

Appendix D

National Hurricane Mitigation and Preparedness Program Strategic Plan

NATIONAL HURRICANE MITIGATION AND PREPAREDNESS PROGRAM

Developed By The

**Interagency Coordinating
Committee On Hurricanes (ICCOH)**

**Federal Emergency Management Agency
Lead Agency**

PROGRAM OVERVIEW

Historically, hurricanes have caused more loss of life and a greater amount of property damage than all other natural or manmade disasters. Six of the top ten worst disasters as ranked by the Federal Emergency Management Agency (FEMA) disaster relief costs were caused by tropical weather systems. Despite this persistent and known threat, 3,600 people a day move to our nation's coastal counties. Currently more than 144 million people live in hurricane prone areas. A hurricane that makes landfall in a major coastal city has the potential to cause significant loss of life and damage to property. Every year, severe weather events create economic losses averaging \$42 billion, and hurricanes and tropical systems are a major contributor to this national problem.

The Interagency Coordinating Committee on Hurricanes (ICCOH) is an ad-hoc committee comprised of Federal agencies that have programmatic responsibilities to address Tropical Cyclones and other severe weather hazards. FEMA as chair of the ICCOH acts as the lead coordinating agency to accomplish the goals and objectives in this plan. Under the authority of the Robert T. Stafford Disaster Relief and Emergency Assistance Act as amended, the National Hurricane Mitigation and Preparedness Program (NHMPP) is a national partnership between Federal, State and local governments and other organizations that provides vital preparedness, response, and mitigation services to State and local governments and hurricane threatened populations.

The NHMPP (formerly the National Hurricane Program) covers 22 states and U.S. Territories and is a cooperative effort aimed at reducing the risk to lives and property from all hazards associated with hurricanes. The Program provides coastal states and inland communities with technical guidance, technical assistance, decision assistance tools, and financial support to carry out activities that reduce the hurricane risk by minimizing the loss of life and mitigating damage to property.

MISSION STATEMENT

“To lead the planning, preparedness, and mitigation activities to create an informed citizenry ready to react to hurricane and tropical system threats.”

VISION STATEMENT

“A Nation prepared- protecting human life and property from the hazards of hurricanes and tropical systems.”

STRENGTHS AND CORE PRACTICES; Strategic Partnerships

The NHMPP will continue to be a dynamic program continuously adapting to customer needs. Continued success requires more emphasis placed on building additional strategic partnerships, improving and developing innovative products, providing competent, reliable services and timely, accurate education and training programs.

U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers (USACE) is an integral partner in the National Hurricane Mitigation and Preparedness Program. The Corps has traditionally contributed approximately \$1 million annually to the NHMPP. Technical support is provided through USACE management of the Comprehensive Hurricane Preparedness Studies (CHPS), Post Storm Studies and Geographic Information Systems (GIS)/Mapping services. The USACE supports the development, improvement, and success of the HURREVAC model. The USACE is currently conducting wave research to better identify hazards associated with coastal areas.

National Oceanic and Atmospheric Administration

The National Oceanic and Atmospheric Administration (NOAA) actively supports the NHMPP through its subordinate agencies such as the National Weather Service (NWS), the River Forecast Centers (RFCs), Tropical Prediction Center/National Hurricane Center (TPC/NHC) and Coastal Services Center (CSC). These agencies provide funding, research, training, mapping, real-time forecast and technical support to assist with hurricane preparedness and response issues. TPC/NHC also houses FEMA's Hurricane Liaison Team that serves as a link between the NHC and the emergency management community during times of hurricane threat to the U.S. and territories.

NOAA's office of the Federal Coordinator for Meteorology (OFCM) coordinates, on a Federal interagency basis, the Nation's hurricane forecast and warning program, conducts the annual Interdepartmental Hurricane Conference and publishes the National Hurricane Operations Plan annually.

