informed of progress. A community relations effort that communicates concern and a sense of positive, real movement to [survivors], as well as to the general public, has been found to be essential.

Minnesota Department of Public Safety, 2007

Resources for Post-Disaster Public Engagement

FEMA's Federal ESF 14 for long-term recovery provides a number of technical resources that are useful for communities that are planning charrettes or engaging in other forms of public outreach post-disaster. This information can be found at www.fema.gov/rebuild/ltrcr/plan_resource.shtm.



References and Resources

One of the first tasks in the Florida Post-Disaster Redevelopment Planning Initiative was to conduct a literature review on long-term recovery and redevelopment. Numerous references were cited throughout this guidebook that tie its recommendations back to this initial research. The guidebook was also based on the pilot communities' planning process and through those projects many resources were discovered that could be useful to other communities in drafting their plans. We've included web links to the pilot Plans and other resources in this section. Finally, a list of acronyms used in the guidebook are included on the last page for quick reference.

Photo (opposite page): Damaged boat on the shore of Florida bayou. Hurricane Dennis' storm surge damaged boats and businesses in the area. FEMA Photo/Andrea Booher (July 20, 2005, Eastpoint, Florida).

References Cited

- Alesch, D.J., Arendt, L.A., & Holly, J.N. (2008). Managing For Long-Term Community Recovery in the Aftermath of Disaster. Fairfax, VA: Public Entity Risk Institute PERI.
- Alesch, D.J., Holly, J.N., Mittler, E. & Nagy R. (2001). At Risk: What Happens When Small Businesses and Not-for-Profits Encounter Natural Disasters. Fairfax, VA: Public Entity Risk Institute.
- Allen, B.L. (2007). Environmental Justice, Local Knowledge, and After-Disaster Planning in New Orleans. *Technology in Society*, 29 (153).
- Bailey, J.R., & Gould, N.C. (2004). Understanding the Vulnerability of Hospitals to Natural Disasters. Retrieved from <http://www.irmi.com/expert/articles/2004/gould12.aspx>.
- Berke, P. R., & Campanella, T. J. (2006). Planning for Post Disaster Resiliency. *The Annals of the American Academy of Political and Social Science*, 604, 192-207.
- Burby, R. J., et al. (1988). *Cities' Under Water: A Comparative Evaluation of Ten Cities' Efforts to Manage Floodplain Land Use*. Boulder, Colorado: Institute of Behavioral Science, University of Colorado.
- Campanella, T. J. (2006). Urban Resilience and the Recovery of New Orleans. *Journal of the American Planning Association*, 72(2), 141-146.
- Carney, K. (2009). Creating Jobs Over Coffee. *Planning: The Magazine of the American Planning Association*, 75 (11), 26-29.
- Cassidy, T. (2004). Disaster Recovery Plans Put to the Test. *ADVANCE for Health Information Professionals*. Retrieved from <http://www.walkersands.com/Advance-October-25-2004.htm>.
- Centers for Disease Control and Prevention. (2009). Designing and Building Healthy Places. Retrieved from <http://www.cdc.gov/healthyplaces/>.
- City of New Orleans Office of Recovery Management, (2008). Strategic Code Enforcement and Blighted Property Redevelopment. Retrieved from <http://www.cityofno.com/Portals/ImminentHealthThreatDemolitionProperties/Resources/CodeEnforcementpresentation.pdf>.

- Colias, M. (2005). The Disaster After the Disaster. Hospital Connect. Retrieved from http://www.hhnmag.com/hhnmag_app/hospitalconnect/search/article.jsp?dcrpath=HHNMAG/PubsNewsArticle/data/0510HHN_FEA_Hurricane&domain=HHNMAG.
- Comerio, M. C. (1998). *Disaster Hits Home: New Policy for Urban Housing Recovery*. University of California Press, Berkeley. 326 pages.
- Copsey, H. (2009). Five Years Later, Residents Still Feeling Effects from Hurricanes Frances, Jeanne. TCPalm.
- Cutter, S.L. & Emrich, C.T. (2006). Moral Hazards, Social Catastrophe: The Changing Face of Vulnerability Along the Hurricane Coasts. *The ANNALS of the American Academy of Political and Social Science*, Vol. 604, No. 1, 102-112.
- Department of Health and Human Services. (2001). *Healthy People in Healthy Communities*. Retrieved from <http://www.healthypeople.gov/Publications/HealthyCommunities2001/healthycom01hk.pdf>.
- Department of Homeland Security, Federal Emergency Management Agency. (2005). *Long-Term Community Recovery Planning Process: A Self-Help Guide*. Washington, D.C.
- Department of Homeland Security, Federal Emergency Management Agency. (2010). *Florida Disaster History*. Retrieved from http://www.fema.gov/news/disasters_state.fema?id=12.
- Department of Homeland Security, Federal Emergency Management Agency. (2010). FEMA photo library. Retrieved from http://www.photolibrary.fema.gov/photolibrary/photo_details.do?id=10153
- Emerald Coast Utilities Authority. (2010). *Central Water Reclamation Facility Project*. Retrieved from <http://www.ecua.org/wvtp/default.asp>.
- Dewan, Shaila. (2008). Many Children Lack Stability Long After Storm. Retrieved from http://www.nytimes.com/2008/12/05/us/05trailer.html?_r=1&hp=&adxnnl=1&adxnnlx=1228482129-eKWY6zaWrcw6ztB2JxllLQ.
- Enterprise Florida, Inc. (2010). *Enterprise Florida Inc*. Retrieved from <http://www.eflorida.com/ContentSubpageFull.aspx?id=52>.
- ESi Acquisition, Inc. (2010). *First Annual Florida State Emergency Management Awards Presented*. Herald Tribune, Retrieved from http://esi911.com/esi/index.php?option=com_content&view=article&id=319:first-annual-florida-state-emergency-management-awards-presented&catid=21:press-release&Itemid=131.
- Federal Emergency Management Agency (FEMA). (2003). *Children More Vulnerable to Disaster-Related Stress*. Retrieved from <http://www.fema.gov/news/newsrelease.fema?id=8961>.

