

Pre-Disaster Planning for Post-Disaster Recovery: Case Studies

Final Report:

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CHAPTER I: INTRODUCTION

In coordination with a consultant from the Federal Emergency Management Agency (FEMA), the University of Oregon’s Community Planning Workshop (CPW) researched four post-disaster recovery plans (PDRPs) developed by select communities in the United States. The purpose of this research was to find innovative post-disaster plans that incorporate effective strategies for recovery with the intent of evaluating strategies for providing credit for such efforts as part of the Community Rating System (CRS). The case studies focus on communities at risk for flooding. While some of these communities participate in the CRS associated with FEMA’s National Flood Insurance Program (NFIP), others are not currently participants in this program.

BACKGROUND

The National Flood Insurance Program (NFIP) is a flood insurance program supported by the federal government that enables property owners in participating communities to purchase insurance protection against losses from flooding. To obtain a policy through the NFIP, a property must be in a community that is a participant in the NFIP. Nationally, over 20,000 communities participate in the NFIP. To qualify for the program, a community must adopt and enforce a floodplain management ordinance to reduce future flood risks to new construction in flood hazard areas. The goal of this ordinance is to protect new buildings from flood damage and ensure that new development will not make existing flooding conditions worse.¹The Community Ratings System (CRS) is structured to provide communities incentives to go beyond minimum national floodplain management standards. Flood insurance premium rates in participating communities are discounted to reflect the reduced flood risk resulting from the community actions meeting the three goals of the CRS:

1. Reduce flood losses;
2. Facilitate accurate insurance rating; and
3. Promote the awareness of flood insurance.

While CRS provides a framework for communities to adopt broader floodplain management strategies, it does not provide incentives for communities that adopt strategies for long-term redevelopment of disaster impacted areas. Such redevelopment strategies are sometimes called “post-disaster” recovery or redevelopment plans.

In the aftermath of several high-profile disasters (including Hurricane Katrina) pre-disaster planning for post-disaster recovery is gaining prominence as an emergency management tool. In fact, in 2007 the state of Florida adopted requirements that certain communities prepare “post-disaster redevelopment plans.”² Post-disaster recovery planning defines a community’s vision of how it would like to rebuild in the aftermath of a disaster. If a community engages in post-disaster

¹ CRS Coordinator’s Manual, 110-1. Found at: <http://www.fema.gov/library/viewRecord.do?id=2434>.

² Section 163.3177(7)(l), Florida Statutes; Section 163.3178(2), Florida Statutes. See <http://www.dca.state.fl.us/fdcp/DCP/PDRP/overview.cfm> for a more detailed description of Florida’s efforts.

recovery planning prior to an event, it can more effectively direct outside redevelopment resources from federal, state, or other regional authorities once the disaster occurs. This way, community redevelopment and recovery takes place in a manner that is consistent with community values.

This report presents four case studies on communities that have prepared post-disaster recovery plans. While CRS recognizes credits for many types of activities, those that recognize post-disaster recovery planning are limited. Under the current guidelines, 359 points can be earned for floodplain management planning. Generally, points could be attributed for some elements of the process of developing post-disaster recovery plans. Points are also allocated for land acquisition and some other flood protection projects, but points are not allocated for post-disaster recovery planning.

These case studies seek to provide an overview of several post-disaster recovery plans. In particular, they focus on the plan development process, the plan contents, and implementation strategies.

PURPOSE AND METHODS

The purpose of this report is to document innovative post-disaster recovery strategies to provide structure and context for potential inclusion of such efforts as part of the CRS program. Key questions exist about the potential relationship between post-disaster plans and CRS such as:

- What efforts are worthy of receiving credit?
- Do process-related steps that involve residents in planning efforts receive credit?
- Is there an ideal framework or form for post-disaster redevelopment plans? Should they be incorporated into land use plans, building standards, functional plans (e.g., water, wastewater, transportation, emergency management, and parks plans), or some combination thereof?
- What strategies have been effective?
- How have such efforts performed after a disaster?

This research does not intend to answer all of these questions. Rather, it is intended as exploratory research to provide context for how CRS might consider post-disaster planning efforts and identify areas where further inquiry is indicated.

The primary research method used by CPW was the analysis of case studies. CPW selected the four case study communities through a combination of Internet document searches, an online questionnaire, and interviews. The four case study communities are:

- Hillsborough County, Florida
- Palm Beach County, Florida
- Polk County, Florida
- Tillamook City, Oregon

CPW reviewed documents from these communities pertaining to various aspects of their post-disaster recovery strategies both within specific plans devoted to this topic and within other plans. CPW looked for specific elements within these plans to aid in comparison. Additionally, CPW

interviewed staff involved in the development and implementation of the plans to get more information.

ORGANIZATION OF THIS REPORT

This report is organized into four chapters (including Chapter 1) and three appendices.

Chapter 2: Framework for this Analysis provides an overview of flooding, background information on CRS, and a discussion of key concepts related to post-disaster recovery plans.

Chapter 3: Case Studies presents the results of the four case studies CPW conducted for this report.

Chapter 4: Conclusions and Recommendations summarizes CPW's conclusions from the case studies as well as implications for the CRS program. It also provides recommendations and suggestions for next steps related to integration of post-disaster recovery planning and CRS.

This report also includes two appendices. Appendix A summarizes the results of a screening questionnaire CPW administered to identify potential case study communities. Appendix B provides a list of responding jurisdictions to the screening questionnaire.

CHAPTER II: FRAMEWORK FOR THIS ANALYSIS

This research sought to identify innovative post-disaster plans that incorporate effective strategies for recovery. This chapter defines the context within which these strategies occur and the context within which they are analyzed. That framework includes a description of the Community Rating System (CRS), an overview of post-disaster planning, and a discussion about the potential relationship between the two activities.

FLOODING IN THE U.S.

Floods are the most common natural disaster in the US. According to Association of Floodplain Managers, flooding causes more than \$6 billion of property damage in the US each year— which is a four-fold increase over the 1990s.³ Floods have a variety of causes including tropical storms, hurricanes, spring thaw, heavy rains, land use changes, levee erosion, flash floods, and new development.

Differences in flood duration and source result in different recovery needs. Some floods surge through communities in a few hours, other flooding conditions remain in communities for weeks or months. Riverine flooding can travel down the river corridor affecting multiple communities along its path. Coastal communities require different preparations for periodic flooding that may result from tropical storms, hurricanes, and other storms.

FEMA creates maps that assess flood risk, dividing communities into high, low, and moderate risk areas. Despite this mapping, one third of all claims paid by the National Flood Insurance Program (NFIP) are for policies in low risk communities. Additional strategies could help communities of all risk types to reduce the impacts of flooding.

Many communities adopt ordinances and other strategies to mitigate risk of flood damage to people and property. These strategies are broadly included in the discipline of floodplain management, which FEMA defines as follows:

Floodplain management is the operation of a community program of corrective and preventative measures for reducing flood damage. These measures take a variety of forms and generally include requirements for zoning, subdivision or building, and special-purpose floodplain ordinances.⁴

FEMA's definition of floodplain management emphasizes proactive strategies to mitigate risk. Such ordinances, however, may not mitigate all risk, and have limitations with respect to regulating pre-existing development in floodplains. Moreover, major flood events, can result in widespread damage. Few local governments have strategies to address long-term redevelopment after major events.

³ http://www.floods.org/PDF/Mapping/ASFPM_TrendsInFloodDamages.pdf

⁴ <http://www.fema.gov/plan/prevent/floodplain/index.shtml>

Focusing more narrowly on floodplain management, a community's efforts in adopting and enforcing floodplain management ordinances is an important element in making flood insurance available to home and business owners—particularly for new construction. According to FEMA, more than 20,000 communities have adopted floodplain management ordinances that provide flood loss reduction building standards for new and existing development. FEMA also provides reduced flood insurance premiums for local governments that go beyond the basic NFIP under the Community Rating System (CRS).

THE COMMUNITY RATING SYSTEM (CRS)

The CRS adjusts NFIP flood insurance premiums if communities undertake activities that reduce flood damage to existing buildings, manage development in areas not mapped by the NFIP, protect new buildings beyond the minimum NFIP protection level, help insurance agents obtain flood data, and help people obtain flood insurance.⁵ Participation in the CRS is voluntary. About 1,100 communities take advantage of the CRS program to lower their NFIP insurance premiums.

Communities are placed in a CRS class depending on which recognized activities they undertake, each of which is assigned points. A Class 1 Community has earned the greatest number of points and receives the greatest premium reduction (see Table 1). A Class 10 community does not meet the minimum number of credit points or has not applied to the CRS. To move up a class, a community must earn 500 points. With each class, policy holders' premiums are reduced by 5%. NFIP policy holders in Class 9 communities have a 5% reduction, while those in Class 8 communities have a 10% reduction. NFIP policy holders in Class 1 communities have their premiums reduced by 45%. Flood reduction activities may provide many other benefits to the community beyond premium reductions, and should be undertaken for reasons beyond savings on premiums.⁶

⁵ CRS Coordinator's Manual, 110-1.

⁶ CRS Coordinator's Manual, 110-2.

Table 1. CRS Credit Discount System

Credit Points	Class	Premium Reduction SFHA*	Premium Reduction Non-SFHA**
4,500+	1	45%	10%
4,000 – 4,499	2	40%	10%
3,500 – 3,999	3	35%	10%
3,000 – 3,499	4	30%	10%
2,500 – 2,999	5	25%	10%
2,000 – 2,499	6	20%	10%
1,500 – 1,999	7	15%	5%
1,000 – 1,499	8	10%	5%
500 – 999	9	5%	5%
0 – 499	10	0	0

Source: FEMA Community Rating System (<http://www.fema.gov/business/nfip/crs.shtm#2>)

*Special Flood Hazard Area

**Preferred Risk Policies are available only in B, C, and X Zones for properties that are shown to have a minimal risk of flood damage. The Preferred Risk Policy does not receive premium rate credits under the CRS because it already has a lower premium than other policies. The CRS credit for AR and A99 Zones are based on non-Special Flood Hazard Areas (non-SFHAs) (B, C, and X Zones). Credits are: classes 1-6, 10% and classes 7-9, 5%. Premium reductions are subject to change.

Long Term Post-Disaster Recovery Planning – Defined⁷

Post-disaster recovery planning (PDRP) is defined as providing a blueprint for redevelopment of a community after a disaster occurs. This can be done through long and short-term strategies, which might include land use planning, policy changes, programs, projects, and other activities such as business continuity planning. Post-disaster recovery planning is a shared responsibility between individuals, private businesses and industries, state and local governments, and the federal government.

Post-disaster recovery planning defines a community’s vision of how it would like to rebuild in the aftermath of a disaster. If a community engages in post-disaster recovery planning prior to the event, it can more effectively direct outside redevelopment resources from federal, state or other regional authorities after the disaster occurs. This way, community redevelopment and recovery takes place in a manner that is consistent with community values.

The state of Florida is a leader in post-disaster recovery planning efforts. Florida calls such plans “post-disaster redevelopment” plans and defines them as follows:

⁷ This section is adapted, in part, from “Cannon Beach Case Study Report,” July 2006 prepared by the Oregon Natural Hazard Workgroup, a sister program of the Community Planning Workshop within the University of Oregon’s Community Service Center.