US Department of Transportation

The U.S. Department of Transportation (USDOT) provides technical assistance for various FEMA evacuation planning efforts and response teams through the Federal Highway Administration (FHWA). FHWA is the lead of the Evacuation Liaison Program and financially supports the Evacuation Traffic Information System (ETIS), which provides the transportation and the emergency management community the means to monitor traffic congestion during evacuation events. Technical support is also provided in the form of training and education of ETIS at the Federal and State level.

State and Local Emergency Management, Departments of Transportation and Law Enforcement Agencies

State and Local Agencies offer direction of program initiatives and identify problem areas. These partners are an integral part of planning and managing hurricane evacuation processes, and are relied upon to provide coordination and input into program efforts and activities.

National Emergency Management Association

The National Emergency Management Association (NEMA) is an advocate for state and local emergency management issues and programs. NEMA aids the NHMPP with staying abreast of new issues related to hurricanes and tropical storms, and assist with promoting effective planning, mitigation and preparedness.

Private Sector

The NHMPP coordinates with partners within the private sector for project development, research, and public awareness. Private sector organizations, such as the American Red Cross and universities, help to ensure the NHMPP produces quality educational tools, decision assistance modeling, studies, post storm assessments and technical data reports and assists in the communication and delivery of these products to the public.

STRENGTHS AND CORE PRACTICES; Strategic Products

Hurricane Evacuation Studies (HES)

Developed by the NHMPP and the USACE, Hurricane Evacuation Studies (HES) have long been used by local decision-making officials as a risk and vulnerability assessment tool to aid them in hurricane planning and response efforts. HES includes transportation/road network analysis and behavioral response data in conjunction with risk and vulnerability assessments for local communities, and produces evacuation clearance time data for local and regional areas. The HES is composed of six components and produces a wealth of data in the following categories:

1. Hazard Analysis
2. Vulnerability Analysis
3. Shelter Analysis
4. Behavioral Analysis
5. Transportation Analysis
6. Decision Timing Analysis

Comprehensive Hurricane Study Products

To effectively address the needs expressed by state and local partners, the NHMPP is developing a modernized study process that will produce comprehensive hurricane products and services. This process will result in tailored studies for state and local jurisdictions that will address traditional HES analysis, as well as, other hurricane hazard issues that have not previously been addressed. Future study items could include:

1. Re-entry
2. Business Mitigation & Recovery
3. Community Storm Impact
4. Recovery Issues
5. Communication Process
6. Disaster Mitigation

HURREVAC

The HURREVAC software is a tropical cyclone tracking and decision assistance tool available for government entities. This real-time data analysis tool allows state and local emergency management officials to make prudent and informed decisions based on information developed in the HES/CHPS and data distributed by the NWS and the TPC/NHC.

Storm Surge Mapping

A major planning product that is produced by the HES/CHPS is storm surge mapping. Local Emergency Managers utilize storm surge mapping to aid in determining hurricane evacuation zones showing populations vulnerable to these life-threatening hazards. Storm Surge maps are created in a digital form and can be imported into all hazard data portals, publications, and programs. Storm Surge maps are based upon NOAA SLOSH model data.

Post Storm Assessments

Post Storm Assessments are conducted after significant hurricanes make landfall. Post Storm Assessments have been conducted by since 1985, and serve as an avenue for the hurricane community to verify product results and data provided to emergency management. Some examples include assessments from Hurricanes Hugo, Andrew, Opal, Georges, Brett, Floyd and Lili.

HAZUS

Hazards United States (HAZUS) is a FEMA sponsored damage and loss estimation tool designed to support Federal, State and local mitigation, preparedness, response and recovery initiatives associated with earthquakes, floods, and tropical cyclones. HAZUS allows communities to better prepare for disasters by evaluating various scenarios.

Building Performance Assessment Team Reports.

The Building Performance Assessment Team (BPAT) Program is an award-winning program uses the combined resources from a Federal, State, Local, and Private-Sector Partnership to study building performance as part of FEMA's national mitigation effort. These teams of experts study building performance in response to major natural. The first widely publicized BPAT Report was for Hurricane Andrew and was completed by Mitigation Division.