- Federal Emergency Management Agency (FEMA). (2008). FY 2008 NIMS Compliance Objectives and Metrics for Local Governments. Retrieved from <http://www.fema.gov/library/viewRecord.do?id=3195>
- Feller, S. (2010). Creek Approves FPL Payment to Underground Wires. Sun Sentinel. Retrieved from http://articles.sun-sentinel.com/2010-08-06/news/fl-mcf-wires-0729-20100806_1_undergrounding-project-fpl-electric-lines.
- Florida Department of Community Affairs. (2006). Protecting Florida's Communities - Land Use Planning Strategies and Best Development Practices for Minimizing Vulnerability to Flooding and Coastal Storms. Tallahassee, Florida.
- Florida Department of Education. (2004). "Governor Bush Announces Plan to Re-open Public Schools Affected by Hurricane Charley in Record Time." Retrieved from http://www.fldoe.org/news/2004/2004_08_20.asp
- Florida Department of Environmental Protection, The Bureau of Beaches and Coastal Systems. (2004). Hurricane Ivan Beach and Dune Erosion and Structural Damage Assessment and Post-storm Recovery Plan for the Panhandle Coast of Florida. Retrieved from <http://bcs.dep.state.fl.us/reports/ivan.pdf>.
- Florida Department of Environmental Protection, Bureau of Natural and Cultural Resources (2005). FPS Natural Resource Restoration Successes. Retrieved from <http://www.dep.state.fl.us/parks/bncr/successes.htm>.
- Florida Department of State, Division of Historical Resources and the Florida Division of Emergency Management. (2008). Disaster Mitigation for Historic Structures: Protection Strategies. Tallahassee, FL.
- Florida Division of Emergency Management. (2010). Enhanced State Hazard Mitigation Plan. www.floridadisaster.org/Mitigation/State.
- Florida Division of Emergency Management. (2009). State of Florida State Unified Logistics Plan Annex to the State Comprehensive Emergency Management Plan. Retrieved from http://floridadisaster.org/documents/CEMP/Florida_State%20Unified%20Logistics%20Plan.pdf.
- Florida Division of Historical Resources. (2006). Disaster Planning for Florida's Historic Resources. Tallahassee, FL. www.1000friendsofflorida.org/preservation/disaster/DOS-demPilotProject1.asp
- Florida Fish and Wildlife Conservation Commission, (2009). Endangered and Threatened Species Management and Conservation Plan. Retrieved from http://myfwc.com/docs/WildlifeHabitats/Endangered_Threatened_Species_Progress_Report_2008-2009.pdf.
- Florida Housing Finance Corporation. (2009). Disaster Relief Efforts. Retrieved from <http://www.floridahousing.org/Home/Disaster/RRLP+HHRP.htm>
- Fothergill, A., Maestas, E.G., & Darlington, J.D. (1999). Race, Ethnicity and Disasters in the United States: a Review of the Literature. *Disasters*, 23(2), 156-173.

- Godschalk, D. R. (1985). *Rebuilding After Hurricane Frederick: Gulf Shores' Struggle with Mitigation Policy*. Chapel Hill, North Carolina: University of North Carolina, Center for Urban and Regional Studies, Hazard Mitigation Research Program.
- Guntenspergen G. (1996), U.S. Geological Survey, *The Impact of Hurricane Andrew on Louisiana's Coastal Landscape*, cited in CRS Report *The Impact of Hurricane Katrina on Biological Resources* October 18, 2005 Pervaze A. Sheikh. Retrieved from http://assets.opencrs.com/rpts/RL33117_20051018.pdf.
- Haas, J. E, Kates R.W., & Bowden M.J. (1977). *Reconstruction Following Disaster*. Cambridge, Massachusetts: MIT Press. 366 pages.
- ICAT. (2009). *ICAT Damage Estimator*. Retrieved from <http://www.icatdamageestimator.com/>.
- McDonnel, W.S. (1995). *Evaluation of Long-term Community Recovery from Hurricane Andrew: Sources of Assistance Received by Population Sub-groups*. *Disasters*, 19(4), 338-347.
- Milano, G.R. (1999). *Cape Florida State Recreation Area Wetlands Restoration*. Retrieved from http://www.miamidade.gov/derm/library/water/Cape_Florida_Restoration.pdf.
- Mileti, D. S. (1999). *Disasters By Design*. Washington, D.C.: The Joseph Henry Press. 351.
- Minnesota Department of Public Safety (2007) *Recovery from Disaster Handbook*. St. Paul, MN: State of Minnesota. Retrieved from http://www.hsem.state.mn.us/HSem_view_Article.asp?docid=313&catid=4.
- Morrow, B. H. & Enarson E. (1996). *Hurricane Andrew Through Women's Eyes: Issues and Recommendations*. *International Journal of Mass Emergencies and Disasters* 14(1): 5-22.
- National Oceanic and Atmospheric Administration (NOAA). (2008). *Tropical Storm Fay*. Retrieved from <http://www.hpc.ncep.noaa.gov/tropical/rain/fay2008.html>.
- Nova Southeastern University. (2009). *Vulnerable and Hard-to-Reach Population Fact Sheet: The Homeless*. Retrieved from <http://www.nova.edu/allhazards/forms/homeless.pdf>.
- Olshansky, R. (2002). *Planning for Disasters*. *Journal of the American Planning Association*, 68(4), 453-454.
- Olshansky, R. (2006). *Planning After Hurricane Katrina*. *Journal of the American Planning Association*, 72(2) 147-153.
- Pastor, M., Bullard, R., Boyce, J., Fothergill, A., & Morello-Frosch, R. (2006). *Environment, Disaster and Race After Katrina. Race, Poverty & the Environment*. Retrieved from <http://www.urbanhabitat.org/files/Pastor.Bullard.etc.Env.Katrina.pdf>.