"A Post-Disaster Redevelopment 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. The plan 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 in the plan should include business resumption and economic redevelopment, housing repair and reconstruction, infrastructure restoration and mitigation, short-term recovery actions that affect long-term redevelopment, sustainable land use, environmental restoration, and financial considerations as well as other long-term recovery issues identified by the community."⁸

The state of Florida is implementing a pilot program in several jurisdictions aimed at developing draft guidelines for Post-Disaster Redevelopment Planning. Moreover, the state intends to publish a Post-Disaster Redevelopment Plan Guidebook, which will describe recommended planning processes for a Post-Disaster Redevelopment Plan as well as essential content for various types of communities. The project may also include legislative initiatives. The work that the state of Florida is doing in post-disaster recovery will serve as a valuable resource to other communities across the nation.

Why Plan for Post-Disaster Recovery?

It is impossible to predict exactly when natural disasters will occur, or the extent to which they will affect a community. However, with careful planning, coordination, and collaboration, public agencies, private sector organizations, and citizens within the community can efficiently respond to the issues that result from natural disasters. Post-disaster recovery planning that takes place before a disaster can help a community more effectively respond to and recover from natural disasters. Post-disaster recovery planning addresses many important but controversial issues, including some related to private property rights. If these issues are addressed early in the planning process, fewer problems may arise during the plan adoption process—or in the aftermath of a disaster.

Research has shown that reducing risk from natural disasters requires the integration of land use planning, coordination by government, and extensive public participation.⁹ An integrated approach is most effectively achieved through a collaborative planning process that includes a full range of decision-makers with a stake in the issues (stakeholders).¹⁰ These stakeholders include local government staff, elected officials, business interests, property owners, and interest groups. D.S. Mileti notes that it takes time and money to involve stakeholders, but the long-term savings compensate for this investment because the resulting mitigation options are more likely to be accepted.¹¹ Similarly, R.J. Burby emphasizes that the involvement of a broad base of stakeholders

⁸ <http://www.dca.state.fl.us/fdcp/DCP/PDRP/overview.cfm>

⁹ Burby, R.J. (1998). *Cooperating with nature: confronting natural hazards with land-use planning for sustainable communities*. Washington, D.C.: Joseph Henry Press.

¹⁰ Burby, R.J. (2002). *Making plans matter: Citizen involvement and government action*. Journal of the American Planning Association, 69 (1), 33-49.

¹¹ Mileti, D.S. (1999). *Disaster by design: a reassessment of national hazards in the United States*. Washington, D.C.: Joseph Henry Press.

builds partnerships and constituencies. The Federal Emergency Management Agency (FEMA) points out that this more collaborative approach “goes well beyond the scope of traditional emergency management and touches areas of planning, development, economics, education, critical care, and cultural facilities.” FEMA’s how-to guide suggests that putting this concept into operation depends upon the participation of the entire community.¹² Public participation can supply valuable information to planners as well as help maintain a positive relationship with the public.¹³ In addition, this exchange of information and establishment of common interests can create a significant sense of ownership in the community as a whole, which contributes to effective post-disaster recovery.

How to Plan for Post-Disaster Recovery?

In order to identify post-disaster recovery issues and potential strategies, a systematic approach is necessary to guide the planning process. The Holistic Disaster Recovery Guide, created by the Natural Hazards Research and Applications Information Center (NHRAIC) at the University of Colorado at Boulder’s, highlights a ten-step approach to post-disaster recovery planning.

These ten steps outlined in Table 2 below can assist communities in creating complete post-disaster recovery plans. It highlights key steps that should be taken to prepare a long-term recovery plan, such as involving the public, identifying issues and opportunities, and setting goals.

¹² FEMA. (2001). *Mitigation Resources for Success* (Publication FEMA 372). Washington, D.C.: Federal Emergency Management Administration.

¹³ Dandekar, Hermalata C. *The Planners Use of Information* (Chicago, Illinois: Planners Press, 2003), 189.

Table 2 – 10 Step Disaster Planning Process

Step 1. Get Organized	<ul style="list-style-type: none"> ▪ Assign roles and responsibilities ▪ Gather and prepare materials
Step 2. Involve the Public	<ul style="list-style-type: none"> ▪ Include stakeholders ▪ Incorporate the public process into all aspects of the planning process ▪ Reach those not historically represented
Step 3. Coordinate with Stakeholders	<ul style="list-style-type: none"> ▪ Contact stakeholders (private entities, government, non-profits, neighborhood associations, etc.)
Step 4. Identify Post-disaster Problems	<ul style="list-style-type: none"> ▪ Brainstorm potential issues. ▪ Get a full picture of what each issue entails
Step 5. Evaluate Problems and Identify Opportunities	<ul style="list-style-type: none"> ▪ Use several approaches to identify each problem and opportunity. ▪ Identify opportunities, independent of cost or feasibility
Step 6. Set Goals	<ul style="list-style-type: none"> ▪ Agree to and focus on realistic possibilities. ▪ Choose measures consistent with public and stakeholder needs. ▪ Develop and prioritize a broad list of possibilities. ▪ Establish goals that strive to align with the community's vision.
Step 7. Develop Strategies	<ul style="list-style-type: none"> ▪ Determine what is to be accomplished ▪ Identify lead agencies/ entities ▪ Action needed on the local level ▪ Form partnerships that will enhance effectiveness.
Step 8. Plan for Action	<ul style="list-style-type: none"> ▪ Summarize issues ▪ Organize next steps ▪ Identify roles and responsibilities ▪ Seek Funding
Step 9. Get Agreement on the Plan of Action	<ul style="list-style-type: none"> ▪ Determine internal and external partners
Step 10. Implement, Evaluate and Revise	<ul style="list-style-type: none"> ▪ Create a formal monitoring process ▪ Include stakeholders in reviews

Source: Natural Hazards Research and Applications Information Center. "The Informer." January 2002: Number 3.

RELATIONSHIP OF POST-DISASTER PLANNING TO THE CRS

Receiving NFIP premium reductions through the CRS is often a motivator for flood management related policies in many communities. Some planning that might be considered post-disaster planning is done because it is in the Floodplain Management Planning section of the CRS (Section 510). Currently, a total of 359 points can be awarded in this section. Points are awarded for the planning process rather than its outcomes. However, while the NFIP and the CRS provide the national policy context for post-disaster recovery planning, the strategies involved may also arise through the implementations of state and local government policies. Post-disaster recovery strategies can stand on their own, or be integrated into comprehensive planning, land use planning, emergency planning, and other planning processes.

Examining post-disaster recovery plans for their relevance to CRS is more challenging, but also important.¹⁴ The case studies presented in this report are intended as examples of post-disaster recovery plans, not as a comprehensive examination of all innovation in post disaster recovery. The case studies are by no means a comprehensive review of post-disaster recovery plans, but provide important insights into the benefits of such plans and how these efforts might be incorporated into the Community Rating System.

¹⁴ FEMA. 2005. "Chapter 3: Policies for Guiding Planning for Post-Disaster Recovery and Reconstruction." *Planning for Post-Disaster Recovery and Reconstruction* (FEMA Publication 421). Washington, D.C.: Federal Emergency Management Administration. p.65.

CHAPTER 3: CASE STUDIES

This chapter presents the results of CPW's review of post-disaster recovery plans in the four case study jurisdictions: Palm Beach County, Florida; Polk County, Florida; Hillsborough County, Florida; and Tillamook City, Oregon. CPW conducted considerable research to identify candidate jurisdictions. We ultimately chose three jurisdictions in Florida due to the state's initiative to develop post-disaster redevelopment plans. We selected Tillamook, Oregon because of its efforts in redevelopment planning which resulted from years of repetitive flood losses, particularly in areas along Highway 101.

To complete the case studies, CPW reviewed the plans and related materials from the case study jurisdictions' web sites and conducted interviews with local staff. Each case study is organized into four sections:

- Community and Hazard Background
- Plan Development
- Plan Elements
- Plan Implementation
- Conclusions

PALM BEACH COUNTY, FLORIDA

Palm Beach County's efforts focus on economic recovery. The County initiated its planning efforts in 2005, adopted the plan in August of 2006, and has not experienced a major flood disaster since preparation of the plans. A copy of the post-disaster redevelopment plan can be found on the County's website:

http://www.pbcgov.com/publicsafety/emergencymanagement/resources/pdf/pdrp_AUG_06.pdf.

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Community and Hazard Background

Palm Beach County is located in coastal southeastern Florida. It is a largely urban county with about 1,274,000 residents. It faces the following flood hazards: coastal flooding, inland flooding, coastal storm surge, dike failure, sea level rise/climate change, tsunamis, and rogue waves. The county’s primary hazard concerns are hurricanes and tropical storms. The county has among the highest strike probabilities in the US. As a result of these hazards, most of the county’s flooding results from tropical storms. While storm surge is a threat to some coastal structures, it is less of a threat in Palm Beach County than in other parts of Florida. The county does not experience riverine flooding. Instead, most inland flooding is flash flooding of streets and yards; most structures are elevated sufficiently to avoid damage. This inland flooding results in loss of egress and ingress. The county has some repetitive loss properties throughout the county. The breach of the Herbert Hoover Dike is also a major threat.

Plan Development

In the 1990s, Florida required that all coastal communities have a post-disaster redevelopment plan. While this was mandated, it was never enforced. Palm Beach County had a consultant develop a plan, but the plan only addressed a few issues related to land use and construction. In 2005, the County decided to revise the plan. Staff decided the plan should have a more holistic approach to community recovery and conduct further research about planning for post-disaster recovery. The County applied for and received a grant from the Economic Development Administration (EDA) and a second grant from a separate public entity which funded the hiring of a consultant for the project.

Having recently experienced three hurricanes in two years, the County understood the need for this work.

The project began with a traditional public workshop, which was dominated by government workers rather than by citizens. This workshop was probably premature. Next, staff received another grant and held a workshop that was focused primarily on economic redevelopment. To organize the workshop, staff recruited a group of young professionals who wanted to volunteer their time on a community project. This group determined the structure of the workshop. County staff organized the content of the workshop.

A total of 178 people attended the workshop, including urban planners, economic development planners, housing planners, emergency managers, county government workers, fifty business executives, non-governmental organizations, and workers from most of the 38 municipal governments. The local television station filmed the event for free because community members were interested in it. In addition, five experts in post-disaster recovery planning attended the workshop and facilitated breakout groups. Many of these experts donated their time. These experts presented on a variety of topics, which provided the framework for the breakout sessions. The experts effectively described the difficulties of post-disaster conditions and the importance of pre-disaster planning, which concerned many of the participants and made them more eager to act. The Consultant and County Staff used the information from the workshop to develop a post-disaster redevelopment plan.

Throughout the plan development, staff regularly met with an executive group that included urban planners, people who worked on economic development partners, and emergency managers. At first attendance was spotty, but more people attended as the group made progress more people attended. Attendance increased both due to peer pressure and because the deputy county administrator, who supervised many of the prospective attendees, was made co-chair of the committee and required attendance. The other co-chair of the group was the head of the League of Florida Cities, which encouraged municipal participation. While this group played a passive role in the planning process initially, their interest in post-disaster redevelopment planning grew. This group was important because it got disparate groups of people talking, which encouraged new ideas. For example, emergency managers were made cognizant of the post-disaster issues related to economic development. Further, an economic summit was held soon after the post-disaster redevelopment plan workshop in which these issues were discussed. Rather than aiding directly in plan development, this group was useful in acting as a sounding board to determine what in the plan was problematic for the members of the group.