Evacuation Traffic Information System (ETIS)

ETIS is a real-time hurricane evacuation traffic-forecasting tool, used to aid FEMA and

State Emergency Management and Departments of Transportation with evacuation coordination and communication.

STRENGTHS AND CORE PRACTICES; Strategic Services

Technical Support

The NHMPP partners provide expertise on a wide range of hurricane related hazard areas, research, techniques and strategies. Program partners also participate in various hurricane-planning meetings and conferences to educate the public about new program initiatives and program findings related to hurricane risk and threatened populations.

Financial Support

Through the NHMPP, FEMA currently provides \$2.9 million annually in Emergency Management Program Grant funding to 22 states and U.S. Territories. Other NHMPP partners provide state and local jurisdictions with grant funding opportunities to address hurricane program related issues and needs.

Evacuation Liaison Team

The Evacuation Liaison Team (ELT) is made up of emergency management and transportation specialists that facilitate the coordination and sharing of information between state jurisdictions during multi-state hurricane evacuations. The U.S. Department of Transportation is the lead agency with support from FEMA. The ELT serves as an information clearinghouse and communication link between Federal and state emergency management, highway patrol and transportation officials. The ELT is primarily activated for storm events threatening the Gulf of Mexico and southeastern United States.

Hurricane Liaison Team

The Hurricane Liaison Team (HLT) is a cadre of Federal, State, and local emergency managers with hurricane preparedness experience. As tropical systems threaten the U.S., the HLT deploys to the National Hurricane Center to assist in the coordination efforts between the NHC and Federal, State and local emergency managers threatened by these systems. Team members provide immediate and critical storm information for use by decision makers so that all levels of government can make competent and informed decisions. The HLT concept originated from the active 1995-hurricane season where an unprecedented burden of timely information dissemination was placed on the National Hurricane Center.

Training, Education and Outreach

The NHMPP is constantly striving to educate hurricane risks populations and decision-making officials by producing cutting edge preparedness, awareness, educational publications, and decision assistance tools that address hurricane hazards and issues. Partnering agencies provide multiple training opportunities, various multi-media awareness publications for the emergency management community and the general population in order

to support the program's vision of "A Nation Prepared- protecting human life and property from the hazards of hurricanes and tropical systems."

Science and Technology

Based on historical storm events, operational issues, and customer feedback the NHMPP is dedicated to identifying new research opportunities and needs to enhance products, services, and outreach.

PROGRAM CHALLENGES

The United States coastal population is grossly undereducated about the hazards of tropical systems and is becoming more complacent in many areas due to the lack of land-falling storms. In spite of the threat, unprecedented growth is continuing in coastal areas with more than one third of the U.S. population living within 50 miles of coastline.

Recent experiences with land falling tropical systems have shown that there are still major unmet needs with regard to the following:

- Inland flooding
- Storm surge mapping
- Evacuation zones and timetables
- Sheltering arrangements
- Traffic flow solutions
- Citizen complacency
- Public health and catastrophic recovery issues
- Re-entry planning
- Program turnover at all levels
- Predictive models (e.g. rainfall and inland flooding).

PROGRAM OPPORTUNITIES

Our rapidly expanding populations in the U.S. coastal regions demands that the NHMPP meet new challenges by embracing additional program partnerships. Expansion of partnerships for the program will allow the development of a variety of disciplines, which will bring in innovative ideas and proactive technological advances. Harnessing new technology will help the NHMPP to create new technical tools and improve existing products, methods, and techniques that will enhance state and local capability to effectively plan and respond to tropical cyclones and their effects. Partnering with other agencies to create real time information tools for government decision-making will improve a community's ability to respond. It is imperative that the program partners work together to maximize resources, obtain new funding, understand customer needs and avoid duplication of efforts.

