The Role of Hazard Mitigation in Post-Disaster Recovery

Planning Information Exchange

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Sponsor:

FEMA
Today’s Moderator

Jim Schwab, AICP
APA Hazards Planning Center Manager
Today’s Speakers

**Allison Boyd, AICP**
Continuity and Resilience Planner
Multnomah County, Oregon

**Eugene Henry, AICP, CFM**
Hazard Mitigation Manager
Hillsborough County, Florida
Adobe Connect - What Do You Need to Know

Conflict is ...

Unavoidable, disruptive, and potentially destructive

A stimulant of change and creativity

And therefore a "dangerous opportunity"

The challenge is to find ways to manage conflict so as to minimize the risks and maximize the benefits

Questions/Tech Issues

Full Screen PowerPoint
Planning Information Exchange

• PIE is the result of an agreement between APA and FEMA, with ASFPM as partner, to produce a series of educational webinars on best practices in hazard mitigation planning.

• Webinars will revolve around 4 central themes:
  • Focus on all hazards.
  • Focus primarily on mitigation planning but also its connections with recovery planning and preparedness.
  • APA and ASFPM will act as co-conveners of all planning exchange webinars. Both organizations will use their respective web-based meeting platforms to set up, register, drive, facilitate, record, and provide technical support for all webinars.
  • Planning exchange hosts will select topics and commit to moderate, present, and lead the planning exchange webinars.
Outline of Today’s Presentation

1. Introduction- The Role of Hazard Mitigation in Post-Disaster Recovery
2. Audience Poll
3. Hazard Mitigation and Resilience
4. Hillsborough County Case Study
5. Audience Exchange- Best Practices and Lessons Learned
6. Q&A
The Role of Hazard Mitigation in Post-Disaster Recovery

- Hazard mitigation and post-disaster recovery are two of the three priority areas for APA’s Hazards Planning Center.
- The third is climate change adaptation, which may be part of some topics throughout the series.
- Today’s speakers will place this topic in a broader context and offer significant local experience on the subject.
Hazard Mitigation and Resilience

Allison Boyd, AICP
Build Back Better

Disaster resilience is the ability of communities to “mitigate hazards, contain the effects of disasters when they occur, and carry out recovery activities in ways that minimize social disruption and mitigate the effects of future disasters.”

(Multidisciplinary Center for Earthquake Engineering Research)

www.planning.org/research/postdisaster
Window of Opportunity

Contributing Factors
• Funding sources
• Public awareness
• Political will
• Repair/rebuild activity

Obstacles
• Race to return to normalcy
• Institutional disincentives
• Timing of knowledge and funding
• Property rights and development patterns
• Multiple recovery agendas
The graph shows the number of billion-dollar disaster events by year from 1980 to 2014. The events are categorized into different types:

- Winter Storm
- Wildfire
- Tropical Cyclone
- Severe Storm
- Freeze
- Flooding
- Drought

The data is CPI (Consumer Price Index)-adjusted. The chart indicates that the number of events varies significantly between years, with some years showing a high number of events and others showing a low number.

Source: [http://www.ncdc.noaa.gov/billions/time-series](http://www.ncdc.noaa.gov/billions/time-series)
Hazard Mitigation Grant Program

HMGP Grant Funding per Incident Type, 1989 - 2014
(Approved, Closed, or Pending Projects)

Incident Types with less than 1% of Total Project Amounts
- Dam/Levee Break
- Drought
- Fishing Losses
- Freezing
- Human Cause
- Mud/Landslide
- Other
- Terrorist
- Tsunami
- Volcano

Source: OpenFEMA Dataset: Hazard Mitigation Grants - V1
Increased Cost of Compliance (ICC)

NFIP Flood Insurance Policies include up to $30,000 to cover flood mitigation measures
- Structures substantially damaged or repetitive loss
- Can be used individually or assigned
Public Assistance – Section 406