The plan development was guided by the County Staff Planner, who set the outline and organization of the plan. A key structural element of the plan is the matrices for action items. Some issues, particularly related to land use, such as which areas would be rebuilt first, were determined to be too volatile or political to address before a disaster. However, the action matrices moved jurisdictions and residents within the county towards addressing these controversial issues. It also organized and listed the difficult issues that will need to be addressed if a disaster does occur. Overall, the plan functions less as a prescriptive document and more as a tool for providing guidance.

Plan Elements

The plan includes several sections. An initial section explains the goals and issues for post-disaster redevelopment in several areas of the community: local government, economic and private sectors, social and environmental concerns, and redevelopment and mitigation. Following these goals and issues, the plan includes a section on implementation and short and long term recovery actions. The maintenance and updating of the plan is also addressed in the last section.

Staff believed that the integration of this plan into other existing plans was an important step, otherwise the post-disaster redevelopment plan could be easily overlooked. The plan is integrated into the comprehensive land use plan. It is also part of the comprehensive emergency management plan, the land use plan, and the strategic economic development plan. Staff told CPW in interviews that they believe this integration could be more thorough, but think that any mention of the post-disaster redevelopment plan in other plans is an important first step. This integration is made easier when plans are updated simultaneously.

Like in other post-disaster redevelopment plans reviewed by CPW, the most contentious parts of the plan tend to relate to land use. In particular, enforcement or development of codes that limit development activities in hazard prone areas were often met with opposition. Due to its coastal location and the affluence of its residents, Palm Beach County is relatively focused on encouraging development. Political pressures make it difficult for elected officials to slow development, despite understanding the risk inherent in building along a coastline. These characteristics limit the effectiveness of explaining the need for post disaster redevelopment planning, but can also result in a different form of post-disaster redevelopment. The planner for Palm Beach County cited the example of the recovery of Charleston, South Carolina after Hurricane Hugo. In Charleston, landowners were wealthy and not limited to the Federal assistance of the NFIP. Often these wealthier residents were self-insured or able to finance a complete rebuild after the disaster. Charleston's economy recovered from the disaster partially as a result of this type of redevelopment. While the plan addresses land use, many compromises were made in order to make the plan politically acceptable. While the development community understands that it doesn't make sense to rebuild repeatedly, they are unwilling to invest money or make commitments about this issue. As a result, land use restrictions are currently not particularly strong.

The land use sections of the plan focus on resources to help people rebuild stronger structures, ensuring strong code enforcement, and involving the public in recovery issues. While there is some discussion of the importance of avoiding wholesale redevelopment after a disaster, pre-disaster decision-making is not emphasized. The land use-related pre-disaster actions specified by the plan focus on mitigation efforts rather than planning for different land uses post-disaster. One of the few actions that relate to changing land uses post-disaster is to create a non-conforming structure inventory. From a land use perspective, the plan is light on pre-disaster actions to aid in post-disaster redevelopment strategies; our assessment is that it is simply laying the framework for post-disaster redevelopment planning to occur in the future.

A strength of the plan is its focus on economic development. The plan utilizes an integrated approach that includes the private and non-profit sectors in the emergency management and disaster recovery processes. As a result of the PDRP, the county has developed a stronger private-public partnership in post-disaster recovery. This partnership assists the business community

through facility sharing plans, a banking consortium, and other forms of assistance. Communication systems specific to private industry were developed, as were strategies to allow early re-entry to the business community after a disaster. The Emergency Operations Center was also organized to ensure that business interests are represented during a disaster; business-related missions are treated like residential missions. In addition, these plans organize logistics to ensure that when possible local purchases are made before outside purchases during disaster recovery. As part of the plan, the planning department is putting together a database that describes the skills, equipment, resources and facilities provided by private and non-profit organizations within the community. During and after a disaster, these resources could be called upon in coordination to aid in redevelopment. Planners are also examining how to mobilize these resources and compensate organizations for these resources.

Plan Implementation

Since the adoption of the plan, Palm Beach County has not experienced a disaster serious enough to warrant implementation. In fact, the last three years, which were relatively disaster-free, have resulted in reduced enthusiasm for the plan.

Conclusions

Few people in Palm Beach County would benefit from inclusion of PDRPs in CRS because most homes are not affected by flooding. Instead, effects of flooding in Palm Beach County are primarily on streets. However, the planner believes that post-disaster recovery planning should receive credit under CRS. He suggested that this credit could be incorporated into the floodplain management portion of CRS.

The planner also noted some key obstacles to integrating PDRP into post-disaster redevelopment planning. CRS is insurance-oriented, while post-disaster recovery planning is much broader than that. PDRPs rely on federal assistance and state and local initiatives that broadly encourage having disaster resilient communities. Post-disaster redevelopment plans should also have an all-hazards approach. The challenge in including post-disaster recovery planning in CRS would be in meshing the programs together without diluting post-disaster recovery planning (e.g., getting plans too focused on the CRS criteria) and still honoring the intent of CRS.

The planner explained that CRS is a difficult process. Many elements that seem very beneficial to communities, such as open space preservation, receive few credits. Some communities aren't sure that going through the CRS process is worth the resources because the requirements keep changing. Even when participation in CRS saves about \$5 million a year, this can result in only a \$30 benefit per person. In summary, local staff wants to better understand how participation in CRS specifically benefits the communities as a whole.

Process Conclusions

- Developing a post-disaster recovery plan is an opportunity to encourage collaboration between planners, emergency managers, and economic development partners. Building these relationships may have more impact than the plans they create.
- It is important to do sufficient background research and preparation before holding a workshop; holding workshops too early can be problematic.

- To encourage participation and buy-in, staff should use local resources and organizations to help organize the post disaster planning process.
- There is no one process template for every community; however a participatory approach informed by an executive committee and technical support seems to be effective.

Land Use Conclusions

- Land use issues are highly integral to effective post-disaster redevelopment. However, they are also the most contentious.
- Understanding a the impacts of land use decisions in relation to community's overall vision and political environment helps to make a more effective plan.

Other Conclusions

- Action matrices are helpful in making plan implementation happen.
- Integrating post-disaster redevelopment planning into other plans is important, even if the integration is relatively minimal at first.
- Private public partnerships can be used to encourage and support post-disaster recovery planning in the business community.
- Planning for economic recovery is important. Finding ways to use local resources first takes pre-disaster organization and coordination.
- Communities shouldn't be completely reliant on state or federal resources that don't understand local needs.

POLK COUNTY, FLORIDA

Polk County's post-disaster redevelopment plan was developed with the particular intention of making future implementation as straightforward as possible. Polk County's plan was completed in June 2009 and is available on the County's website:

<http://www.polk-county.net/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=13014>



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Community and Hazard Background

Polk County is an inland county located between Tampa and Orlando in central Florida. It is 2,010 square miles and has about 581,000 people. Over the past six years there has been significant residential and commercial growth. Of all the pilot communities chosen in Florida, Polk County is the only inland region. The county faces riverine flooding, which can cause urbanized flooding, particularly flooding of streets. This street flooding is not short term; sometimes it lasts a few weeks or a month. In addition, low-lying areas face flooding hazards, particularly low-lying areas with mobile home parks. While the county has many lakes, they do not tend to flood.

Plan Development

The impetus to develop a post-disaster redevelopment plan came from the state's pilot program. To identify participants in this program, the state held a focus group that reviewed all the counties and cities to determine which would be most appropriate for this pilot program. The State received a grant from NOAA to do this preliminary work. The state did not want to simply identify the largest counties; it made its decision based on the flooding history of the county, the county's economic conditions, and its future growth potential. Polk County was chosen for several reasons. In 2004, three hurricanes passed through the county within a month of each other. During and after this period the county was highly involved in post-disaster redevelopment, despite not having completed any formal planning before the disaster. The state was impressed with how this post-disaster redevelopment occurred. In addition to the hurricanes of 2004, Polk County also experienced significant flooding in 1994 and 2005. Independent of hurricane recovery, Polk County has been quite effective in recruiting large industries from across the nation and the globe. The state determined that if Polk County is going to continue its growth, it needs a post-disaster redevelopment plan.

Plan development took 18 months, which the planner who was involved in its development felt was not a sufficient amount of time. The process felt rushed because Polk County had no reference point from which to base the plan. While the coastal communities in Florida had some form of hazard or flooding plan to base their post-disaster redevelopment plan, Polk County had not pursued post-disaster redevelopment as an inland County.

The long range planner was selected by the state and county to coordinate the planning efforts, because of his interest in disaster mitigation planning. He reached out to many people across the county: not just government officials, but also non-profits, private organizations (including large corporations), and citizens.

The county held three public meetings. The goal of these meetings was to get the public involved early on in the process, so that the public could give guidance on the development of the plan and not just react to a drafted plan. Due to scheduling difficulties, the first two meetings were poorly attended. However, fifty people came to the third meeting. The attendees had many comments and the planners were able to incorporate these ideas into the plan. The meetings were two and a half hours long and included displays of previously identified hazard areas and a variety of maps that allowed residents to note other areas of concern. The planners collected an email list from these meetings for future communication of the process. The planners were surprised to find little opposition to the plans, including the discussion often controversial discussion of buy outs. In

particular, the people who showed up to the public meetings were supportive and understanding of the public good that could result from effective post-disaster recovery planning.

Plan Elements

The plan includes information on proposed integration of the plan into other local plans, vulnerability analysis of housing, social characteristics, economics, and critical infrastructure. The goals and objectives of the plan in terms of land use, environmental conservation, economic redevelopment, housing, building and historic preservation, infrastructure, health and human services, and government operations. It also includes sections on implementation, institutional capacity, communications, financial resources, and policies and procedures. Finally, it includes action matrices organized into: land use and environmental conservation, economic redevelopment, building housing, and historic preservation, infrastructure, health and human services, government operations, and the executive committee.

The planner felt that the most important elements of the post-disaster redevelopment plan are its implementation sections and the action matrices. These action matrices identify actions needed to complete the pre-disaster planning before the disaster occurs. The actions come from the goals and objectives developed during this plan development phase and identify steps particular actors must take to ensure pre-disaster planning for post disaster recovery is complete. A calendar is also associated with the action matrices, to ensure that these steps are taken. For example, Polk County determined that the Growth Management Department should revise their ordinances to ensure that they accommodate post disaster conditions. This action has a implementation timeframe and the matrix identifies the resources needed to complete this action item. Developing the implementation sections of the plan was also important. Prior to the recent closure of the Emergency Operations Center, the County was effective at starting the plans but is now less effective.

During our interview, the planner identified three particularly important actions in the action matrices. The first is the development of pre-approved house plans. This means that after a disaster if a landowner wants to rebuild using one of these plans, they only need to pay for a permit and other types of approval have already been completed. The action matrix also requires significant staff training. This training focuses on cross training staff members to be able to perform multiple duties. In addition, the financial work group is trying to develop a list of revenue resources that the county is currently receiving. They are working to contact these funders to find out whether the reporting requirements for these resources could be relaxed during or after an emergency.

Land use and redevelopment issues are not currently fully addressed in the implementation section of the plan. However, this topic is also an important issue that is being addressed through the action matrices. In particular, while the county and its jurisdictions have agreed that if a structure with a non-conforming use is more than 50% destroyed it cannot be rebuilt, the jurisdictions could not agree within 18 months as to what type of disaster and what types of impacts to the structure would cause this requirement to be implemented. To be effective, the jurisdictions must all define this in the same way. The county is just starting to work on issues related to transfer of development and density rights in high risk areas. These details, which are anticipated to be controversial, are still being worked out as part of the planning process.