- Petterson, J. University of Colorado, Boulder, & Natural Hazards Research and Applications Information Center (1999). A Review of the Literature and Programs on Local Recovery from Disaster. Colorado: Natural Hazards Research and Applications Information Center, Institute of Behavioral Science, University of Colorado.
- Puszkina-Chevlin, A., Burton, Carlson, A., Kurry, M., Murley, J.F. (2007). Living on the Edge: Coastal Storm Vulnerabilities of the Treasure Coast Barrier Islands. Florida Atlantic University, Center for Urban and Environmental Solutions.
- Rebuild Northwest Florida. (2010). Hazard Mitigation. Retrieved from <http://www.rebuildnwf.org/about-us/our-beginning.php>.
- Rubin, C. B., Saperstein, M. D., & Barbee, D. G. (1985). Community Recovery from a Major Natural Disaster. NHRAIC Monograph No. 41, Program on Environment and Behavior, Institute of Behavioral Science, University of Colorado, Boulder.
- Scarcella, M. (2005). New EOC Building Will Resemble Concrete Bunker. Herald Tribune, Retrieved from <http://www.heraldtribune.com/article/20050217/NEWS/502170302?p=1&tc=pg>.
- Schoenbaum, M. (2009). Promoting Mental Health Recovery After Hurricanes Katrina and Rita: What Can Be Done at What Cost. Archives of General Psychiatry, 66(8), 906.
- Schwab, J. (1998). Post-Disaster Zoning Opportunities. Zoning News. American Planning Association, Chicago, Illinois.
- Skoloff, B. (2006). Poorest Victims Still In Limbo. The Ledger. Retrieved from <http://www.theledger.com>.
- Southern California Earthquake Preparedness Project. (1991). Earthquake Recovery and Reconstruction Planning Guidelines for Local Governments. Southern California Earthquake Preparedness Project (SCEPP) and California. Governor's Office of Emergency Preparedness, Sacramento, CA. 75.
- Spangle Associates & Robert Olsen Associates, Inc. (1997). The Recovery and Reconstruction Plan of the City of Los Angeles: Evaluation of Its Use After the Northridge Earthquake. Portola Valley: California.
- Spangle, William & Associates, Inc. (1991). Rebuilding After Earthquakes: Lessons from Planners. Portola Valley, California: William Spangle & Associates, Inc.
- Tierney, K. J. (1995). Impacts of Recent U.S. Disasters on Businesses: The 1993 Midwest Floods and the 1994 Northridge Earthquake. Newark, Delaware: Disaster Research Center, University of Delaware, Preliminary Paper 230.
- Tucker, J., Trexler, T. & Wade, J. (1996). Hurricane Mitigation and Post-disaster Redevelopment: Program Analysis of Flagler County, Florida. Report to the Flagler County Planning Department, pg.7. Retrieved from http://www.law.ufl.edu/cgr/publications/hurricane_analysis.pdf.

- U.S. Environmental Protection Agency (EPA). (2010). Definition of Green Building. Retrieved from <http://www.epa.gov/greenbuilding/pubs/about.htm>
- U.S. Environmental Protection Agency. (2010). Environmental Justice. Retrieved from <http://www.epa.gov/environmentaljustice/>.
- U.S. Government Accountability Office. (2009). Disaster Recovery: Experiences from Past Disasters Offer Insights for Effective Collaboration after Catastrophic Events. Washington, DC.

Resources

The following are resources to assist planners and governmental officials in developing or enhancing Post-Disaster Redevelopment Plans. When available, the full text of these documents can be found at the Internet address provided.

Florida Statutes and Rules

Florida Military Affairs and Related Matters Emergency Management

Description: Provides Florida Statute's definition of disaster related incidents and emergency management activities.

Source: Fla. Stat. Ch. 252.34, April 2010.

