

Appendix E

**State Goals, Objectives and Priorities for the National Hurricane Mitigation and Preparedness Program**

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## Goal 1. Coordinate and integrate Federal, state and local efforts in addressing hurricane preparedness and mitigation issues.

- Objective 1.1 Create national legislation, similar to the Earthquake Hazards Reduction Act (Public Law 95-124), codifying the activities under the NHMPP as well as establishing participating agencies and eligible states.
- Objective 1.2 Expand the NHMPP to include hurricane vulnerable inland states such as (but not limited to) Pennsylvania, Tennessee, Kentucky, West Virginia and Arkansas.
- Objective 1.3 Encourage all participating states to internally direct their annual NHMPP funding allocation to state specific hurricane initiatives and work plans. This will ensure that state hurricane preparedness activities are fully supported by the Federal funds provided for that purpose.
- Objective 1.4 Establish an annual dedicated, funding source for the continued refinement and maintenance of the HURREVAC Program.
- Objective 1.5 Establish an annual, dedicated, funding source for the conduct of comprehensive post-storm meteorological, operational and programmatic assessments for all landfalling cyclones including extra-tropical storms and Nor'easters.
- Objective 1.6 Incorporate new Federal agencies into the NHMPP to further broaden the scope and activities within the Program including:
  - The US Geological Survey (USGS) [since they have river gauges and other useful capabilities relative to inland and coastal flooding];
  - The US Navy [they have a close hurricane based relationship with NOAA/NWS/NHC and created the impetus for the five-day forecast];
  - The US Coast Guard (USCG) [to coordinate bridge and marina issues];
  - The Federal Imagery and Mapping Agency (FIMA) [if they'll play, for post storm damage assessment imagery and mapping capabilities];
  - The National Science Foundation (NSF) [so that the Program can gain some influence over the type of hurricane research being conducted at academic institutions]; and
  - Other Federal programs such as Coastal Zone Management (CZM), Dam Safety and National Flood Insurance Program (NFIP).
- Objective 1.7 Establish and maintain a server and separate website that makes all NHMPP information, products and digital data readily available to any interested party.
- Objective 1.8 Coordinate the research efforts of academic institutions and Federal agencies relative to hurricane related hazards; meteorology; operational

- plans and procedures; and mitigation techniques. This includes the convening of a hurricane research technical advisory board to review research efforts and products, as well as provide objective assessments of technical, or specialized methodologies and processes.
- Objective 1.9 Establish at least one dedicated, full-time NHMPP Manager at FEMA Headquarters and in each FEMA region to coordinate Program activities.
  - Objective 1.10 Convene an annual meeting of all participating Federal agency representatives, state program managers and members from other organizations involved in the NHMPP to discuss Program specific issues and requirements.
  - Objective 1.11 Refine and improve the operations of the Hurricane Liaison Team (HLT) by:
    - 1.11.1 Establishing a permanent, full-time management position at the National Hurricane Center (NHC);
    - 1.11.2 Developing the capability to simultaneously contact multiple state and local EOCs to broadcast the NHC specialist's forecast; and
    - 1.11.3 Conducting mandatory annual training for all team members.
  - Objective 1.12 Refine and improve the operations of the Evacuation Liaison Team (ELT) by:
    - 1.12.1 Establishing a specialized team for each FEMA region participating in the NHMPP;
    - 1.12.2 Providing knowledgeable representatives from local Federal Highway Administration (FHWA) offices to state EOCs as technical advisors and ELT liaisons; and
    - 1.12.3 Conducting mandatory annual training for all team members at the regional and state level.
  - Objective 1.13 Consolidate emergency management related research needs and issues with the meteorological requirements contained in the National Hurricane Operational Plan (NHOP). The NHOP should become the primary criteria for assessing the validity for hurricane-related research proposals and grant awards.

**Goal 2. Improve operational capabilities at the regional, state and local level to respond to hurricanes and prepare for their consequences.**

- Objective 2.1 Standardize and apply in all hurricane-prone states the graphical Hurricane Local Statement (HLS) issued by local National Weather Service (NWS) offices during specific hurricane threats. The graphical HLS can also be applied to extra-tropical storms and Nor'easters.
- Objective 2.2 Deploy in states participating in the NHMPP an integrated Intelligent Transportation System (ITS) architecture specifically designed to manage hurricane evacuations. This includes the emplacement of such measures as:
  - o Real-time traffic sensors on strategic evacuation roadway segments;

