



## New Orleans District

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### Approval for a Behavioral Survey as Part of the Southeast Louisiana Hurricane Evacuation Study

Submission Date 1/11/2016

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1. **Project Title:** Analyzing evacuation behavior in southeastern Louisiana to develop hurricane evacuation and transportation models.
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2. **Abstract:** The U.S. Army Corps of Engineers (USACE) New Orleans District, (MVN) seeks to conduct a behavioral survey of residents of southeast Louisiana as part of a hurricane evacuation study. The behavioral survey comprises residents in the parishes of Orleans, Plaquemines, Jefferson, St Bernard, St James, St John, St Charles, St Tammany, Terrebonne, Lafourche, Tangipahoa, Livingston and Ascension. Information obtained from this survey will be incorporated into a Hurricane Evacuation Study to identify clearance times for evacuations of populations in SE Louisiana in advance of a hurricane or tropical storm. This collection will provide information to determine if the resources needed and time requirements to ensure life safety of the residents of coastal Louisiana prior to hurricane landfall.
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3. **Principal Investigator Contact Information**

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**Project Information**

5.	<b>Where Research is to be Conducted:</b> 13 Coastal Parishes in Southeast Louisiana
6.	<b>Survey Dates:</b> March 30, 2016 to June 1, 2016
7.	<b>Type of Information Collection Instrument (Check ALL that Apply)</b> <input type="checkbox"/> Mail-back Questionnaire <input type="checkbox"/> Face-to-Face Interview <input type="checkbox"/> Focus Groups <input type="checkbox"/> On-Site Questionnaire <input type="checkbox"/> Telephone Survey <input type="checkbox"/> Other (explain)
8.	<p><b>Survey Justification:</b> (Use as much space as needed; if necessary include additional explanation on a separate page.)</p> <p>The U.S. Army Corps of Engineers (USACE) is currently conducting a Hurricane Evacuation Study for southeastern parishes in Louisiana. Part of this study requires an analysis of the anticipated evacuation behaviors of residents in the area of potential impact.</p> <p>The survey aims to answer the following study questions:</p> <ol style="list-style-type: none"> <li>What will be the trigger for evacuation for the residents in the study area?</li> <li>What resources will they take with them?</li> <li>What is the expected evacuation destination?</li> <li>What form of transportation will they take?</li> </ol> <p>USACE assists state and local partners by preparing the hurricane evacuation studies; the result is a series of clearance times associated with evacuations before the advent of a hurricane. Part of the HES consists of behavioral assessments of how the residents will be leave and what are the triggers for individual evacuation. Those behaviors will be analyzed through this survey.</p>
9.	<p><b>Survey Methodology:</b> (Use as much space as needed; if necessary include additional explanation on a separate page.)</p> <p>(a) Respondent Universe:          The potential respondent universe will consist of residents living in coastal areas where public officials may call for an evacuation when a hurricane threatens. All study proposals must include a description of a survey’s particular respondent universe. The sample population is typically identified using available hurricane risk data, including data on areas at risk from hurricane storm surge flooding, previous hurricane evacuation studies or hurricane response plans, established hurricane evacuation zones, and in coordination with State and Local governments within the study area who are responsible for hurricane emergency management and evacuation decision making.</p> <p>For the Southeast Louisiana Hurricane Public Evacuation Behavior Survey, the study will collect 2,600 responses from residents of 13 Louisiana Parishes: Plaquemines, St. Bernard, Jefferson, Orleans, Lafourche, Terrebonne, St. Charles, St. John the Baptist, St. Tammany, St. James, Tangipahoa, Livingston, and Ascension.</p> <p>Data will be collected via a combination of random digit dialing of landline</p>

phones, random digit dialing of cell phones, and a listed sample.

(b) Survey Administration:

Instrument Administration:

Survey data collection will primarily be through telephone calls to addresses in or near hurricane evacuation zones. This is generally the method recommended by Social Science subject matter experts for this type of collection. Survey administrators use specialized software to record responses for better quality control and assurance, and to provide for efficient tabulation of the results.

(c) Expected Response Rate:

Based on experience with previous hurricane evacuation public behavior surveys, we estimate that there will be approximately 1500-3000 completed surveys for the hurricane evacuation behavioral study effort, which will be conducted by telephone. In recent evacuation behavioral surveys, using commercially available published listings of landline telephone numbers with geocoded physical addresses, 37.5% of the numbers were reached successfully. The attrition is partly due to numbers that have been disconnected, commercial numbers that were incorrectly classified as residential, and so forth. But most of the attrition is due to residents not answering their phone. Of those who do answer, approximately 40% have most recently agreed to participate in the survey, resulting in an overall response rate of 15%. The 15% figure is better than the national average for landline surveys of 9%, mainly due to greater interest in the subject matter of the survey. Response rates for this survey effort is expected to be similar and at or above levels needed to obtain statistically viable results. USACE New Orleans District is working with local emergency operations centers to communicate to the public the importance of participation. This is intended to maximize response rates and ensure that these are integrated as part of the survey methodology in the supporting statement for each information collection to be considered under the clearance.

(d) Data Analysis Plan:

The data analysis conducted will be a descriptive profile of the responses to the individual survey questions and the development of custom depth-damage relationships for parish locations. The custom depth-damage relationship will be developed with information obtained from the survey. Adequacy of the response rate will be judged by the degree to which coverage of the coastal parishes are represented in the responses.

(e) Non-response Bias Testing:

The sample selection and data analysis plan targets the collection and use of site specific data. A question has been added to the form to request feedback on the cause of non-response. Non-response feedback will be requested as follows:

		<p>We have found that in studies of this type that people have a lot of different reasons for electing not to participate. Understanding the reasons for non-participation will help us to improve future survey approaches. Which of the following statements best describes your reason for electing not to participate?</p> <ol style="list-style-type: none"> <li>1. I do not have time to answer the questions.</li> <li>2. I am not interested in the Study or its outcome.</li> <li>3. Objected to the way a question (or questions) was asked.</li> <li>5. Other. _____</li> </ol> <p>Non-response feedback obtained will be analyzed for bias.</p>
10.	<b>Burden Estimates:</b>	The project will require 30 minutes of participation for each survey, with an anticipated 2600 respondents. Total burden will be 1300 hours.
11.	<b>Reporting Plan:</b>	<p>The data collection results are used to support the shelter analysis and transportation analysis of the HES process, through providing information on the percentage of people likely to evacuate in different hurricane scenarios, evacuation orders, where they would go, if they would go to a shelter, what roads they would take, how many vehicles, etc. Results are also tabulated within a report that summarizes the overall responses to each question, but does not provide the responses from each individual survey response. The reports are used as an internal reference for the Federal Government but also provided to State/Local governments to support hurricane response planning efforts, and programs to communicate evacuation zones, evacuation plans/procedures, and information on hurricane risk to residents.</p> <p>Most analyses of surveys conducted under this program will involve simple tabulations to address information needed for planning and estimations of evacuation clearance times. These include response frequencies, confidence intervals, breakdowns of the overall responses to each question, and some cross-tabulation.</p>
References used:		