Hazard Mitigation Obligations in the PA Program, FY2000-FY2013
($ millions; lighter green in FY2013 represents obligations for DR-4085 and DR-4086)

Source: Congressional Research Service, 2015
Community Development Block Grants – Disaster Recovery

CDBG - Disaster Recovery Appropriations, FY 2000 - 2013

Images: Big U, Rebuild By Design
Integrate Mitigation throughout the Recovery Plan
Modify building and development standards

• Adopting stronger building codes
• Site design requirements
• Triggers for nonconforming structures/uses
Relocate development out of severely damaged areas

- Property acquisition
- Transfer of Development Rights
- Changes to land use and zoning

Source: Hillsborough County, 2010
Building Moratoria and Temporary Regulations

- APA Model Recovery Ordinance:
  www.planning.org/research/postdisaster/pdf/modelrecoveryordinance.pdf

- Boulder County Land Use Code Article 19:

- Hillsborough County Recovery Ordinance 93-20:
  www.hillsboroughcounty.org/DocumentCenter/Home/View/1051
Plan for public involvement

• Major post-disaster projects need public support to be successful
• How can you adapt your normal public outreach practices to a post-disaster environment?
• Can you plan ahead for broad stakeholder involvement and inclusive participation mechanisms?

Photo: Rockefeller Foundation/ Cameron Blaylock
Encouraging mitigation during repair and rebuilding

• Public education on the benefits of voluntary mitigation measures
• Assistance in obtaining funding

Under the Flood Insurance Reform Act of 2012, You Could Save More than $90,000 over 10 Years if You Build 3 Feet above Base Flood Elevation*

<table>
<thead>
<tr>
<th>Premium at 4 Feet Below Base Flood Elevation</th>
<th>Premium at Base Flood Elevation</th>
<th>Premium at 3 Feet Above Base Flood Elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td>$9,500/yr</td>
<td>$1,410/yr</td>
<td>$427/yr</td>
</tr>
<tr>
<td>$95,000/10 years</td>
<td>$14,100/10 years</td>
<td>$4,270/10 years</td>
</tr>
</tbody>
</table>

Including mitigation in infrastructure repair or replacement

• Including mitigation in Public Assistance projects
• Relocating or removing from high-risk zones
• Including climate adaptation
• Upgrading protection levels of mitigation structures, e.g. seawalls, levees, etc.
Vulnerability Analysis

• Accessible data on hazard risks with social and economic information can assist in recovery decisions
• Understand the risks to the built environment and infrastructure that may increase with climate change

Using the best-available science and data, federal agencies developed a map series to help state and local officials, planners, and infrastructure managers understand possible future flood risks from sea level rise for use in planning decisions following Hurricane Sandy. (NOAA)
Restoring natural functions that provide protection from hazards

- Floodplains
- Wetlands
- Beaches and Dunes
- Reefs
- Fire adapted ecosystems

Louisiana's Coastal Protection Master Plan, 2012
Plan Integration

- Hazard Mitigation Plan
- Post-Disaster Recovery Plan
- Comprehensive Plan
- Zoning and Development Standards
- Capital Improvements Plan
- Economic Development Plan
- Climate Adaptation Plan
- Emergency Operations Plan

www.fema.gov/media-library/assets/documents/19261
Hillsborough County, Florida

a case study

Eugene Henry, AICP, CFM
Today’s Discussion

• Integrated Plan, even through a recession
  • Integrated plans
  • Community Stakeholders
• Integrated Process – without too much work
• Integrated with the National Disaster Recovery Framework
• Integrated Recovery Process -- after disasters
• Also see Planning Advisory Service Report #576
Pre-event Planning

Luck -- the County has not experienced a major hurricane in more than 50 years.