The land use issues currently addressed in the plan focus on streamlining the building inspection and permit approval process, ensuring temporary recovery uses are consistent with future land uses, evaluating policies regarding non-conforming uses, ensuring that environmental and preservation issues are incorporated into redevelopment projects, and decreasing densities in highly vulnerable areas through acquisitions and incorporation of “smart growth” land use practices. In particular, it suggests that current transfer of development rights policies could be expanded for post-disaster application. These objectives indicate a desire to initiate dialogue about appropriate land use and suggest some important actions may begin to be taken in the future.

Currently, the plan is not integrated into other plans, though that is an important action item. The plan, however, acknowledges potential linkages to other county plans. The plan is referenced in the mitigation strategy and the emergency operations plan because these plans were going through revision at the time that the post-disaster redevelopment plan was developed. However, the PDRP could be more fully integrated into these plans, rather than simply referenced. The Central Florida Development Council economic plan mentions the PDRP. The county considers full integration of the PDRP into other plans very important.

Plan Implementation

The plan has not yet been activated due to a disaster. One discussion the county is undertaking is what type and degree of disaster should require plan activation. In addition, the county is discussing how long after a disaster the plan should be implemented.

The county is working to implement the action items described in the plan so that the plan is fully in place if a disaster occurs. Currently, the plan is less detailed than Palm Beach County and Hillsborough County case studies completed by CPW. The county anticipates that the property rights issues will be most problematic when the plan is implemented. These issues will not only be addressed in the immediate aftermath of the disaster, but in the weeks and months after the disaster occurs. One important part of plan implementation is the plan activation exercise. Polk County has done tabletop exercises to practice plan activation. The county sees these exercises as very important.

Conclusions

The planner believes that PDRPs could be included in CRS. Currently, the county is reviewing its CRS program and is looking for ways to incorporate its post-disaster redevelopment planning into credits. Some of these credits come from those given for hazard mitigation plans, but the post-disaster redevelopment plans serve a different purpose. One difficulty is that when done correctly, local mitigation strategies become a small component of the post-disaster redevelopment plan, while CRS only gives credits for these hazard plans (called “local mitigation plans” in Florida). Communities are not credited for post-disaster redevelopment plans, which often have a very broad approach and look beyond hazard mitigation.

Process Conclusions

- Developing a plan, particularly when a community has no basis for that plan, takes time. Planners should allow ample time to develop a post-disaster redevelopment plan.

- Coordinating post-disaster redevelopment planning with other plan revisions would be helpful to encourage complete incorporation of the PDRP into those plans.

Land Use Conclusions

- Businesses are glad to be involved in discussions related to land use in addition to discussions related to economic recovery.
- Using action matrices allows planners to extend the decision making process for these controversial issues beyond the plan development phase.

Other Conclusions

- Action matrices are helpful in making plan implementation happen over time.
- Action matrices help communities understand what they can do now to prepare for disasters.

HILLSBOROUGH COUNTY, FLORIDA

Hillsborough County's post-disaster redevelopment plan focuses on eight subject areas: housing recovery, economic redevelopment, public outreach, financial administration, land use, health and human services, infrastructure and public facilities, and environmental restoration. Of all of the case studies addressed in this report, Hillsborough County has the most comprehensive and thorough approach to examining land use. Hillsborough County's approach emphasizes community involvement, and innovative use of Transfer of Development Rights (TDRs). County staff are currently reviewing the plan. It will be sent to the Board of County Commissioners in February 2010 for approval. Information about post-disaster recovery planning in Hillsborough County is available on the County website:

<http://www.hillsboroughcounty.org/pgm/pdrp/>

Post-Disaster Redevelopment Plan - Documents and Meeting Summaries

Draft Post-Disaster Redevelopment Plan (as of February 2010)

- [Introduction Section](#)
- [Implementation Section](#)
- [Infrastructure Section](#)
- [Health and Social Services Section](#)
- [Housing Recovery Section](#)
- [Finance Section](#)
- [Economic Section](#)
- [Land Use Section](#)
- [Environmental Restoration Section](#)
- [Public Outreach Section](#)
- [Appendix A Definitions, Acronyms and References](#)
- [Appendix B Planning Process](#)
- [Appendix C Regulations](#)

Action Reports

- [Post-Disaster Economic Committee](#)
- [Post-Disaster Environmental Committee](#)
- [Post-Disaster Financial Administration Committee](#)
- [Post-Disaster Housing Recovery Committee](#)
- [Post-Disaster Health & Social Services Committee](#)
- [Post-Disaster Infrastructure Committee](#)
- [Post-Disaster Land Use Committee](#)
- [Post-Disaster Public Outreach Committee](#)
- [Pre-Disaster Economic Committee](#)
- [Pre-Disaster Environmental Committee](#)
- [Pre-Disaster Financial Administration Committee](#)
- [Pre-Disaster Health and Social Services Committee](#)
- [Pre-Disaster Housing Recovery Committee](#)
- [Pre-Disaster Infrastructure Committee](#)
- [Pre-Disaster Land Use Committee](#)
- [Pre-Disaster Public Outreach Committee](#)

Community and Hazard Background

Hillsborough County is located in western coastal Florida. It includes the city of Tampa. Its population is about 1,117,000. It is located on the inside of a bathometric bay, so coastal storm surge is an important hazard. The county also contains a dozen small rivers, so riverine flooding is also a hazard. Some of these rivers begin in other parts of the state, so floods often occur in upriver prior to reaching Hillsborough County floods. There is also a lot of sinkhole activity, which causes inland flooding including pooling and sheet flow.

Plan Development

Coastal management was an important element in the County's comprehensive plan. Because Hillsborough County has a coastal management element, it was required to have a post-disaster redevelopment plan. Following Hurricane Andrew in 1993, the Board of Commissioners developed an ordinance for post-disaster recovery rather than a complete plan. The emergency manager and planning director in the late 1990s saw mitigation as an important issue. They believed that for mitigation to be effective, it must integrate planning, building, and emergency management, however this perspective was not implemented until more recently. The original post-disaster recovery ordinance stood for thirteen years, but was changed after a series of events. These included the county's experiences with the hurricanes of 2004 and 2005, and its recovery assistance to Hancock County, MS following Hurricane Katrina. These events were followed by a county/city table top exercise which identified local deficiencies. Based on these experiences Hillsborough County's Administrator and Board of County Commissioners, with support from cities within the county, decided to seek a Hazard Mitigation Grant Program (HMGP) grant to evaluate the county's situation and identify changes that should be made to its plans and recovery ordinance. In 2009, the county became a pilot community for post-disaster redevelopment planning. They formed a plan that included all stakeholders and had eight technical advisory committees and an umbrella group with about 250 members.

When the plan was being developed, the county had just finished a three year process updating flood hazard maps, which affected more than 25,000 people. That process had involved an effective public outreach program, which they based the post-disaster redevelopment planning process on. The planner worked to pull in the many stakeholders in the community including: activists, boards of realtors, building associations, finance directors, private enterprises, and others.

Before this outreach process began, the county held a leadership meeting, as required by the grant from the state. The county brought mayors, administrators, and others together to explain the length, content, and goals of the process. They explained that the process would take six to nine months and would require a lot of work, and the process would result in a post-disaster redevelopment plan. These participants were split into technical advisory committees: economic, communications, land use, finance, environment, housing, health and social services, and infrastructure and critical facilities. Another important aspect to these meetings, and the community outreach that followed, was explaining to the community that they would have to focus on priority areas for redevelopment - the entire county cannot be redeveloped at once. This designation is in some ways traditional planning; they examined neighborhood subareas of the community to determine which were already resilient to disasters, and which are necessary even if they are not currently resilient. These activity centers were labeled priority redevelopment areas, to keep the focus on long-term issues.

Using the philosophy that the creation of the PDRP should be a community-driven document, the county encouraged the community members to make important decisions. This support also encouraged policymakers to make decisions on key issues. The community determined that some post-disaster planning issues require political direction. That political direction only occurred because stakeholders and the community members supported the planners in presenting the options to local decision makers. To be more effective, the planners were very involved in selecting the chair and vice chairs of the technical advisory committees.

Plan Elements

The plan includes sections related to housing recovery, financial administration, land use, health and social services, public outreach, economic redevelopment, infrastructure and public facilities, and environmental restoration.

The plan includes significant implications for land use. It identifies multiple priority redevelopment areas. The number of redevelopment areas will be determined during the next phase of work on the plan. In the redevelopment areas, the plan establishes how (e.g., priorities, timing, and location) to restore the infrastructure, it encourages higher design elevations, and it includes more mitigation strategies in vertical construction and land development codes. Changes to the land development and construction codes began before the actual drafting of the PDRP. The plan incorporated these changes and further sanctioned their use.

The plan also makes significant compromises in an attempt to promote more rapid recovery. The plan also has allowed changes in the land development codes to allow emergency housing to be put in 90% of zoning areas. It also allows flexible setbacks and architectural design standards for commercial buildings in the first year following a major disaster. These sections of the plan allow non-conforming commercial and residential to help facilitate long term rebuilding. The code was

also changed to allow temporary long-term communities of 50 to 100 units that meet particular standards. These efforts were all undertaken to promote quick redevelopment. These land use regulations all employ traditional planning techniques, but the process allowed a focus on post-disaster redevelopment. The planning process recognizes the controversial nature of some post-disaster redevelopment strategies and brought these policies to the county board to receive direction.

The county believes it is important to integrate the PDRP into other plans. However, this integration is made more difficult due to timing. Next, the county wants to integrate the PDRP into its floodplain management plan. Staff believes that the all hazards plan, the PDRP, and the floodplain management plan need to be better coordinated. This coordination is made easier because they are coordinated through one team. While comprehensive plans often include some component of disaster mitigation, developing that component often does not rely on emergency managers. Increasing the participation of emergency managers in developing pieces of comprehensive plans can be really useful, especially when encouraged by the county administration. Still, although the components are there, there hasn't been a lot of integration of PDRPs into other plans.

The county recognizes the importance of the land use element and the need for balance between building a safer future and keeping residents and businesses from moving away. Ideally, the county should be able to create opportunities and incentives to build into less hazard prone area. They want to allow temporary rebuilding and permanent building with higher standards. Using priority redevelopment areas is only effective if there is community support. The current county transfer of development rights (TDR) regulations are scheduled to be studied. Funding has been secured to study how to modify the TDR regulations so they foster a banking system that encourages the transfer of development rights from high-risk areas into designated resilient priority redevelopment areas PRAs. This provides intensity and density in safer activity centers. Neighborhoods within high risk areas were not designated as PRAs. Thus, designating the priority redevelopment areas was the most controversial aspect of the plan.

Another difficult aspect of the plan was discussing potential contamination issues. Contamination could prohibit areas from being rebuilt. While EPA has relaxed some standards related to contamination, this relaxation can create problems for local government. If local government allows people to re-enter contaminated areas and they get sick, the local government is blamed. The county is in the process of figuring out these issues, but they require significant coordination and a lot of expert advice.

Plan Implementation

The plan has not yet been activated because Hillsborough County has not faced a disaster serious enough to warrant activation. County staff has indicated that the implementation of the plan may be hampered by a loss of continuity in personnel in these communities. Someone must update the plan annually, but those involved in the process are retiring. Because the relationships and connections between people are so important to the effectiveness of the plan, this loss of continuity is important. In addition, when the plan is activated the county will learn whether community acceptance of priority redevelopment areas is effective. The county may face pressure to redevelop in non-priority areas first.