The Local Government Comprehensive Planning and Land Development Regulation Act

Description: Requires all of Florida's 67 counties and 410 municipalities to adopt Local Government Comprehensive Plans that guide future growth and development. The Act also requires that all coastal communities must adopt a Post-Disaster Redevelopment Plan.

Source: FL, Stat. Ann, §§ 163-2511 – 3247, April 2010.

Minimum Criteria for Review of Local Government Comprehensive Plans and Plan Amendments Evaluation and Appraisal Reports, Land Development Regulations and Determinations of Compliance

Description: Establishes minimum criteria for the preparation, review, and determination of compliance of comprehensive plans and plan amendments pursuant to the Local Government Comprehensive Planning and Land Development Regulation Act.

Source: Fla. Admin Code 9J-5.001-026, 2009.

- Action Form Compilation: Hillsborough County, Florida Post-Disaster Redevelopment Plan

Florida State Statute and Rule Language Regarding Post-Disaster Redevelopment Plans

Section 163.3178(2), Florida Statutes

Each coastal management element required by Section 163.3177(6)(g), Florida Statutes, shall be based on studies, surveys, and data; be consistent with coastal resource plans prepared and adopted pursuant to general or special law; and contain:

(f) A redevelopment component which outlines the principles which shall be used to eliminate inappropriate and unsafe development in the coastal areas when opportunities arise.

Section 163.3177(7)(l), Florida Statutes

Local governments that are not required to prepare coastal management elements under Section 163.3178, Florida Statutes, are encouraged to adopt hazard mitigation/post-disaster redevelopment plans. These plans should, at a minimum, establish long-term policies regarding redevelopment, infrastructure, densities, nonconforming uses, and future land use patterns. Grants to assist local governments in the preparation of these hazard mitigation/post-disaster redevelopment plans shall be available through the Emergency Management Preparedness and Assistance Account in the Grants and Donations Trust Fund administered by the Department, if such account is created by law. The plans must be in compliance with the requirements of this act and Chapter 252, Florida Statutes.

Rule 9J-5.012(2), Florida Administrative Code

Coastal Management Data and Analysis Requirements. The element shall be based upon the following data and analyses requirements pursuant to Rule 9J-5.005(2), Florida Administrative Code.

Rule 9J-5.012(2)(e), Florida Administrative Code

The following natural disaster planning concerns shall be inventoried or analyzed:

2. Post-disaster redevelopment including: existing and proposed land use in coastal high-hazard areas; structures with a history of repeated damage in coastal storms; coastal or shore protection structures; infrastructure in coastal high-hazard areas; and beach and dune conditions. Measures which could be used to reduce exposure to hazards shall be analyzed, including relocation, structural modification, and public acquisition.

3. Coastal high-hazard areas shall be identified and the infrastructure within the coastal high-hazard area shall be inventoried. The potential for relocating threatened infrastructure shall be analyzed.

Rule 9J-5.012(3)(b)8., Florida Administrative Code

Prepare post-disaster redevelopment plans which will reduce or eliminate the exposure of human life and public and private property to natural hazards.

Rule 9J-5.012(3)(c)5., Florida Administrative Code

Post-disaster redevelopment including policies to: distinguish between immediate repair and cleanup actions needed to protect public health and safety and long-term repair and redevelopment activities; address the removal, relocation, or structural modification of damaged infrastructure as determined appropriate by the local government but consistent with federal funding provisions and unsafe structures; limiting redevelopment in areas of repeated damage; and, policies for incorporating the recommendations of interagency hazard mitigation reports, as deemed appropriate by the local government, into the local government's comprehensive plan when the plan is revised during the evaluation and appraisal process.

Rule 9J-5.012(3)(c)6., Florida Administrative Code

Identifying areas needing redevelopment, including eliminating unsafe conditions and inappropriate uses as opportunities arise.

Example Post-Disaster Redevelopment Plan Resources

Alachua County

- The Alachua County, Florida Post-Disaster Redevelopment Plan, March 2010.
Website: <http://www.alachuacounty.us/Depts/PublicSafety/em/postDisasterRedevelopment/Pages/Documents.aspx>
- Agendas, Minutes and Handouts: The Alachua County Post-Disaster Redevelopment Plan.
Website: <http://www.alachuacounty.us/Depts/PublicSafety/em/postDisasterRedevelopment/Pages/Documents.aspx>

Hillsborough County

- The Hillsborough County, Florida Post-Disaster Redevelopment Plan: Building Back for a Stronger Tomorrow, February 2010.
Website: <http://www.hillsboroughcounty.org/pgm/pdrp/docs.cfm>
- Video: The Hillsborough County, Florida Post-Disaster Redevelopment Plan
Website: <http://www.hillsboroughcounty.org/pgm/pdrp/docs.cfm>
- Agenda, Minutes, Handouts and Focus Group Notes: The Hillsborough County, Florida Post-Disaster Redevelopment Plan
Website: <http://www.hillsboroughcounty.org/pgm/pdrp/docs.cfm>

Website: <http://www.hillsboroughcounty.org/pgm/pdrp/docs.cfm>

- Hillsborough County, Redevelopment and Mitigation Ordinance 93-20 (1993)
Website: <http://www.hillsboroughcounty.org/pgm/resources/publications/>

Manatee County

- The Manatee County, Florida Post-Disaster Redevelopment Plan, March 2010.
Website: <http://www.mymanatee.org/home/government/departments/planning/comprehensive-planning-section/hazard-mitigation.html>
- Case Study: Manatee County Post-Disaster Redevelopment Plan
Website: <http://www.dca.state.fl.us/fdcp/dcp/PDRP/Files/ToolBox/CaseStudyManatee.pdf>

Monroe County

- Monroe County, Florida, Recovery Plan, October 2009. Updated March 2010.
Plan is not available online. For more information, contact Monroe County Emergency Management at info@monroecounty-fl.gov.