- Stationary and mobile variable message signs;
  - Highway advisory radio;
  - Portable short range broadcast radios
  - Incident management teams;
  - 511 systems;
  - Remotely operated cameras along critical evacuation routes;
  - Integrated Traffic Management Centers (TMCs), directly linked to, or co-located with regional, state and local emergency operations centers
  - Fiber-optic and other redundant communications means along major evacuation roadways.
- Objective 2.3 Extend coverage of the Evacuation Traffic Information System (ETIS) to all states participating in the NHMPP, as well continue to refine and improve the program to include more evacuation traffic management capabilities.
- Objective 2.4 Augment professional training for emergency management regarding hurricane preparedness and mitigation issues.
- 2.4.1 Update the current hurricane-related courses developed at the Emergency Management Institute (EMI): Introduction to Hurricane Preparedness (L324), and Hurricane Planning (G360) and;
- 2.4.2 Create additional courses in hurricane mitigation measures; decision making for the media and elected officials; and evacuation decision making, planning and management.
- Objective 2.5 Develop a means to effectively communicate traffic, shelter and situation specific information directly to vehicles already on evacuation routes during a cyclone event. A more robust national ITS will be instrumental in this effort, but new technologies and methods should be investigated and exploited.
- Objective 2.6 Build a strong working relationship with the hotel/motel industry to improve evacuation procedures nationwide. Because a large proportion of evacuees seek refuge in hotels and motels, better communication with the industry throughout the country will provide emergency management an effective tool to increase public safety during evacuations.
- Objective 2.7 Study and develop standard guidelines and procedures for terminating evacuations, especially under exigent or emergency circumstances.
- Objective 2.8 Perform an in-depth analysis of the legal implications, suitable structures, best practices and other aspects of refuges of last resort (ROLR). Develop standard guidelines and procedures for the opening and operation of ROLRs.
- Objective 2.9 Study and develop standard guidelines and procedures for post-storm re-entry including legal issues, best practices and planning process.
- Objective 2.10 Conduct studies determining the characteristics and impact of hurricane wind conditions on tall buildings, different types of vehicles, and non-

- typical structures such as parking garages, bridge overpasses and other potential refuges from wind.
- Objective 2.11 Study and develop standard guidelines and procedures for special needs populations (PSNs) including the operation of special needs shelters, working with the home health care industry and detailing best practices for managing the evacuation or support of medical facilities pre and post landfall.
  - Objective 2.12 Conduct a national or regional hurricane response exercise each year which involves the NHC and HLT; the ELTs; FEMA Regional Operations Centers (ROC); as well as select or all state and local emergency management offices. These exercises should rehearse pre and post landfall procedures such as evacuations, re-entry, decision making and other aspects of hurricane preparedness and response.
  - Objective 2.13 Develop standardized technical assistance and training materials targeted to the business community regarding continuity of operations (COOP) and other preparedness measures so that the economic impacts of hurricanes are minimized.
  - Objective 2.14 Develop and conduct training targeted to the broadcast media and local elected officials detailing the evacuation decision making process and other emergency management activities during hurricane events.
  - Objective 2.15 Conduct nationwide research regarding the behavioral characteristics of tourists and visitors during hurricane evacuations.
  - Objective 2.16 Study the behavioral impacts of reverse lane operations to determine if such measures will cause people to delay evacuating, or predispose them to use those routes rather than other, less obvious routes to the same destinations. The behavioral surveys should ascertain the evacuees' expectations of traffic conditions, travel speeds and perceptions of safety on these routes. This behavioral data will be instrumental in determining if reverse lane operations are a truly effective means of increasing evacuation capacity.

**Goal 3. Improve national capabilities regarding hazard identification and risk assessments for tropical and other cyclones.**

- Objective 3.1 Develop a nationwide integrated riverine and coastal flood monitoring system that allows emergency management to more effectively utilize Quantitative Precipitation Forecasts (QPFs), as well as other flood and rainfall data in preparing populations, property and infrastructure for actual hurricane events.
- Objective 3.2 Establish a methodology for using existing National Flood Insurance Program (NFIP) data to develop better operational responses to hurricane induced flooding threats.
- Objective 3.3 Develop a coupled wave model with the Sea, Lake and Overland Surges from Hurricanes (SLOSH) model that will predict cyclone-induced wave heights, as well as lateral and inland extents. This data