CRITICAL SUCCESS FACTORS

National Leadership

Through strategic partnerships, the NHMPP will be the national resource of hurricane mitigation and preparedness information and expertise with the Federal Emergency Management Agency acting as the lead Federal agency.

Adequate Funding

Our Nation's vulnerability to hurricanes is rapidly increasing, making it difficult for the NHMPP to adequately address new issues and problems as they arise. The NHMPP must prioritize current and future program efforts, and maximize all available resources to ensure that issues, needs, and problems can be solved. New resources and funding must be obtained to meet the goals of the strategic plan.

Enhance Strategic Partnerships

Through enhanced partnerships, the NHMPP will secure needed expertise that will help to increase outreach efforts, improve programs initiatives, and improve the products provided to our customers.

State and Local Implementation

Ensuring the state and local partners are trained to use NHMPP products correctly to enhance planning techniques, decision-making, preparedness and communication. Major training initiatives, lead by the NHMPP, are required to make sure that decision makers at all levels fully understand the capability of products and tools to help them make better decisions as hurricanes threaten.

GOALS AND OBJECTIVES

Each year the ICCOH will develop supporting Fiscal Year Goal Action Plans that detail program efforts and initiatives.

LEADERSHIP

Goal #1: Awareness and coordination between Federal, state, and local governments is achieved, eliminating redundancy or gaps in hurricane preparedness and mitigation related activities.

Supporting Objectives

- Provide national leadership on hurricane preparedness, response and mitigation activities by Federal, state and local governments.
- Define partnership roles and responsibilities, enhance existing partnerships and establish new partnerships with other Federal and state agencies, organizations, non-governmental organizations and private industry to foster the mission and activities of the NHMPP.
- Facilitate and participate in meetings, conferences and workshops on hurricane hazard

issues to establish communication between Federal, state and local agencies and organizations.

PRODUCTS & SERVICES

Goal #2: An informed emergency management community and public that makes timely and effective decisions to reduce loss of life and minimize damage.

Supporting Objectives

- Provide state and local officials with the tools and services to aid decision-making.
- Establish ongoing dialog between the emergency management, transportation and law enforcement community, and the public in real time during tropical cyclone threats.
- Continuously evaluate NHMPP products, customer needs, issues, procedures and services for relevance and effectiveness in meeting the needs of Federal, state and local emergency managers to improve our products.
- Enhance hurricane value-added services, publications and tools in a useful form in order to promote better decision-making and awareness.
- Based on customer needs, facilitate value-added input into other Federal initiatives to enhance products and services addressing all hazards preparedness, response, recovery and mitigation activities.

SCIENCE & TECHNOLOGY

Goal #3: Facilitate the transition of scientific and technological advances into operations to enhance program products, services and operational response.

Supporting Objectives

- Based on storm events, evaluation, operational issues and customer feedback, identify new hurricane research needs and opportunities.
- Work with the research community to address new research needs and opportunities.
- Capitalize on existing technology and incorporate emerging science and technology to enhance products, services and outreach.
- Assess changing behavioral patterns associated with increased institutional and public knowledge of hurricanes.

TRAINING, EDUCATION & OUTREACH

Goal #4: Federal, state and local decision makers have the awareness, knowledge and skills to develop and implement effective hurricane preparedness and mitigation policies and practices.

Supporting Objectives

- Develop training and outreach materials to ensure Federal, state and local emergency managers have the knowledge and skills needed to address hurricane hazards.
- Work with existing networks of training professionals to provide access and delivery of information, tools and training to the emergency management community.

TRAINING, EDUCATION & OUTREACH (Continued)

Goal #5: Create knowledge and awareness within society to ensure responsible decision-making to undertake actions that lessen the impacts of hazards associated with tropical systems.

Supporting Objectives

- Develop and deliver an enhanced outreach program to ensure an informed and prepared public.
- Enhance education and training delivery mechanisms through partnerships and development of new outreach methods and portals.
- Evaluate the potential for establishing partnerships with other organizations to increase the effectiveness of the enhanced training and outreach program.