Nassau County

- The Nassau County, Florida Post-Disaster Redevelopment Plan
Website: <http://www.dca.state.fl.us/fdcp/dcp/PDRP/Files/ToolBox/NassauCountyPDRP.pdf>
- Plan Meeting Minutes: The Nassau County, Florida Post-Disaster Redevelopment
Website: <http://www.dca.state.fl.us/fdcp/dcp/PDRP/Files/ToolBox/NassauCountyPDRP.pdf>
- National Incidental Management System Checklist: The Nassau County, Florida Post-Disaster Redevelopment Plan
Website: <http://www.dca.state.fl.us/fdcp/dcp/PDRP/Files/ToolBox/NassauCountyPDRP.pdf>
- Case Study: Nassau County Post Disaster Redevelopment Plan
Website: <http://www.dca.state.fl.us/fdcp/dcp/PDRP/Files/ToolBox/NassauCaseStudyDraft.pdf>

Palm Beach County

- The Palm Beach County, Florida Post-Disaster Redevelopment, August 2006.
Website: <http://www.pbcgov.com/publicsafety/emergencymanagement/programs/planning/postdisredev.htm>
- Palm Beach County: The Best of Everything Website, Post-Disaster Redevelopment.
Website: <http://www.pbcgov.com/publicsafety/emergencymanagement/programs/planning/postdisredev.htm>

Panama City

- The Panama City, Florida Post-Disaster Redevelopment Plan, October 2008.
Website: <http://www.pcgov.org/publications-3>
- Case Study: Panama City Post-Disaster Redevelopment Plan
Website: <http://www.dca.state.fl.us/fdcp/dcp/PDRP/Files/ToolBox/PanamaCityPDRPCaseStudy.pdf>

Polk County

- The Polk County, Florida Post-Disaster Redevelopment Plan, June 2009.
Website: http://www.polk-county.net/subpage.aspx?menu_id=226&nav=bus&id=9206
- Official Website of Polk County, Florida Post-Disaster Redevelopment Plan
Website: http://www.polk-county.net/subpage.aspx?menu_id=226&nav=bus&id=9206
- Action Matrix: The Polk County, Florida Post-Disaster Redevelopment Plan, pg. 132-163
Website: http://www.polk-county.net/subpage.aspx?menu_id=226&nav=bus&id=9206
- Case Study: Polk County Post-Disaster Redevelopment Plan
Website: <http://www.dca.state.fl.us/fdcp/dcp/PDRP/Files/ToolBox/PolkCaseStudy.pdf>

Sarasota County

- The Sarasota County, Florida Post-Disaster Redevelopment Plan, March 2010.
Website: <http://www.scgov.net/pdrp/default.asp>
- Video: The Sarasota County, Florida Post-Disaster Redevelopment Plan
Website: <http://www.scgov.net/pdrp/default.asp>

Guidebooks, Programs, and Tools

Building A Disaster-Resistant University

Description: This resource offers guidance for institutions interested in pre-disaster planning and mitigation and provides basic information designed for institutions just getting started, as well as concrete ideas, suggestions, and practical experiences for institutions that have already begun to take steps to becoming more disaster-resistant.

Website: <http://www.fema.gov/institution/dru.shtm>

Debris Management Guide

Description: This document gives guidance to communities in creating and structuring their Debris Management Plans in line with FEMA's eligibility criteria. It identifies and explains the debris removal eligibility criteria that applicants must meet in order to receive assistance under the FEMA Public Assistance (PA) Program; provides a blueprint for assembling an effective and responsive plan for the entire debris management cycle; and outlines the FEMA Public Assistance debris removal organizational structure and strategy.

Website: <http://www.fema.gov/pdf/government/grant/pa/demagde.pdf>

Disaster Planning for Florida's Historic Resources

Description: The guide includes steps to improve coordination between emergency management and historic preservation efforts within a community in order to reduce disaster-related damage.

Website: <http://www.1000friendsofflorida.org/PUBS/HistoricalDisater/1000%20Friends%20Book.pdf>

FEMA Crisis Counseling Assistance and Training Program Guidance Version 1.1

Description: This document gives guidance to mental health professionals on disaster crisis counseling issues. Developed by the United States Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Mental Health Services.

Florida Catastrophic Planning Project Overview

Description: The main products of the FLCP project will be two sets of planning guidance (Federal and State) to be used to strengthen planning and procedural elements of the State Comprehensive Emergency Management Plan.

Website: <http://www.floridadisaster.org/catastrophicplanning/>

Florida Planning Toolbox

Description: Dedicated webpage with an array of planning resources including: agriculture land conservation, benchmarking, climate change, coastal planning, diversity and social equity, economic development, education & health, fiscal analysis & financing, housing, infill and redevelopment, land use planning, military community growth planning, transportation planning, water resource planning, natural systems conservation and public involvement & education.

