ATTACHMENT A
Modification #P00001
Statement of Work

Interagency Agreement
HSFEHQ-04-X-0364

Hurricane Evacuation Analysis - 2004 Hurricane Season Post Storm Assessment

Part I. Purpose

The purpose of this modification is to evaluate the performance of existing National Hurricane Program (NHP) evacuation decision assistance products and program initiatives for emergency management at all levels, and to direct future NHP preparedness, training, and public awareness activities based on detailed post storm Transportation, Behavioral, Shelter, Evacuation Decision Making Analyses and impact assessments. The post storm assessment is a vital tool that allows the NHP to calibrate, correct, and improve models and products that serve as primary decision assistance tools for emergency managers.

Post storm assessments serve as an avenue for FEMA and the hurricane community to verify product results and data provided to emergency management. They also guide future enhancements to insure effective hurricane evacuation and logistical decision-making techniques. Emergency Management at all levels depends upon the evacuation decision assistance tools produced by the NHP, and the post storm assessment is the key component designed to improve those products.

Part II. Background

During the 2004 hurricane season, the United States was impacted by 5 hurricanes and 2 tropical storms (Alex, Bonnie, Charley, Frances, Gaston, Ivan, Jeanne). This is the first time since 1886 that one state has been impacted by 4 hurricanes that caused significant multi-state evacuations to take place. The "2004 Hurricane Season Post Storm Assessment" is a comprehensive study that will focus on the impacts of hurricanes Charley, Frances, Ivan, and Jeanne. The assessment will concentrate a majority of study efforts in the directly impacted states of Florida, Alabama, Mississippi, and Louisiana. Additional interviews will be conducted with the indirectly impacted states of Georgia, South Carolina, and North Carolina.

The Post Storm Assessment will consist of 3 main study sections: Section 1 "Hurricane Charley", Section 2 "Hurricanes Frances & Jeanne, and Section 3 "Hurricane Ivan". Each section will contain results and study data collected from the Assessment Analyses listed in Part III of this document. Attached is a detailed Analysis Matrix explaining the types of assessments that shall be conducted and approximate costs for each state.

The National Hurricane Program has been conducting Post Storm Assessment since 1985, and they have provided a gage of the effectiveness of FEMA's National Hurricane Program's Hurricane Evacuation Study (HES) products that are provided to State and local decision-making officials. These products include: Evacuation Clearance Times, HURREVAC (evacuation decision assistance tool), SLOSH (Sea Lake Overland Surge from Hurricanes- storm surge model), and the Evacuation Traffic Information System (ETIS – traffic congestion forecast tool). **The SLOSH Hazard Analysis will not be funded under this modification.**

This assessment will allow for the concerned parties to gather information, evaluate, and thus make corrective changes to emergency preparedness plans for hurricanes. The primary result should be corrective actions made in the HES(s) prior to the next hurricane season, thus improving emergency preparedness for the protection of coastal communities. Results from the

assessment will also be used as a review item for changes or revisions to methodologies used for studies, operational plans, mitigation and preparedness techniques across the nation.

Part III. Contract Task A - Analyses Explanation

Please reference the attached Analysis Matrix for a detailed description of the assessments to be conducted in the various impacted states listed above.

1. **Assessment Interviews:** In concert with the FEMA Region IV Hurricane Program, conduct interviews with State and local officials, and the media covering the communities and counties affected by the hurricane. The purpose is to compile an account of the events surrounding the decision either to evacuate or not to evacuate, decision-tools used or not used, problems encountered by those at risk, product success, and the behavioral patterns and trends that affect the accuracy of the technical data available.
   - Approximately Thirty-Three assessment interviews will be conducted in Florida.
   - Approximately 15 interviews (Combined) will be conducted in NC, SC, AL, MS, and LA.
   - The findings of the assessment interviews will drive the development of the final report document.

   This will be funded with Corps of Engineer funding.

2. **Behavioral Assessment:** Perform approximately 9,000 behavioral surveys (via telephone, mail questionnaire, and other accepted methodologies) of local citizens, tourists, etc. who were asked to evacuate or subject to a potential evacuation to better understand the behavioral reactions and response of the impacted public. Specific questions on the behavioral study should address the mitigation measures employed by homeowners and businesses to reduce the damages to their property. An acceptable sample size for this behavioral analysis will be determined by negotiations between FEMA, the State, and the HES Study Manager. Specific questions on the behavioral study should address the mitigation measures employed, or a lack there of, by homeowners and businesses to reduce the damages to their property. The survey will expose the protective actions taken by the directly/indirectly impacted public (ie. How did you make the decision to evacuate or not, where did you find forecast and safety information, where did you evacuate to, etc.) Finally, the collected behavioral data will be used to direct future program public awareness initiatives and to build a comprehensive preparedness approach to educating hurricane vulnerable populations.