Development within risks areas has increased as has the potential for hurricane-related deaths and damages.
Planning

Plan interactions:
- Comprehensive Plan
  - Community Plan Background
- Comprehensive Emergency Management Plan
- All-hazards document – Local Mitigation Strategy

Code Interaction
- Land Development Code
Goal and Objectives

**Long-term Goal:** Complete redevelopment efforts within a three to five year period.

**Long-term Objectives:**

1. Long-term restoration of public infrastructure and social services damaged by the emergency,
2. Re-establishment of an adequate supply of housing to replace that which was destroyed,
3. Restoration of jobs that were lost, and
4. Restoration of the economic base of the disaster area(s).
The Role – Keeping the Process

- Implementation conceptual framework includes the following guidelines:
  - *Nurture an ongoing Stakeholder Structure*
    - *Local Mitigation Strategy (LMS) Working Group*
    - *Redevelopment Task Force*
  - *Build upon processes for transitioning from response to recovery*
  - *Define inclusive lists of organizations and resources*
  - *Integrate long-range policy initiatives from local plans*
  - *Capitalize on disaster mitigation and public assistance funds*
  - *Incrementally prepare the community*
  - *Revisit the assumptions and actions of the PDRP* (Hillsborough County 2010)
Stakeholders -- Technical Advisory Committees (TAC) and Priority Issues

* **Infrastructure & Public Facilities**
  Security of critical infrastructure information

* **Financial Administration**
  Project revenue shortfalls

* **Housing Recovery**
  Temporary housing provision and removal

* **Health & Social Services**
  Hospital, clinic, and medical office restoration

* **Land Use**
  Prioritize areas to focus rebuilding, reconstruction, and redevelopment

* **Environmental Restoration**
  Hazardous materials, debris contaminates

* **Economic Redevelopment**
  Business resumption and retention

* **Public Outreach**
  Effective and clear communication to all affected groups

* -- indicates a match with the National Disaster Recovery Framework (NDRF)
Know Your Risks

Simple Planning and knowing your community!
Knowing your Community, Times of No Disasters!
## Risk Assessment: Natural Disasters

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Probability</th>
<th>Consequence</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severe Storms</td>
<td>High</td>
<td>Major</td>
<td>2 to 3 Years</td>
</tr>
<tr>
<td>Hurricane, Minor</td>
<td>High</td>
<td>Moderate</td>
<td>2 years</td>
</tr>
<tr>
<td>Hurricane, Major</td>
<td>Moderate</td>
<td>Major</td>
<td>50 years</td>
</tr>
<tr>
<td>Wildfire</td>
<td>High</td>
<td>Minor</td>
<td>Multiple Annually</td>
</tr>
<tr>
<td>Flooding</td>
<td>Moderate</td>
<td>Minor to Moderate</td>
<td>5 to 10 Years</td>
</tr>
<tr>
<td>Sink Holes</td>
<td>Moderate</td>
<td>Minor</td>
<td>Multiple Annually</td>
</tr>
<tr>
<td>Drought</td>
<td>Low</td>
<td>Minor to Moderate</td>
<td>5 to 10 Years</td>
</tr>
</tbody>
</table>
Know Your Vulnerability

Understanding that threats to your community hurts people and damages property. Understanding how to minimize threats shows the community knows their vulnerabilities.
Risks and Vulnerabilities

Risks assessment (threats):
- Flood-hazard boundaries
- Stormsurge boundaries
- Wind isobars

Vulnerability analysis (damaged by threats):
- Number of people
- Number of structures
- Miles of Infrastructure
Post-Disaster Redevelopment Plan

Economic Impact Analysis

HIGH-RISK/VULNERABILITY

Between 100,000 to 500,000 residents

From 100,000 to 250,000 structures (wind and flood damage)

Approx. 200,000 CHHA Employees

Greater than $11 billion in annual payroll alone within the CHHA

Greater than 25,000 business in the CHHA and greater than 60,000 businesses countywide

There is a lot at stake for the planning team to work with!
Know Your Mitigation

Understanding that mitigation reduces the community’s vulnerability to risks! Mitigation may certainly incorporate blue-sky planning!
In Planning and Emergency Management, **mitigation** are actions that we can take before a disaster or when we rebuild after a disaster, that will reduce our risk of property damage or loss of life in the future.