Conclusions

The planner believes that key elements of the PDRP should be included in CRS. By doing post-disaster redevelopment planning, communities are meeting higher standards. CRS should acknowledge when communities meet higher standards, such as extensive community involvement in the planning process and higher construction standards than normally required. Participating in the CRS is a whole planning process in itself, but rarely acknowledges other planning processes that are in place. For example, CRS points are not awarded for annual stakeholder meetings or other planning activities.

CRS gives credit for floodplain management, but floodplain management should be included in PDRP. One obstacle is that the land use components that PDRP often discusses explicitly (such as streets, utilities, etc.) are not insured under CRS. While post disaster redevelopment planning should reduce losses to insurable buildings over the long run, the elements discussed in these plans may not be insurable buildings. However, PDRP makes a more resilient community overall. It's very difficult to add more to CRS without making CRS more convoluted.

Process Conclusions

- Be clear about the length of the planning process. This allows decision makers and the public to understand that while the process requires a lot of work, that work will last for a finite amount of time.
- Include a disaster mitigation component in the comprehensive plan. Getting emergency managers involved in helping write this section can be helpful in forming positive relationships and sharing knowledge.

Land Use Conclusions

- The plan identifies priority redevelopment areas by examining the resiliency and importance of activity centers. Conveying the idea that not all areas can be redeveloped at once is important.
- The plan relies on temporary building for residents and businesses while enforcing higher standards for long term rebuilding.
- The process should explain to decision makers how long redevelopment could take. This discussion is helpful in facilitating the difficult and controversial process of establishing priority redevelopment areas.
- The plan should include employment centers as well as residential areas.
- Strategies such as transfer of development rights can be combined with a banking system to allow landowners to move to a safer spot and simultaneously bank their development potential at a financially difficult time.

Other Conclusions

- Post-disaster redevelopment planning needs to be accessible to the general public through the use of terms that are understood by planners, emergency managers, and the public. Language choices should be intentional.

- Coordinating the success of both businesses that benefit from disasters and those that are hurt by a disaster is difficult but important.

CITY OF TILLAMOOK, OREGON

The City of Tillamook takes a broad approach to post-disaster redevelopment planning, by integrating this planning into flood mitigation and hazards planning and implementing an aggressive property acquisition program. The City adopted a flood mitigation plan in 2006, but has since expanded that approach to include post-disaster planning activities focused on repetitive loss properties.

http://www.tillamookor.gov/images/FloodMitigationPlan_2009.pdf¹⁵

Community and Hazard Background

The City of Tillamook is a coastal community in Oregon. Its population is about 25,000 people. The city is located on a large floodplain, where five rivers drain into a basin. The City has had repeated riverine floods—including events in 1996, 1998, 1999, 2001, 2003, 2006, 2007, and 2008.

Plan Development

In 2002, Tillamook’s natural hazards work group developed a flood mitigation plan in coordination with the University of Oregon’s Community Service Center. This plan was developed in response to significant property damage from flooding in the previous years. Starting in May 2007, the flood mitigation plan is being updated the City and they have expanded the scope of the plan to include post-disaster recovery. This expansion is facilitated through money from the state-funded Oregon Solutions, in addition to money from the city and the county.¹⁶

This expansion stemmed from problems that local groups were having getting permits to make improvements to the floodplain to reduce flood hazards. The region’s state senator worked to help these groups get money for these projects through Oregon Solutions. Oregon Solutions hired a staff person to work with the city and county to identify projects to that make the community more resilient to flooding. These projects, particularly the spillways developed through this program, have been effective in reducing flood hazards. Under a hazard mitigation grant program, the city was also able to purchase five repetitive loss properties, all of which were businesses. The community worked hard to relocate these businesses within the community. The community also used flood mitigation grant program money to help businesses elevate their buildings.

Originally, the plan development was not controversial. However, some opposition to the plan is developing now as the city is getting involved with buyouts. The business community opposes the buy outs because they remove properties from the tax rolls. . Conversely, the city believes that the loss of tax revenue is overcome by relocating businesses to areas with less risk of flooding that still fall within the city taxing district. In addition, the amount of tax dollars spent on flood mitigation

¹⁵ Note: the Tillamook Flood Mitigation Plan does not include a table of contents.

¹⁶ Oregon Solutions is a state-funded program that seeks consensus around difficult policy issues through outreach to key stakeholders. See <http://www.orsolutions.org/>

and disaster response activities for repetitive loss properties exceeds the revenue generated from those properties.

Plan Elements

Unlike other post-disaster recovery planning efforts CPW reviewed, Tillamook's efforts have been closely tied with hazard mitigation planning efforts and the post-disaster recovery planning process has not been a separate effort.

Tillamook's efforts also differ in the use of buy-outs and coordination with the state-funded Oregon Solutions Group. The community is looking into maintaining buyout properties as open space. Currently, they are deed restricted and owned by the city. One Oregon Solutions project is to examine what can be done with this space to foster economic development without creating additional risk to natural hazards. For example, the project has identified overnight campground areas, bird watching sites, and other uses of natural areas as a way to utilize the space.

As a part of the post-disaster recovery planning, the community is also looking at doing an assessment to determine if there are areas within the community where residents and businesses in the floodplain could relocate. The city has asked an economist to examine the city for opportunity sites. This will inform future acquisition of repetitive loss properties.

In terms of land use regulation, city code allows residents to build in a floodway if the building doesn't increase flood levels within the flood zone. Balancing property rights and public good is difficult.

The city plans on including post-disaster redevelopment activities in the comprehensive plan and in other relevant plans. In particular, it wants to strengthen elevation requirements in the building codes. To encourage businesses to think about flood preparedness and contingency planning, the City holds an Open for Business workshop annually. As a result of this workshop, the Economic Development Council created a document that explains to businesses how to prepare for post-disaster recovery.

Plan Implementation

Post-disaster recovery efforts have been carried out gradually through buyouts, relocations, and economic redevelopment of individual parcels.

Conclusions

The Tillamook City Manager believes that PDRP should be included in CRS. This would encourage more communities to do this type of planning. In addition, he believes that including post-disaster recovery planning in CRS might open the CRS system to broader approaches to flood preparedness.

Process Conclusions

- Using innovative partners, such as Oregon Solutions, can be helpful in carrying out the planning and implementation process. Sometimes these programs are more effective than cities can be at getting all the agencies in one room.
- Getting state, federal, and local agencies in one room is very important.

Land Use Conclusions

- When properties are acquired, their zoning designation is changed to open space, but can still be beneficial for economic development.
- It is important to collaborate with business owners and residents to find alternative sites for development that are safer and remain within the taxing district.

CHAPTER 4: CONCLUSIONS AND RECOMMENDATIONS

This chapter summarizes CPW's conclusions and recommendations from our case study research. It also includes a discussion of potential next steps, including a list of strategies that could be considered for eligibility for CRS credit in Section 510.

CASE STUDY CONCLUSIONS

CPW developed its conclusions about effective post-disaster recovery planning and inclusion of PDRP in CRS both through the case study research in previous chapters and also through general research of other communities. This research resulted in the following conclusions:

- **Few local governments are preparing PDRPs.** This is, in part, because PDRPs are a relatively new concept, but also because there is no incentive for jurisdictions to embark on what is a difficult, time-consuming, expensive, and controversial process.
- **Leadership makes a difference.** This is particularly true if leadership is at the state level. Florida provides an excellent example of statewide leadership that is resulting in more wide-spread and more thoughtful PDRPs. It is notable that Florida has had a PDRP requirement for more than 15 years, but that few jurisdictions actually prepared PDRPs. That was partially due to lack of enforcement, but it was also due to lack of leadership. Pilot programs and guidelines seem to give communities solid direction in figuring out how to act. Funding for this planning is also helpful.
- **PDRP planning is complicated and controversial.** The three Florida Counties reviewed as part of this study all had plans that were in excess of 150 pages. These communities all acknowledged the controversies inherent in the post-disaster recovery planning process. Though it may make planning more difficult in the short term, this controversy is best overcome through including residents in the planning process. If a plan has community support, policymakers are more likely to make difficult decisions. Still, all of the case study communities acknowledged that not all issues can be addressed within the planning process. Post-disaster recovery planning requires ongoing actions, and these ongoing actions should incorporate ongoing community involvement.
- **PDRPs should address the broad range of issues related to redevelopment.** While each of the three Florida case studies had a different emphasis, county staff acknowledged the weaknesses of each of their plans and desired to develop those parts of their plans more fully in the future. All of the plans recognized land use, economic recovery, and implementation as key elements. However, successfully addressing each of these in a detailed fashion during the planning process was difficult.
- **PDRPs provide opportunities to integrate emergency management, recovery, land use planning, economic development, infrastructure planning, and other local government efforts.** While this can significantly complicate the PDRP process, the three Florida case studies suggest that it is possible—and desirable.

- **Land use should be a central component of an effective PDRP.** Land use is at the core of a post-disaster redevelopment plan, however, two of the four case studies (maybe three) had relatively weak land use strategies. This is due to the complex legal and economic issues that are associated with large scale displacement, redevelopment or relocation of land uses. Hillsborough County Florida had the most refined land use strategies, including transfer of development right programs, stricter building code standards, and other effective approaches.
- **Effective land use strategies are challenging.** Two of the three Florida case studies acknowledged the difficulties inherent in addressing redevelopment and started the process of engaging with the community on these issues, but were unable to specifically designate a post-disaster land use recovery sequence. However, county staff felt that engaging the public in these discussions now will make decisions about land use redevelopment easier in the future. The third Florida case study addressed land use redevelopment directly through designation of priority redevelopment areas. Though this was controversial, county staff believed they were successful at designating these areas by connecting this process to traditional land use planning.
- **Involving key stakeholders is critical.** Involving both local officials and the public is important. Local officials provide the support to get planners, emergency managers, and staff working towards economic development in the same room. Local officials often also need to make key decisions that allow the process to move forward. Local officials feel comfortable making these decisions if the public stands behind them. To get the public to understand the decisions that must be made related to post-disaster recovery, the public must be involved early.
- **Better tools are needed.** Because PDRPs are an evolving process, little guidance exists, and even less evaluation of what strategies have the most impact. The State of Florida is developing a guidebook that will provide local governments in Florida with guidance under state laws; however, we think a national guidebook on PDRPs would be extremely helpful in expanding the number of local governments that prepare PDRPs.
- **Post-disaster recovery planning reveals the tensions between private property rights and the public health, safety and welfare.** The land use aspects of post-disaster recovery planning can be particularly problematic; these plans sometimes ask people to relocate after they have already experienced loss due to a disaster. This process can be controversial, difficult, and have implications for their private property rights. This inherent tension suggests that it is all the more important to get the public involved early and to create a process that is transparent and fair.
- **Post disaster-redevelopment planning can open the door to discussing the idea that avoidance is more effective than mitigation in reducing disaster vulnerability.** When communities begin to talk about where residences and businesses should be relocated after a disaster, it allows for discussions about where residences and businesses should not be built in the first place. While relocation, engineering, and other infrastructure solutions do exist, the best way to avoid disasters is not to locate structures in disaster-prone areas.