3. **Sheltering Assessment:** Perform a shelter assessment to determine if shelter assumptions found in the HES were accurate. Concentration should be on communities that opened shelters; number of shelters opened; shelter capacity issues, number of evacuees sheltered; and arrival and the end time of arrival for these shelters. The assessment should capture information about any structural integrity issues of shelter facilities and refuges of last resort. Also, information communication issues will be assessed concerning forecast information, reentry information, and shelter availability notices to evacuees via various media outlets. The primary source for this information will be local officials interviews. This information will be used to guide future shelter preparedness planning for coastal jurisdictions and will be provided to Emergency Support Function 6 & 8 agencies for review.

4. **Transportation Assessment:** Working with State and local officials, Federal and State Departments of Transportation and other recognized State and local agencies/organizations which have transportation data, collect information on the evacuation roadway network and determine the following:
   1) Did local officials recommend the HES projected routes
   2) Did evacuees use projected routes;
   3) Were traffic control actions taken to speed up traffic;

4) When the evacuation was complete, how long did the evacuation take;
5) Were any major problems encountered during this evacuation;
6) Assess how evacuees acquired real time traffic information;
7) Assess the forecasting performance of ETIS in Florida and the need to incorporate Real-Time Intelligent Traffic Systems to improve performance of traffic monitoring tools.
8) Assess clearance time accuracy and timing.

5. **Decision-Making:** Compare information gathered during interviews with local and state officials to information contained in the HES and determine the extent that emergency management officials went to emergency activations and procedures:

1) When were emergency operations centers activated and what prompted this action;
2) What study products and/or decision-making tools were used to decide when to evacuate (or not to evacuate) and who should evacuate;
3) When were evacuation orders or requests made;
4) Number of people who evacuated as ordered or recommended;
5) Numbers of evacuees who evacuated, though not ordered or recommended to do so (shadow evacuation);
6) Assess the performance of HURREVAC and acquire user information concerns to guide future improvements and needed calibrations. Information for this task will be gathered during interviews with local and state officials and compared to information contained in the HES.

6. **Public Information/Media Impact:** Determine how the public interpreted evacuation warning messages issued by decision making officials, media coverage impacts on public decision making, and which information dissemination mechanism seemed most effective (TV, Radio, Internet, Word of Mouth, Newspapers, etc). Study products and data must ultimately be tailored to a format that the media and the general public can understand so that correct evacuation preparations and decisions can be clearly understood by the general public. Information for this task will be gathered during the assessment interviews with local and state officials and during the Behavioral Analysis, and compared to information contained in the HES. This information will be used to guide future public awareness activities and to assess the media's positive/negative influence on protective actions taken by the impacted public.

7. **Critical Business/Government Impact Assessment:** Determine the extent of damage sustained by local governments and private business industries (Specifically top 5 county employers and government critical facilities in Baldwin County, AL and Escambia County, FL) and negative economic impacts experienced. Study impacts created by county issued evacuation warnings and actual storm damage impact. Study types of businesses and government facilities impacted the most/least, and mitigation (or the lack there of) techniques taken to reduce storm damage potential. Determine if government and major county employers have adequate continuity of operations plans (COOP). Findings from this assessment will be used to guide future mitigation needs, display mitigation success stories, and guide hurricane preparedness initiatives towards private industry, as well as, calibrate critical facility performance in HAZUS.

Part IV. Task B. Final Report Document and Additional Appendices to be included.
Final Report: At the conclusion of the assessment analyses listed in Part III, a detailed final report document will be completed by the Contractor with assistance from the Project Monitors & Technical Monitors who will coordinate with other FEMA staff and the USACE. The report shall include the follow:

(Orientation of Report)

1. A narrative chapter will be devoted for the Tasks A.1-7, which will describe information collection and include pertinent tables of information collected from all analyses and the assessment interviews. A detailed analysis of the findings along with recommendations/solutions for the National Hurricane Program will be included for each assessment conducted along with an executive summary of the entire document.
2. Appendices listed below will be included in this report. The Study Manager, as needed, shall incorporate additional appendices, which prove to be relevant.
3. The final FEMA/State approved report will be produced in hardcopy and CD-ROM digital format and placed on the USACE HES Resource website.

Additional Appendices To Be Included In Final Report:

1. **Chronologies:** Prepare a historical chronology of the events leading up to and including the timing of decision-making by State and local officials during each storm, including the availability of weather-related information and warnings issued by the National Hurricane Center and local National Weather Service Forecast Offices.

2. **Tables:** Includes a Preliminary Best-Track, Watch/Warning Tables, and Tides Observed, as issued by the National Hurricane Center and the National Weather Service or collected by the United States Geological Survey. These tables can be derived from available High Water Mark and Inland Wind Analysis previously conducted.