Website: <http://www.cues.fau.edu/toolbox/>

Guiding the Way to Waterfront Revitalization: Best Management Practices

Description: This guide provides information on hazard mitigation strategies for working waterfront communities.

Website: <http://www.dca.state.fl.us/fdcp/dcp/waterfronts/Files/BPGuide.pdf>

Post-Disaster Redevelopment Planning Website

Description: The Department of Community Affairs' official program webpage for the Statewide Post-Disaster Redevelopment Planning Initiative. This page is dedicated to the Department's current and future efforts regarding Post-Disaster Redevelopment Planning activities and includes many relevant resources and hyperlinks.

Website: <http://www.dca.state.fl.us/fdcp/dcp/pdrp>

Protecting Florida's Communities: Land Use Planning Strategies and Best Development Practices for Minimizing Vulnerability to Flooding and Coastal Storms

Description: The guide provides information on planning policies and strategies that can be implemented before and after disaster events to further reduce community vulnerability to coastal storms and related flooding.

Website: <http://www.dca.state.fl.us/fdcp/dcp/publications/Files/hazmitbp.pdf>

Recovery from Disaster Handbook

Description: This document is designed to identify the types of assistance available and the responsible state, federal, and supporting agencies; thereby providing the framework for implementing key recovery programs. It will also provide its users with the tools and documents necessary to successfully assess and report damages, and identify disaster assistance resources that will help them recover from disaster.

Website: http://www.hsem.state.mn.us/HSem_view_Article.asp?docid=313&catid=4

Residential Construction Mitigation Program

Description: This program receives \$7 million annually from Florida Hurricane Catastrophe Trust Fund. It is designated to implement hazard mitigation construction techniques to structures throughout the State of Florida.

Website: <http://www.floridadisaster.org/Mitigation/rcmp/index.htm>

Wildfire Mitigation in Florida: Land Use Planning Strategies and Best Development Practices

Description: The guide examines the role of planning in community wildfire mitigation efforts. An updated version will be published in 2010.

Website: http://www.dca.state.fl.us/fdcp/dcp/publications/Files/Wildfire_Mitigation_in_FL.pdf

Funding Resources

Emergency Management for Higher Education (EMHE) grant program

Description: This program is available for higher education institutions interested in funding projects designed to develop, or review and improve, and fully integrate campus-based all-hazards emergency management planning efforts.

Website: <http://www2.ed.gov/programs/emergencyhighed/index.html>.

Financial and Technical Assistance for Florida Municipalities

Description: This resource book is another useful resource that is available through the Florida League of Cities. This book provides updated information on grants, loans, technical assistance, and other resources available to Florida municipalities. It includes information on various programs for topics such as community development and redevelopment, economic development, emergency management, capital facilities, coastal management, environmental, historic preservation, housing, and infrastructure.

Website: www.flcities.com/membership/grant.

The Florida Disaster Recovery Fund

Description: This Fund is a State program with the mission to serve as a funding and management source for recovery needs that have not been met by relief organizations, government agencies, and insurance. Many corporations and private foundations may donate funding through this program after a disaster.

Website: www.flahurricanefund.org.

The Florida Enhanced State Hazard Mitigation Plan

Description: This resource contains a Funding Sources section that describes the role of State agencies in assisting communities and other potential applicants to locate disaster mitigation and recovery funds. This plan also provides information on State and Federal funding sources.

Website: www.floridadisaster.org/Mitigation/State.

Hazard Mitigation Assistance Unified Guidance

Description: The purpose of the Hazard Mitigation Assistance Unified Guidance is to guide local governments through federal hazard mitigation grant programs. This guide identifies and provides eligibility requirements for the Hazard Mitigation Grant Program, Pre-Disaster Mitigation Program, Flood Mitigation Assistance Program, Repetitive Flood Claims Program and Severe Repetitive Loss Program.

Website: <http://www.fema.gov/library/viewRecord.do?id=4225>

The Patchwork Quilt

Description: This resource provides insight on how to creatively pursue funds from voluntary organizations, non-governmental organizations, and government agencies to assist in redevelopment efforts.

Website: http://www.floods.org/PDF/Post_Disaster_Reconstruction_Patchwork_Quilt_ET.pdf

Post-Disaster Redevelopment Planning Funding Companion Handbook

Description: Provides a comprehensive list of pre-disaster and post-disaster funding sources on topical areas that include hazard mitigation and risk reduction, individual assistance, public facilities and infrastructure, emergency management, environmental, economic redevelopment, historic preservation, and agriculture.

Website: <http://www.dca.state.fl.us/fdcp/dcp/pdrp/toolbox.cfm#PDRP>

Public Assistance Guide, FEMA 322/June 2007

Description: This guide describes FEMA's Public Assistance Program's basic provisions and application procedures. Because this document is not exhaustive and the provisions are subject to modification, the information should be verified with FEMA PA Program officials before becoming the basis for decision making.

Website: http://www.fema.gov/government/grant/pa/pag07_t.shtm

Risk Assessment Guidebooks and Tools

Case Studies of Analyzing Vulnerability for Post-Disaster Redevelopment Planning.