- will improve damage assessment and other pre and post hurricane activities implemented by emergency management officials.
- Objective 3.4 Develop historical and probability based SLOSH data to assist in land use, hazard mitigation and planning related activities.
  - Objective 3.5 Augment the number and capabilities of the current network of offshore buoys to provide improved advance warning of approaching cyclones, as well as provide better data for post storm assessments.
  - Objective 3.6 Conduct Light Detection and Ranging (LIDAR) surveys of near shore bathymetry and terrain along the entire Atlantic, Gulf and Pacific Island shorelines. This data in conjunction with LIDAR surveys of inland flood areas as part of National Flood Insurance Map Modernization Program will dramatically improve the accuracy of SLOSH models as well as surge and riverine inundation mapping.
  - Objective 3.7 Develop hurricane related Hazard Identification and Risk Assessment (HIRA) techniques and methodologies which relate specifically to island issues and concerns.
  - Objective 3.8 Institute and maintain standards which regulate the conduct of Comprehensive Hurricane Preparedness Studies (CHPS) and Post Storm Assessments prepared under the National Hurricane Mitigation and Preparedness Program (NHMPP).
  - Objective 3.9 Conduct an objective technical assessment and comparison of all storm tide prediction models by studying the assumptions, methodologies and technical aspects of each and also comparing the results against values observed in actual storm surge events.

**Goal 4. Reduce this country's reliance on evacuation as the primary hurricane protective action by promoting mitigation measures that protect lives and property.**

- Objective 4.1 Prepare standard guidelines and procedures which address the application of land use planning and growth management techniques to limit the impacts of development on evacuations and property exposure.
- Objective 4.2 Develop nationwide policies and procedures, such as incentives for shuttering and "safe rooms" that encourage in-home sheltering for households not located in surge vulnerable areas, or residing in mobile homes.
- Objective 4.3 Promote the application and rigorous enforcement of a minimum standard building code in coastal communities and in all areas potentially subject to hurricane force winds or greater.
- Objective 4.4 Advocate that all Federal, state and local government regulations require newly constructed, non-leased government buildings in hurricane prone areas to comply with a more rigorous building code (using the prescriptive standards in ARC4496) so that those structures, when possible, can be used as shelters by local populations. Reinforced government facilities will also further continuity of government (COG), COOP and the provision of services in post storm circumstances.

- Objective 4.5 Advocate that all Federal, state and local government regulations require community centers or other common structures in new mobile home parks to be constructed to the same standards as above in Objective 4.4. This will provide readily available shelter resources to residents in those communities.
- Objective 4.6 Promote the use of Federal hazard mitigation (HMGP) funds for the retrofitting of schools and other public buildings, where possible, so that those facilities can serve as local shelters, even in hurricane force winds. Pre-disaster mitigation plans from states and communities participating in NHMPP should be required to also include provisions for the structural surveying and retrofit of public buildings for sheltering purposes.
- Objective 4.7 In concert with the American Red Cross (ARC) and other volunteer organizations active in disasters (VOADs), ensure that all existing and future policies and procedures regarding shelter selection, operation or facility exemptions are consistently applied and complied with. This will reduce the likelihood that viable shelter facilities are not used during hurricane events due to local misinterpretation of national shelter policies and procedures.

**Goal 5. Increase public awareness of hurricane preparedness and mitigation issues by developing a widespread, coordinated and pervasive information campaign with a consistent message and using all available communication resources.**

- Objective 5.1 Coordinate the activities of all Federal, state and local agencies to ensure that National Hurricane Preparedness Week is an annual occurrence under a Presidential proclamation, and that it is supported by a widely orchestrated public information campaign.
- Objective 5.2 Develop public information materials and a nationwide campaign extolling the virtues of:
- Sheltering in place for residents not in surge zones or mobile homes;
  - Evacuating the shortest distance possible; and
  - Leaving as soon as possible to reduce the likelihood of encountering congestion if the intended destination is far away.
- Objective 5.3 Develop public information materials and a nationwide campaign emphasizing the potentially lethal consequences of attempting to drive on flooded roadways and through inundated areas.
- Objective 5.4 In concert with the movie entertainment industry, produce a series of movie trailers emphasizing important aspects of hurricane evacuation, family preparedness, the dangers of inland flooding and other salient issues. Work with theater owners and other film industry organizations to ensure that the trailers are shown before every movie in all participating states before and during hurricane season.
- Objective 5.5 Develop standardized, but region specific classroom materials and lesson plans for use in primary and secondary schools, to educate children and young adults of hurricane hazards, information resources

and family preparedness. Associated with this effort is obtaining certification from the appropriate educational agencies so that the classes are ready to be included as part of the official school curriculum.

Objective 5.6 Using professional media experts, develop a series or a national resource of hurricane preparedness and mitigation public information messages for radio and TV.

Objective 5.7 Work with professional news organizations and media outlets to develop consistent procedures and messages for use during hurricane related broadcasts. This effort will reduce the likelihood that actions and messages by the broadcast media during hurricane events will inadvertently conflict with advisories and instructions from local officials.