3. **Participants Interviewed:** Include a listing of participants interviewed and the interview team(s).

4. **Behavioral Questionnaire and Findings:** A copy of the behavioral questionnaire used for the post storm assessment will be published, along with numerical answers. A detailed analysis of the findings shall be included with recommendations for future public awareness initiatives.

5. **Glossary**: Common terms, abbreviations and acronyms

6. **Photos**: Photos of damage for each storm and interview meetings, with proper secured release of damaged areas and interview team meetings.

7. **Press Releases**: Compilation of pre/post landfall press releases and major newspaper articles. FEMA documentation concerning damage cost, response efforts, etc.

8. **Maps and Graphics**: Maps of affected areas, evacuation routes, shelter locations, storm impacts (surge, wind, tornado, sustained damage, demographic images).

9. **Recommendations**: List of recommendations after assessment section shall be drafted. Each recommendation will be supplemented by a detailed possible solution explanation provided by the contractor. An executive summary of the recommendations along with consequences of not acting upon these finds is to be placed into an executive summary brief document.

10. **Public Explanation of Findings Presentation.** The Contractor shall design a Power Point Presentation to be utilized by FEMA and USACE that details the Post Storm Assessment Findings. These findings shall be publicly presented to each Impacted area and State EMA, and appropriate FEMA/USACE offices.

Part V. Task C. Publication and Distribution

1. **Numbers:** The contractor will notify the Project Monitors and Technical Monitors who will coordinate with other FEMA staff, USACE, and State EMA post storm participants of

updated draft material as it is placed on the HES website. The participants shall be allowed 7 days to review updated material. The contractor will provide an email to the Project Monitors & Technical Monitors who give notification to Federal and State participants concerning updated draft material. The contractor will provide an email based mechanism for participants to provide feedback via HES website. The contractor will work through the Project Monitors & Technical Monitors to coordinate efforts with the appropriate FEMA Hurricane Program Manager to determine necessary changes to be made to the document. The contractor will release 100 CD-Rom copies of the final document to be forwarded to the Project Monitors & Technical Monitors by August 8, 2005.

2. **Internet:** An abridged copy of the final version will be made available on a USACE/FEMA Hurricane Evacuation Study or relevant State EMA Internet sites for the review of other interested parties. A compressed version of the Final Report will also be available for download and printing at the user's workstation.

3. **Credits:** Cover design must include a copy of the DHS/FEMA and appropriate impacted state seal. State Emergency Management Agency and/or Study Manager Seals are permissible and recommended, if approved. Forward should state that FEMA/USACE funding was used for the research, publications, and distribution of this document.

4. **Executive Summary:** The contractor will produce a hardcopy executive summary of the entire report and deliver the PDF file and 100 hardcopies to the Project Monitors and Technical Monitor.

Part VI. Deliverables/Reports

Deliverable	Quantity	Due Date
Behavioral Assessment surveys	9,000 people surveyed	June 1, 2005
Transportation Assessment	5 (FL, AL, MS, LA, GA)	May 15, 2005
Sheltering Assessment	5 (FL, AL, MS, LA)	May 15, 2005
Critical Business/Government Impact Assessment. To be conducted for Hurricane Ivan in Baldwin Co. AL and Escambia Co. FL.	1	May 2, 2005
HES website posting of document (Postings are made available as assessments and analyses are completed.)		August 1, 2005
Digital CD-ROM Copies to be delivered to the Project Monitors & Technical Monitors	100	August 8, 2005
Executive Summary PDF Hardcopy Document to be delivered to the Project Monitors & Technical Monitors	100	August 8, 2005

Please note: Progress payments are contingent upon receipt of the deliverables meeting the schedule.

The Contractor shall use all pertinent resources available. All deliverables for the entire project will be completed no later than August 8, 2005. Any printing that does not fall under the guidelines of this Contract shall be the responsibility of the Project Monitors and Technical Monitor going through the Government Printing Office (GPO).

Bi -weekly coordination and progress reports will be supplied to the Project Monitors and Technical Monitor on the following completed analysis/assessment items and issues/problems experienced. These reports may be delivered via email.

All final deliverables must be submitted to the Project Officer.

Part VII. Contracting and Coordination

The 2004 Hurricane Season Post Storm Assessment is to be coordinated through the Project Monitors and Technical Monitors with the Alabama, Florida, Georgia, Louisiana, Mississippi, North Carolina, & South Carolina Division of Emergency Management's Hurricane Program Manager.

Project Monitors: Brock Long, Region IV, 770/220-5668 (o); 404/909-5198 (c)
Chuck Gregg, Region VI, 904-898-5136
Technical Monitor: John Gambel, FEMA-HQ, 202/646-2724
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