Description: Provides additional information and examples of vulnerability analyses that have been used in post-disaster redevelopment planning.

Website: <http://www.dca.state.fl.us/fdcp/dcp/PDRP/toolbox.cfm#PDRP>

Flood Inundation Hazard Mitigation Application Online

Description: The National Oceanic and Atmospheric Administration's (NOAA) National Weather Service (NWS) and its National Ocean Service (NOS) Coastal Services Center (CSC) are collaborating with the Federal Emergency Management Agency (FEMA), and other partners, to develop inundation maps for inland freshwater flooding. Sets of maps (referred to as libraries) are being developed which include map layers depicting the spatial extent and depth of water for various flood levels ranging from minor flooding all the way through the flood of record in the vicinity of NWS river forecast locations.

Website: www.floodsafety.noaa.gov/inundation.shtml

MEMPHIS for Florida Local Mitigation Strategy Support

Description: MEMPHIS (Mapping for Emergency Management, Parallel Hazard Information System) is an experimental web-based system to allow emergency managers to easily access a variety of hazard related data. This page is in support of the Florida Local Mitigation Strategy Project.

Website: <http://lmsmaps.kinanco.com/>

Social Vulnerability Index for the United States

Description: The Social Vulnerability Index measures the social vulnerability of U.S. counties to environmental hazards.

Website: <http://webra.cas.sc.edu/hvri/products/sovi.aspx>

Using HAZUS-MH for Risk Assessment

Description: This FEMA How-To Guide provides detail information on utilizing HAZUS-MH for identifying and measuring risk for hazard mitigation purposes.

Website: <http://www.fema.gov/pdf/plan/prevent/hazus/fema433.pdf>

Nonprofit and Volunteer Resources

Florida Long Term Recovery Organizations

Description: Directory of Florida Long Term Recovery Organizations

Website: <http://www.findflorida.org/files/LongTermRecovery10-21-05.pdf>

Florida Voluntary Organizations Active in Disasters

Description: The Florida VOAD is the statewide collaborative body of non-governmental organizations that facilitates communication, cooperation, and coordination of member organizations in all phases of disaster and to maximize member impact.

Website: <http://www.flvoad.org/>

Volunteer Florida

Description: Statewide initiative focused on developing, promoting and implementing volunteerism and service throughout the state.

Website: <http://www.volunteerflorida.org>

Economic and Business Recovery Resources

Business Continuity Information Network

Description: Web-based service where local businesses, county emergency management, and organizations that assist businesses can gather to share critical information and support continuity efforts before, during, and after a disaster.

Website: www.bizrecovery.org

Enterprise Florida

Description: Website providing innovative organizations in key Florida industries, such as life sciences and aerospace, find the nurturing environment here for developing state-of-the-art technologies.

Website: <http://www.eflorida.com/ContentSubpageFull.aspx?id=52>

Florida Small Business Development Center Network

Description: The information and resources on this page are designed to help businesses prepare for and recover from natural and man-made disasters.

Website: <http://www.floridasbdc.com/Home/Hurricane-Disaster-Information-PREPARE.asp>

Property Insurance Resources**Citizens Property Insurance Corporation**

Description: Citizens is a not-for-profit, tax-exempt government corporation whose public purpose is to provide insurance protection to Florida property owners throughout the state. The corporation insures hundreds of thousands of homes, businesses and condominiums whose owners otherwise might not be able to find coverage.

Website: <https://www.citizensfla.com>

The Florida Insurance Council

Description: The Council has been covering Florida insurance matters since 1962. As Florida's largest insurance trade association, FIC is the voice of Florida's insurance community.

Website: <http://www.flains.org>

Florida Market Assistance Plan

Description: A free referral service designed to match consumers, who cannot find property insurance, with Florida licensed agents and insurers who are writing new business.

Website: <http://www.fmap.org>

Housing Resources**Disaster Contractors Network**

Description: Information for the general public, contracting community and local government on repairing homes or business after a disaster.

Website: <http://dcnonline.org/>

Disaster Housing: FEMA Needs More Detailed Guidance and Performance Measures to Help Ensure Effective Assistance after Major Disasters

Description: GAO report that found housing challenges during major disasters.

Website: <http://www.gao.gov/new.items/d09796.pdf>

Florida Department of Business and Professional Regulation

Description: Website providing resources for contractors and consumers on licenses, inspections and complaints.

Website: <http://www.myfloridalicense.com/dbpr/index.html>

Florida Housing Finance Corporation

Description: Provides outreach programs regarding housing-related issues during a disaster.

Website: <http://www.floridahousing.org/Home/Disaster/RRLP+HHRP.htm>

Planning a Resource and Energy-Efficient Community: Jordan Commons, Dade County, Florida.

Description: Success story of redeveloping an affordable and sustainable community.

Website: <http://smartcommunities.ncat.org/success/jordan.shtml>

Environmental Resources

Ecosystem Restoration Section

Description: Current restoration project list and resources.

Website: <http://www.dep.state.fl.us/northwest/ecosys/section/restoration.htm>

Eligible Sand Placement on Public Beaches

Description: Public Beach restoration eligibility and funding sources.