**FEMA (44 CFR):** “any sustained action taken to reduce or eliminate long-term risks to human life and property from hazards.”
FORMS OF MITIGATION

Land-Use Management
Zoning
Construction
Retrofitting Structures
Regulation & Standards
Public Outreach
Neighborhood Programs
Early Warning Systems
Floodproofing Structures
Critical Facilities
MITIGATION PLANNING
Traditional Planning Techniques can Build Community Resiliency

Future Land Use in the Coastal High Hazard Area

Tampa Bay

Natural Preservation

Residential

Suburban Mixed Use

Light Industrial
Possible Priority Redevelopment Areas

Potential Priority Recovery Areas (PRAs)
- Regional PRAs
- PRAs
- Regional PRAs in CPA
- PRAs in CHHA
- PRAs in CPA
- Coastal High Hazard Area (CHHA)
- Coastal Planning Area (CPA)
- URBAN SERVICE AREA
- Unincorporated Planning Areas
- CITY OF PLANT CITY
- TEMPLE TERRACE
- CITY OF TAMPA

DATA SOURCES: Hillsborough County Real Estate Department and Planning & Growth Management Department; Hillsborough County City-County Planning Commission; City of Tampa

ACCURACY: This map is intended to show the accuracy of the base map. However, such accuracy is not guaranteed.

REPRODUCTION: This map may not be reproduced in whole or part for sale or anyone without specific approval of the Hillsborough County Planning & Growth Management Department

USE: For general planning purposes only.
Know Your Response and Recovery Periods

Understanding recovery from a disaster is not response to a disaster. Recovery is planning, but not in the blue-sky!
Recovery

Recovery (PAS 576, Chapter 3): . . . includes restoring housing, transportation, and public services; restarting economic activity; and fostering long-term community redevelopment and improvements.

. . . Recovery is the least-understood disaster management phase . . . involves a complex management process that includes not only relief and short-term restoration of facilities and services but also intermediate recovery and long-term redevelopment phases.
Post-Disaster Redevelopment Plan

Public Policy Issues

1. Establish Consistent Rebuilding Standards and Criteria
2. Establish Thresholds to Govern Blight
3. Establish Priorities for Long-Term Redevelopment and Reconstruction
4. Review Inconsistencies between Regulations and Modify Appropriately
5. Establish a TDR Program Responsive to Post-Disaster Redev.
6. Establish a Process to Strategically Acquire Destroyed Neighborhoods and Rebuild
7. Establish Criteria to Protect Public Assets from Siting Temporary Uses
8. Perform a Comprehensive Study on Potential Chemical Contamination
9. Prioritize Assistance to Businesses
# Post-Disaster Redevelopment Plan Economic Impact Analysis

## Recovery Times

<table>
<thead>
<tr>
<th>Businesses</th>
<th>Percentage Still Closed After Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 Year</td>
</tr>
<tr>
<td>Conservative</td>
<td>33%</td>
</tr>
<tr>
<td>Aggressive</td>
<td>24%</td>
</tr>
</tbody>
</table>
Have a safe storm season!
Materials are available for your convenience

Use the Q&A pod to send us a brief message about your personal or your community’s lessons learned or best practices. Please let us know if we can call on you to address the whole audience verbally.
Connecting Audio to Speak
(you must be granted permission first)

1. Click the Phone Icon
2. Select This
3. Enter Your #
4. Click This

Conflict is ...
Q&A

Use the Q&A pod now to send us your questions!

Three Types of Learning

- Information, general observations, principles
- Skill development through experience
- Self-awareness of preconceptions, attitudes and habits
Thank You and Stay Tuned for More

https://www.planning.org/nationalcenters/hazards/planninginformationexchange/