In summary, local governments have little incentive to go through the expensive and controversial process of developing PDRPs. Including PDRPs, or elements of PDRPs, as part of the CRS criteria would provide some incentive and justification for communities to engage in these processes. The staff in communities CPW talked to for these case studies supported the idea of receiving points for PDRP. To encourage communities to undertake PDRP, FEMA will probably need to provide more than CRS credits. Guidance (through guidebooks and evaluation research), incentives (through CRS or other programs), and funding, are all needed if one of FEMA's core objectives is to broaden PDRP efforts nationwide. Encouraging the development of PDRPs could be a much broader agenda for FEMA. This would require significant research, resources, and support.

STRATEGIES TO CONSIDER FOR ELIGIBILITY FOR CRS CREDIT

An important goal of post-disaster recovery planning is reducing future vulnerability to floods. The Community Rating System also encourages communities to reduce their flood vulnerability. This vulnerability is primarily reduced through avoiding development in flood prone areas. Jurisdictions that have strategies (particularly land use strategies) that reduce the amount of development in flood prone areas should receive the most credit. This requires both moving development that has already occurred away from flood prone areas and preventing future development in flood prone areas. Flood vulnerability can also be reduced through mitigation, though this is less effective than avoidance. Post-disaster recovery planning should require safer structures, infrastructure, and critical facilities.

The following strategies were identified as helpful elements of post-disaster recovery planning. These strategies should be considered for possible inclusion in the Community Rating System. The strategies described below outline important elements of post-disaster recovery planning, but they should not be seen as specific enough to suggest criteria for inclusion in CRS. These elements should serve as guidelines for future conversations about PDRP and CRS. Additional work will be required to determine criteria that fit within the broader CRS framework and are specific enough to ensure a good plan. These specific criteria should be reviewed by both FEMA and staff in communities who are involved with CRS applications. This section also discusses the approach taken by Florida, which provides a useful example for post-disaster recovery planning.

- **Increase the amount of CRS credit available for floodplain management strategies.** Currently 359 points are available for various floodplain management strategies. Our initial evaluation is that PDRP efforts would fall into this category, but that additional points should be available to communities that engage in post-disaster redevelopment planning efforts.
- **Provide credit for communities that develop a post-disaster recovery plan.** We recommend that FEMA establish specific criteria for what should be included in a PDRP for it to get CRS credit. This could include sections related to land use, housing, economics redevelopment, infrastructure, environmental conservation, employment, health and human services, and government operations. It could also require that plans assess opportunities and barriers for implementation, availability of financial resources, communication of the PDRP, and the plan's connection to other policies and procedures.

- **Award points for robust processes that engage a broad range of stakeholders.** Representatives from planning, emergency management, and economic development areas should all be involved in plan development as well as the general public.
- **Award points for land use elements.** PDRPs should address both residential and employment land uses and should include strategies to move development in high-risk areas to other areas, strategies to govern the redevelopment process, and strategies to ensure adequate building standards are met. Potential criteria could include
 - The post-disaster recovery plan identifies priority redevelopment areas.
 - These priority redevelopment areas include both residential and employment centers.
 - The post-disaster redevelopment plan creates a banking system for transfer of development rights.
 - The post-disaster recovery plan is integrated into the comprehensive land use plan.
- **Award points for integration with other plans.** This could include economic development strategies, functional plans (transportation, water, wastewater, parks, etc.). Additional criteria or elements could include.
 - The post-disaster recovery plan addresses economic recovery.
 - The post-disaster recovery plan addresses how to aid both local businesses that benefit from disasters and those that are hurt by disasters.
 - The hazard mitigation plan is integrated into the post-disaster recovery plan.
 - When comprehensive plans, emergency operation plans, and floodplain management plans are revised, the post-disaster redevelopment plan is incorporated.

Florida is a Leader: Utilize Florida’s Best Practices Guide for Post-Disaster Redevelopment Planning

As demonstrated by the locations of most of the case studies, Florida has done significant work on post-disaster recovery planning through its Post-Disaster Redevelopment Planning initiative. The goal of this initiative is to develop a Best Practices Guide for Post-Disaster Redevelopment Planning. The draft guidelines are being tested on six diverse pilot communities. Rather than being chosen from their population size, these communities are intended to represent a diversity of flood hazards (coastal and inland), demographics (urban and rural), and other characteristics. In early 2010, these guidelines will be finalized. In addition to the input from the pilot communities, these guidelines were developed from literature, previous post-disaster redevelopment plans, and focus group input. The significant work that has gone into developing these plans will make it a useful resource for examining post-disaster recovery planning at a nationwide scale. This guidebook should be examined when making recommendations for the inclusion of PDRP in CRS.

However, two key issues should prevent FEMA from simply using Florida's guidebook directly. First, this guidebook was not created with any intent to have implications for the Community Rating System. While its guidelines seem likely to be excellent, they are certain to be more extensive and elaborate than the CRS can reward or monitor. A frequent frustration with the CRS is its bulky assessment process; steps should be taken to ensure that inclusion of PDRP in CRS does not make the process even more difficult.

In addition, while the initiative sought to include a diversity of perspectives from within Florida in both its pilot program and its focus groups, this diversity is not representative of the flooding types across the U.S. In addition, resources and structures in Florida may differ significantly from those in other parts of the country. Still, FEMA data suggest Florida has 40% of the nation's NFIP policies but only 6% of the nation's population. This suggests that Florida's actions should and will be influential in shaping post-disaster recovery planning across the country.

OBSTACLES TO INCLUDING PDRP IN CRS

Through investigation of the case study communities, some obstacles to including post-disaster recovery planning in the Community Rating System were identified.

Time and Resources

The Community Rating System recertification process is already difficult and resource intensive. The process requires considerable staff time and financial resources as well as technical knowledge about floodplain management and the CRS program. Many communities, however, have professional staff that are capable of facilitating the CRS application process. The incentive, of course, is reduced flood insurance premiums for a broad class of property owners. Adding more elements to this process could make the system seem more convoluted and less feasible.

Individuals CPW interviewed for this project universally explained that CRS is a difficult process. Many elements that seem very beneficial to communities, such as open space preservation, receive considerable credit but are difficult or expensive (or both) to accomplish. Some communities believe the CRS requirements keep changing, which complicates their efforts and makes them question the value of the program. Even when participation in CRS saves about \$5 million a year, this can result in only a relatively small benefit per person. Public staff and local decision makers at the county and the cities want to better understand how participation in CRS in particular benefits the communities.

It's very difficult to add more to CRS without making CRS more complicated. Some of these credits come through the credits given for hazard mitigation plans, but post-disaster redevelopment plans really go beyond that. One difficulty is that when done correctly, local mitigation strategies become a small component of the post-disaster redevelopment plan, while CRS only gives credits for these local mitigation plans.

PDRP is about more than flooding

Currently, CRS gives credits for hazard mitigation plans. Post-disaster recovery planning does more than hazard mitigation, and often encompasses more than hazard mitigation plans—they address local economies, land use planning, and other elements. The challenge in including post-disaster recovery planning in CRS would be in meshing the programs together without diluting post-disaster

recovery planning. Particularly because of CRS' basis in insurance, CRS cannot capture all of what post-disaster recovery planning accomplishes.

Activation is Rare

FEMA wants CRS to credit communities that have implemented their post-disaster recovery plans. However, many aspects of these plans are only implemented after the plans have been activated, which require a significant disaster. Credit should not hinge on plan activation. Instead, the implementation of the action items laid out in the plan should be credited.

NEXT STEPS

This study was not intended to result in a proposed set of criteria for how to incorporate post-disaster recovery planning efforts into the CRS. Rather, the case studies were intended to be indicative of the planning process, elements included in PDRPs, and identify potential areas that could be considered for inclusion in CRS.

Our assessment is that post-disaster recovery planning efforts should be recognized as a part of CRS, but that considerable work remains to determine the specifics of what should be recognized, how it should be scored, and resolve other issues. The following are a few ideas for next steps based on CPW's research:

- In early 2010, FEMA should examine Florida's Best Practices Guide. Some of these best practices could be incorporated into a system of providing CRS credits for post-disaster recovery planning.
- FEMA should conduct focus groups with planners and emergency management specialists in Florida that have prepared post-disaster recovery plans to identify specific areas that might be included for CRS credit. These focus groups could also examine in more detail elements to creating an effective post-disaster recovery planning process.
- FEMA should work to develop nationwide PDRP guide. This would help communities undertake post-disaster redevelopment planning and help ensure that these plans include the elements required to make them effective. While developing this guide is a much larger process than including PDRP in CRS, both post-disaster recovery planning and CRS have the same goals and developing of this type of guide would reduce flooding hazards.
- Until more comprehensive PDRP guidelines are developed FEMA could modify the hazard mitigation points to include post-disaster recovery planning.

APPENDIX B: RESULTS OF THE CASE STUDY SCREENING QUESTIONNAIRE

INTRODUCTION

CPW distributed a questionnaire to emergency and floodplain managers via an email list. Respondents answered questions regarding their community's post-disaster recovery planning, disaster experience, and plan implementation. CPW reviewed these responses to determine which communities met the following key preliminary objectives.

- Communities that had pre-disaster planning for post-disaster recovery strategies
- Communities that had experienced a disaster since developing the plans
- Communities that had implemented those strategies after the disaster
- Communities that were willing to be contacted

CPW further examined the responses that met these criteria to identify communities with innovative post-disaster mitigation plans. When documents were available online, CPW reviewed plans pertaining to various aspects of the community's post-disaster recovery strategies. This review helped CPW narrow down a list of recommended case study communities.

RESULTS

Seventy-four respondents began the survey and 41 respondents completed the survey. 33 of these respondents provided some sort of contact information. Of these responses, 17 responses met the key preliminary objectives listed above. Because the survey was distributed to a list that included many state-wide emergency managers, 13 of the 17 responses that met the key preliminary objectives were state-wide responses. This required CPW to undertake further research to identify communities within those states that met the criteria and had innovative plans. This was accomplished through internet research, phone calls, and email contact with the state respondents.

Survey Responses

Following is the response from the questionnaire.