Website: http://www.fema.gov/pdf/government/grant/pa/9580_8.pdf

The Florida Greenbook: Environmental and Historic Preservation Compliance

Description: Review of federal environmental and historic preservation laws and executive orders. Defines the roles of applicants and outlines the environmental review process by project type.

Website: <http://www.floridadisaster.org/documents/FL%20Greenbook%20ehp%204-7-2010%20web.pdf>

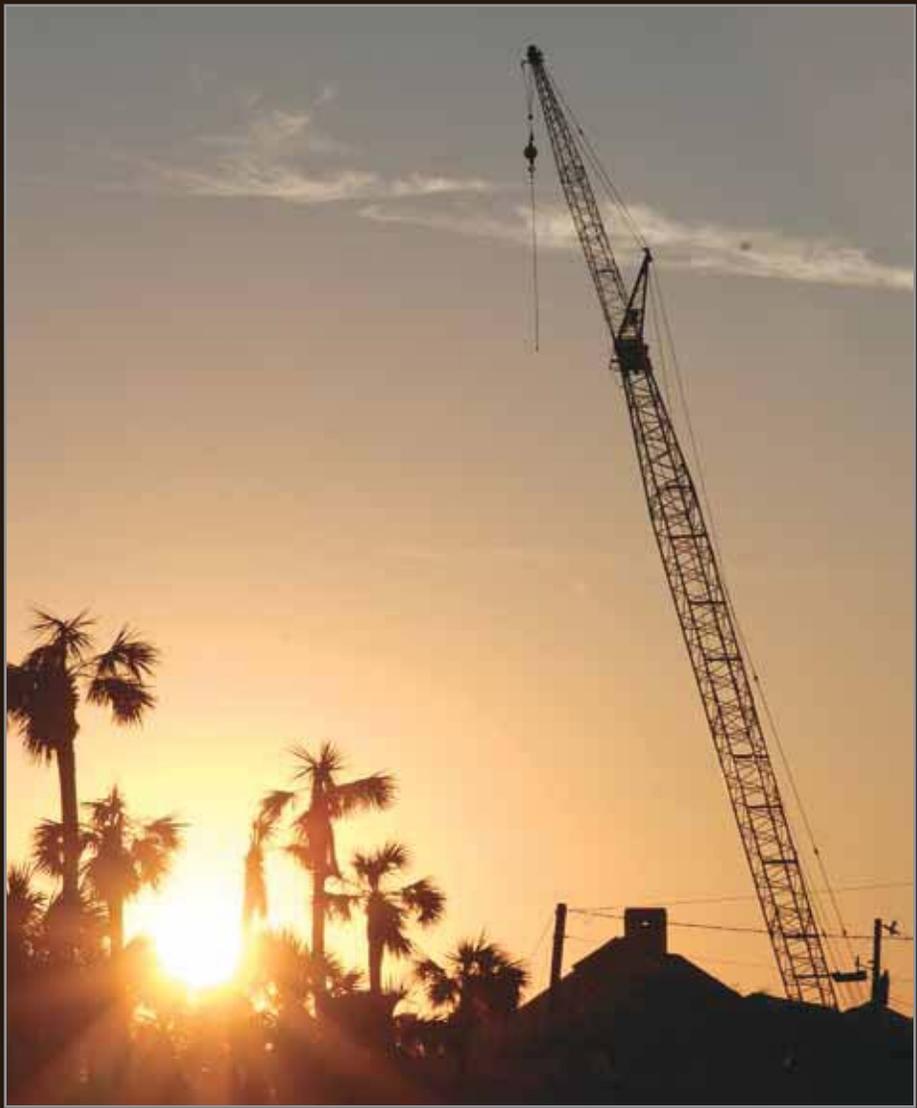
Pre-Storm Planning for Post-Storm Redevelopment: Policies and Options for Florida's Beachfront Areas

Description: Success story of redeveloping an affordable and sustainable community.

Source: Florida Department of Environmental Protection. 1995. Pre-Storm Planning for Post-Storm Redevelopment: Policies and Options for Florida's Beachfront Areas, Final Report. Bureau of Beaches and Coastal Systems: Tallahassee, Florida.

ACRONYMS

BCIN = Business Continuity Information Network
BOCC = Board of County Commissioners
CCCL = Coastal Construction Control Line
CDBG = Community Development Block Grant
CEMP = Comprehensive Emergency Management Plan
CERTs = Community Emergency Response Teams
COADs = Community Organizations Active in Disaster
COOPs = Continuity of Operation Plans
EAR = Evaluation and Appraisal Report
ESF = Emergency Support Functions
F.A.C. = Florida Administrative Code
FBC = Florida Building Code
FDEM=Florida Division of Emergency Management
FEMA = Federal Emergency Management Agency
F.S. = Florida Statutes
HMGP = Hazard Mitigation Grant Program
LMS = Local Mitigation Strategy
LTROs = Long-Term Recovery Organizations
NFIP = National Flood Insurance Program
NIMS = National Incident Management System
NOAA = National Oceanic and Atmospheric Administration
PDRP = Post-Disaster Redevelopment Plan
PRA = Priority Redevelopment Area
REBUILD = Rebuild Northwest Florida
SBA = Small Business Administration
SoVI = Social Vulnerability Index
TAC = Technical Advisory Committees
VOADs = Voluntary Organizations Active in Disasters





OCTOBER 2010