Has your community done pre-disaster planning for post-disaster recovery strategies? (Strategies can include regulations, incentives, plans, policies and other approaches.)		
Answer Options	Response Percent	Response Count
Yes	78.9%	56
No	21.1%	15
Please explain (or provide links to documents)		38
answered question		71
skipped question		3

- Community has begun discussions on both processes but is slow to engage
- Done with your assistance and guidance.
- <http://www.co.benton.or.us/sheriff/ems/hazard.php>
- State Level - The Washington State Department of Agriculture has been working closely with the USDA Farm Service Agency on being able to action USDA Agricultural Disaster Program to assist producers impacted by disasters.
- Internal documents that identify SOPs.
- Yes tabletops and education. Work completed on mass vaccination plan
- "State of Utah Hazard Mitigation Plan, FEMA approved January 2008
- http://site.utah.gov/dps/homelandsecurity/MitigationPla_MMtmp24d95a3b/MitigationPlan.html
- The State of Louisiana, all 64 parishes, and 14 other entities throughout the State have approved / adopted Hazard Mitigation Plans
- The state of Montana has an approved PDM Plan and 51 of 56 Counties have approved PDM Plans. 6 of 7 Tribal reservations either have approved FEMA plans or have been found "approvable" by FEMA. Currently none of these plans specifically detail "post-disaster recovery strategies". Most of that we consider thoroughly covered under the current FEMA "Public Assistance" area.
- Extensive debris management planning, emergency volunteer center training and established practices, special needs registration programs, 211 system for information exchange, a reverse 911 telephone information system, shelter management program and MOU.GPS mapping and location of deployable equipment, resource management listing by agency and private sector.MCI plan, Mass fatality plan, various other projects too many to mention.
- "1. States Multi-Hazard Mitigation Plan.
- 2. Local Multi-Hazard Mitigation Planning.
- Community exercises"
- As the State we have a state mitigation plan.
- "California has a Recovery and Mitigation Handbook that is available to local governments that is available on our web site.
- California has plans to develop a Recovery Plan."
- We are a State
- This link provides access to all Virginia Regional/locality mitigation plans. In VA localities predominately work together with our PDCs to develop these.
<http://www.vaemergency.com/library/plans/mitigation.cfm>
- Although Cal EMA does not have a Disaster Recovery Plan, there is a Disaster Recovery Exercise. And, Cal EMA does have an enhanced State Hazard Mitigation Plan. Cal EMA also has a canned PA Applicant Briefing presentation that is updated for each new DR.
- "<http://www.msema.org/mitigation/>
- <http://ms.stormsmartcoasts.org/>"

- We have initiated the development of a formal State level Long Term Recovery Council that seeks to focus federal funding programs and emergency response programs on developing a strategic plan to support local efforts to build disaster resilient communities. This Council would work before disasters and be activated during disasters to prepare communities as best as possible for recovery.
- Walla Walla, Benton and Franklin Counties are currently engaged in a pre-disaster planning/post disaster recovery exercise series, sponsored by US Army Corps of Engineers and Department of Homeland Security. Scenario is flooding along the Columbia River, but results of exercise series is applicable to all-hazards. For more information, Contact Paula Scalingi, Pacific Northwest Economic Region. She is leading the program.
- "Yakima County's Comprehensive Emergency Management Program (CEMP) has incorporated Recovery strategies in the following categories:
 - Reentry Operations; Recovery Management; Rebuilding and Reconstruction; Public Agency Recovery; Business Recovery; and Damage Assessment. These strategies comprise Emergency Support Function 14-- Long-Term Community Recovery and Mitigation."
- "Spokane County has a Mitigation Plan and we are in the process of having a Disaster Recovery Plan in place by 12/09.
- Our CEMP is at: www.spokaneprepares.org"
- FEMA approved All-Hazard, multi-jurisdiction mitigation plan, community wildfire protection plan, CEMP, Emergency Coordination Center Plan, & under development disaster recovery plan.
- Vermont has done pre-planning both at the local and regional levels and in our State Hazard Mitigation Plan. As much as possible, we emphasis prevention and pre-disaster planning to minimize post disaster repairs. We have proposed incentives to perform mitigation, e.g. increasing levels of state assistance to towns actively pursuing mitigation efforts.
- State Hazard Mitigation Plan, HMGP Administrative Plan and PA Administrative Plan all contain post-disaster recovery strategies.
- All 87 counties have an all-hazard mitigation plan. Most counties do complete pre-disaster planning based on disasters that have occurred over the years.
- "State Mitigation Plan and Local Mitigation Plans at <http://ema.alabama.gov/>"
- "The State of Missouri has a FEMA approved Standard/Enhanced Hazard Mitigation Plan.
- In Missouri, there are 864 jurisdictions (counties, cities, special road/other districts, public utilities, universities/colleges, school districts) that are covered by a FEMA approved Hazard Mitigation Plan, and one (1) plan with four (4) more jurisdictions approved pending adoption. Missouri currently has six (6) county-wide plans (47 jurisdictions) under development for the first time, bringing the total coverage to 911 jurisdictions (about 98% of our population). This leaves only six (6) more counties (46 jurisdictions) not seeking a plan to date, out of 114 counties and the independent City of St. Louis (a dual county/city government) and 957 city/village jurisdictions (1071 total). We continue working to convince the remaining 160 jurisdictions to participate and adopt plans."
- "This response is being provided by the Commonwealth of MA Emergency Management Agency (MEMA). MEMA coordinates hazard mitigation planning (thru Regional Planning Agencies) with the 351 individual communities in the Commonwealth. Approved plans = 163; In process = 85; Conditionally approved = 14; Review = 34; None = 44; Non-NFIP = 14
- The State, and 16 of it 16 Counties have FEMA approved Plans."
- "Documents are not online.
- Each plan has as a strategy for compliance with the NFIP and several strategies that address codes and ordinances for building in the floodplain. Some plans take this further and include building codes, incorporation into stormwater management, and various other plans such as capitol improvement, EOCs, and LEPC plans."
- I am the State Hazard Mitigation Officer for the State of Ohio. 86 of Ohio's 88 county's have FEMA approved mitigation plans. The 2 that do not are currently being reviewed by FEMA. Most communities in Ohio (over 730) participate in the NFIP, which has mitigation requirements for pre-FIRM structures located in a flood hazard area and damaged to 50% or more of the market value. Mitigation planning is

different from "recovery planning" and I am not aware of how many communities have developed recovery plans.

- I am the State Hazard Mitigation Planner, but facilitate local jurisdictions in this effort. Currently, we have 36% of our State's 102 counties covered by a plan. 39% are developing a plan, while the other jurisdictions are working on NFIP compliance to be eligible for funds, or have not started a plan for one reason or another.
- "In accordance with the Disaster Mitigation Act of 2000, the State of Florida has an approved Enhance State Hazard Mitigation Plan as well as 100% compliance for all Florida Counties having FEMA approved multi-hazard mitigation plans (referred to in Florida as Local Mitigation Strategies (LMS)). As federally required and as communities conduct the required 5-year update of their LMS, they will be including Flood Mitigation Plans as well as all NFIP coordination. In addition, all coastal communities in the State of Florida are required to have Post-disaster Redevelopment Plans."
- "Survey being conducted by State Hazard Mitigation Staff. The following jurisdictions have completed local hazard mitigation plans:
 - Allegany Co.
 - City of Annapolis
 - Anne Arundel Co.
 - Baltimore City
 - Baltimore Co.
 - Calvert Co.
 - Caroline Co.
 - Carroll Co. (update undergoing FEMA Review)
 - Cecil Co. (update undergoing FEMA Review)
 - Dorchester Co.
 - Frederick Co. (update undergoing FEMA Review)
 - Garrett Co.
 - Harford Co.
 - Howard Co.
 - Kent Co.
 - Montgomery Co.
 - Prince George's Co.
 - Queen Anne's Co.
 - Somerset Co.
 - St. Mary's Co.
 - Talbot Co.
 - Washington Co.
 - Wicomico Co.
 - Worcester Co.
 - Town of Ocean City"
- http://www.scemd.org/Mitigation/mitigation%20_planning.html
- The Mitigation Group of the AZ Division of Emergency Management has completed a State Multi-Hazard Mitigation Plan which addresses historical and potential hazards and lists strategies to mitigate those hazards.
- Non-community work since we are a state; however, the plan includes strategies of how best to implement HMGP following a disaster declaration.
- Multi-Hazard Mitigation Plan, Hurricane Relief Fund

Were these strategies adopted?		
Answer Options	Response Percent	Response Count
Yes	87.5%	42
No	12.5%	6
If Yes, please identify the plan(s):		36
<i>answered question</i>		48
<i>skipped question</i>		26

- Sweet Home Multi-Hazard Mitigation Plan
- Hood River County Mitigation Plan
- "Natural Hazard Mtigation Plan
- EOP
- Debris Management Plan"
- Still in process
- The strategies in place are aimed mostly at response and the reuslting recovery. We were effective last year with the winter storms in obtaining USDA Secretarial Declarations for Agricultural Disasters, Administrators Physical Loss Designations an actioning the Emergency Conservation Program.
- WA Region 5 Hazard Mitigation Plan (48 Jurisdictions)
- State mitigation strategies were referenced and used in local regional hazard mitigation plans.
- LEPC city and county
- "Standard State Mitigation Plan (2009)
- Approved by FEMA"
- Numerous parishes are funding projects that were identified or developed during their planning process.
- Hazard mitagation planning process
- "State Multi-Hazard Mitigation Plan
- Local Multi-Hazard Mitigation Plan"
- State mitigation plan
- <http://www.vaemergency.com/library/plans/mitigation.cfm>
- "State Hazard Mitigation Plan
- All CRS communities have adopted plans."
- We are just now developing them.
- They will be when we complete our work in December 2009.
- The Yakima County Comprehensive Emergency Management Program (CEMP) requires the adoption of this plan by the stakeholders identified in the plan. The CEMP was adopted by the legislative bodies (county commissioners/city or town councils) through a resolution. Adoption of this CEMP is required under Washington State law.
- All-Hazards mitigation plan, CWPP, CEMP.
- Although Vermont has not fully embraced all proposed incentive plans, we have been successful in enforcing NFIP compliance with towns seeking mitigation grant funds.
- State Hazard Mitigation Plan, HMGP and PA administrative plans.
- All cities and counties involved in the mitigation plan requirement adopt the plan and implement the strategies in the 5-year plan update process.
- The state and local mitigation plans all contain strategies and all plans have been adopted.
- "The Territory Hazard Mitigation Plan was approved and adopted July 2008.
- <http://americansamoa.gov/departments/dhs/temco.htm>"
- The Territorial Hazard Mitigation Plan which was approved and adopted by FEMA in July 2008. This Plan is available online at <http://americansamoa.gov/departments/dhs/temco.htm>.

- Some locally developed hazard mitigation and risk reduction strategies were developed as part of the mitigation planning process and have been adopted.
- Each County (multi-jurisdictional) Plan was adopted by the participating communities. These cover 99% of the State's 1.3 million population.
- See number 1.
- Each county plan is different, but there have been adoptions that integrate the mitigation HIRA and strategies. These were adopted by EOPs, LEPC plans, and stormwater management plans etc.
- "Please use the following websites to reference the specific plans.
- <http://www.fema.gov/plan/mitplanning/status.shtm#3>
- <http://www.state.il.us/iema/planning/planning.htm>"
- See answer number 1
- All plans, except for those identified as undergoing FEMA review have been adopted by the local jurisdiction and approved by FEMA.
- Please see plans as directed to the link in #1
- It is a requirement that the state must adopt the mitigation plan and get FEMA approval.
- By regulation, the plan is adopted.
- Multi-Hazard Mitigation Plan approved by FEMA in October 2007

Was the public involved in developing these strategies?		
Answer Options	Response Percent	Response Count
Yes	71.4%	35
No	28.6%	14
If Yes, please describe the public's involvement:		28
<i>answered question</i>		49
<i>skipped question</i>		25

- There is a Hazard Mitigation Committee that held meetings and the City Council held work sessions and hearings.
- Community meetings
Benton County Emergency Management Council (volunteer community group)
- Public Meetings held at the beginning and the end of the planning process, and public officials meetings with each jurisdiction.
- Local planning commissions assisted in the development and review.
- several open meeting
- Hazardous Mitigation Committee (HMC)
Involving government agencies and stakeholders.
- As part of the Pilot Planning Grant (PPG) the public was invited to participate in the process.
- Various town hall type meeting
- Input on State strategy within the States Multi-Hazard Mitigation Plan.
Input on Local strategy with the Local Multi-Hazard Mitigation plan
- Public meetings, presentations, presentation to local political groups (City Councils, County Boards, etc.)
- Plans published for public comment
- We are involving representatives from Local Long Term Recovery Committees to assist in the development of the State level Council.
- Affected private businesses (including private dam operators), as well as governmental agencies are involved.
- The Yakima County Office of Emergency Management presented this plan to the 14 cities and towns through council meetings attended by the public. Invitations to review the CEMP and provide comment was achieved through this office's website.

- Community meetings, elected officials meetings, fairs, newspapers.
- Yes, each community participates by survey, public meetings, and comment periods.
- Public participation is required.
- Workshops and meetings were held at both government and village level to solicit concerns and opinions from the public.
- Workshops were conducted and meetings were held at both government and village levels to solicit comments, concerns, and input from the government officials and the public in terms of recurring problems affecting infrastructure and communities.
- Each local plan includes some form of public participation...
 1. Through public planning sessions
 2. Through public review and comment periods
 3. At many of the County websites
 4. Through briefings
 5. Through workshops
- Each county had public meetings during the drafting stages...especially the HIRA and strategies sections.
- Workshops, surveys, town hall meetings, door to door campaigns, solicitation of information, website/blogs, anonymous comment box's at public buildings.
- Florida has Sunshine laws requiring open public participation. In addition all state and local Multi-hazard Mitigation Plans require full public participation in order to obtain Plan approval.
- All local hazard mitigation plans have included a public involvement component per Stafford Act regulations.
- Other state agencies were involved in developing the strategies.
- They were given the opportunity to comment. No comments were forthcoming.
- Workshops, public website with link to the proposed draft update, neighborhood board meetings, interviews, focus groups, public meetings.

Has your community experienced a disaster since these strategies were developed?

Answer Options	Response Percent	Response Count
Yes	79.2%	38
No	20.8%	10
If Yes, please describe the nature and extent of the disaster:		31
<i>answered question</i>		48
<i>skipped question</i>		26

- Winter Storm -
- Winter Storms (x6)
novel H1N1
- Some policies used in last disaster-flood2009
- Washington State received a Secretarial Disaster Declaration for 33 either primary or contiguous counties. The winterstorms caused flooding, pass closures from heavy snow, building collapses from snow load, and landslides. The State received a Presidential Disaster Declaration.
- DR-WA 1734;DR-WA 1825
Extensive flooding
- Hurricanes Gustav and Ike affected many parishes that were well into the project scoping portion of the PPG.
- flooding issues and three F2 thru F4 tornados.
- Flooding. 46 counties. Both PA and IA
- multiple events, flood and wind
- Presidentially declared: Tropical Storm Ernesto, Hurricane Isabel Locally/State declared: multiple

tornado/wind shear events, multiple nor'easters.

- California has experienced 183 federal DRs, EMs, and FMAGs since 1954.
- Various severe storm, tornadoes, and tropical storms/hurricanes
- Annually, this county experiences flooding and wildland fires as two of our most critical emergency events. Significant high water events in Yakima County are not classified as disasters, but as localized emergency situations. The last major flooding impacting infrastructure and some residences was in 1996.
- An FMAG fire, a presidentially declared winter storm disaster
- On average, Vermont receives at least one or more federal disaster declarations per year, mainly due to flood inundation. Typically, these storms affect several adjoining counties and tend to be localized.
- Heavy rains and flooding, three counties declared, primarily infrastructure damage.
- Yes, Minnesota has had regular disasters since 2003 when the DMA 2000 regulations were put in place.
- Hurricane Katrina, Enterprise Tornado, Hurricane Gustav Gustav, Hurricane Ike and the Spring Floods of 2009.
- Every county in Missouri has been included in a PA or IA Presidential Declaration (or both PA & IA) during the 16 presidentially declared disasters in 2006-2009 to date. Some counties have been declared under as many as 9 of these disasters. Most have been declared between 3-6 times. Missouri's was first FEMA approved Standard Hazard Mitigation Plan. Our Enhanced Mitigation Plan was approved by FEMA less than 24 hours after the first State Enhanced Plan was approved. FEMA approved our first updated plan 2 years ago, and we are preparing our second update for approval in 2010. Our local plans have been prepared mostly (under the lead of our Regional Planning Commissions) on a county-wide basis and approved by FEMA over the last four years. Several are undergoing their first update currently.
- Presidential Declared Disasters since :
2003-Flash Floods - Heavy rainfall, flooding, landslides, and mudslides.
2004-Tropical Cyclone Heta - High winds, high surf and heavy rainfall associated with the cyclone.
2005-Tropical Cyclone Olaf - high winds, high surf, and heavy rain.
- None since the approval of the current Plan - July 2008. However, in prior years, there were three natural disasters covered under Presidential declarations: 2003 - flash floods, heavy rainfall, flooding, landslides and mudslides. 2004 - tropical cyclone Heta causing high winds, high surf, and heavy rainfall. 2005 - tropical cyclone Olaf causing high winds, high surf and heavy rain.
- In some cases, yes (December 2008 Ice Storm).
- We have had seven disaster declarations since April 2007. These are primarily flooding events that affects roads and municipal facilities such as water and sewage treatment plants. Two of the seven also flooded homes.
- Major flooding episode. Moderate to severe flood.
- FEMA DR-IL-1771, 1800, 1826, 1850
<http://www.fema.gov/news/disasters.fema>
- Yes, Florida has experienced many natural disasters since implementation of multi-hazard planning. To see all presidentially declared disaster go to FEMA website
<http://www.fema.gov/news/disasters.fema>
- Dorchester, Caroline and Montgomery Counties have had a declared disaster since the adoption of their plans. The disaster was the June 2006 flooding.
- Winter Storm(s) and Hurricane(s)
- The initial plan was developed in 2004 and valid for three years. In 2006, Arizona had two events which led to Presidential declarations.
- Tornadoes and Flooding occurred in approximately 25% of the state.
- Flood Disaster of December 2007 (FEMA 1743); Flood Disaster of December 2008 (FEMA 1814).

Did your community implement these strategies after the disaster?		
Answer Options	Response Percent	Response Count
Yes	68.2%	30
No	31.8%	14
<i>answered question</i>		44
<i>skipped question</i>		30

If yes, did these strategies help your community meet its recovery goals (please explain)?	
Answer Options	Response Count
	28
<i>answered question</i>	28
<i>skipped question</i>	46

- We have done one project to reconnect floodplain...no floods, but high water did utilize teh area!
- effective, efficient and coordinated response
- Have developed specific SOP's for Recovery and used many of those in past year. Yes, helped us to recover our communities.
- Yes, this opened USDA programs to provide disaster recovery funds for the farm communities.
- Levees constructed, homes raised,property buy-outs
- to some degree.
- The increazse in coordination resulted in a more complete recovery process.
- The projects were not designed to assist in the response / recovery from the recent disaster, but to better prepare them to survive future events.
- Debris management strategies and the EVC program.
- Yes. Communities are wanting permanent flood protection. State is using the US Army Corps of Engineers Silver Jackets initiative/
- Not especially. Most of the strategies were pretty obvious and would have been done regardless.
- Elevation and acquision. Public education and outreach
- required by Disaster Mitigation Act of 2000
- Again, we have not completed our series of discussions and exercises, but I'm confident, we will implement recovery goals once we have plans in place.
- These strategies form the basis of FEMA's Hazard Mitigation Plan for communities apply for post-disaster grants under the Stafford Act and mitigation grants following a declared emergency. The combination of the CEMP's strategic planning and the FEMA-approved Hazard Mitigation Plan has provided the way forward for numerous mitigation grant dollars into this county.
- The decision to make NFIP compliance a pre-requisite for receiving mitigation funds was made after the 3 declared disasters in summer of 2008. We were successful in getting at least one town (Montgomery, VT) to address outstanding NFIP and floodplain management issues, prior to the town receiving HMGP grant funds. These efforts are in accordance with the state's overall mitigation strategies, goals and objectives.
- Yes, these plans provided a template for the recovery and mitigation process.
- Yes, communitites from flooding disasters from 1993 and 1997 are still completing recovery goals they developed after these disasters. However, some of the goals took a long time to meet due to acquiring funding and keeping community leaders active in the implementation.
- Yes, we have implemented a statewide safe room program and back-up power generation for critical facilities.

- The State strategies are being implemented. Flood buyouts (largest number and scope since the '93 floods), tornado saferooms, low water crossing and bridge mitigation replacements, electric line burials are being conducted in over 60 ongoing projects around the state. Flood buyouts and tornado safe rooms in particular are helping our communities meet post-disaster recovery goals. A number of these projects are pre-disaster in nature as well.
- Seawalls were constructed along shorelines; soil erosion problems in the streams were mitigated; hardening of public school buildings throughout the territory; public roads/sidewalks improvements; repositioning of infrastructure for power and communication lines to underground.
- Yes and No. Cost benefit and matching capability have been problematic for many of the communities.
- The line between mitigation and recovery can be blurry, but there is no doubt that a well developed mitigation plan or recovery plan will lead to safer communities.
- One benefit of having approved multi-hazard mitigation plans is to receive federal grant money to implement mitigation initiatives; Florida takes full advantage of such post-disaster funding allowing communities to rebuild stronger and smarter.
The Post-disaster Redevelopment Plans are currently in a pilot stage -- more information can be found at: <http://www.dca.state.fl.us/fdcp/DCP/PDRP/index.cfm>
- The process is underway, Our Long Term Initiative is to have every county covered by a mitigation plan. In the last 2 years we have increased this statistic by 63%.
- Some of the mitigation strategies contained in the respective plans were implemented following the disaster.
- Communities implement strategies heavily post disaster due to influx of available resources and focusing of priorities.
- The HMGP has been successfully implemented and is ongoing.

If no, why didn't the community implement these strategies (please explain)?

Answer Options	Response Count
	15
<i>answered question</i>	15
<i>skipped question</i>	59

- no support to organize community, only lip service
- No impact by the winter storm
- Still draft.
- The state has not had a declared disaster that would have triggered review and implementation of a strategy.
- had none
- Standards are updated every 3 years per FEMA requirement and we have not experienced any disasters since their adoption.
- Some of the locals did not have local plans.
- N/A
- They were implemented before the disasters.
- The system is not in place yet.
- The FMAG event occurred prior to the adoption & the winter storm strategies were not clearly defined within the adopted plans.
- If there were strategies that were not implemented it was because of lack of funding or did not have the backing of community leaders.
- While the communities did implement some of the strategies, time and money constraints prohibited all the strategies from being implemented.

- In several cases the counties affected adopted their plans after the disaster occurred.
- The initial plan did not contain the appropriate information. The plan has since been updated with much better strategies and the state continues to improve those strategies.

Does your community participate in the National Flood Insurance program?		
Answer Options	Response Percent	Response Count
Yes	90.7%	39
No	9.3%	4
<i>answered question</i>		43
<i>skipped question</i>		31

Does your community participate in the Community Rating System program?		
Answer Options	Response Percent	Response Count
Yes	73.2%	30
No	26.8%	11
<i>answered question</i>		41
<i>skipped question</i>		33

Would you be willing to provide more information about your community's post-disaster recovery strategies?		
Answer Options	Response Percent	Response Count
Yes	78.0%	32
No	22.0%	9
<i>answered question</i>		41
<i>skipped question</i>		33

APPENDIX C: LIST OF RESPONDENTS TO THE SCREENING QUESTIONNAIRE

Responses that met key preliminary criteria

Response number	Location
12	Benton County, OR
15	Washington
32	Lincoln, NE
37	North Dakota
39	Alabama
41	Virginia
47	Mississippi
50	Yakima, WA
56	Massachusetts
57	Montgomery, VT
60	Minnesota
61	Missouri
62	Florida
69	Ohio
71	Maryland
72	South Carolina
74	Tennessee