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## **SCOPE OF SERVICES** *for* **FLOOD INFORMATION WEB APPLICATION FOR NFWWMD COASTAL COUNTIES**

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### **PURPOSE**

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The Northwest Florida Water Management District (NFWWMD or District) is partnering with the Federal Emergency Management Agency (FEMA) to improve outreach and coastal floodplain information to the public for its nine coastal counties. This scope of services is part of the Risk MAP outreach initiative for the State of Florida. This floodplain information consists of stormwater models and map products, many of which have been updated during the past five years as part of the Map Modernization program. The District wishes to make the floodplain information available to the public over the Internet as the primary vehicle at various stages of coastal flood hazard map revision through to the delivery final maps.

Currently, the floodplain information resides with FEMA and community officials in various formats. The purpose of this project is to collect and format the floodplain information to allow for elevation queries, create a GIS database of floodplain information at a parcel level, and make the database available to the general public via a web mapping application using ArcGIS Server. The floodplain information will include at least the 100-yr flood elevation (i.e., Base Flood Elevation) and the corresponding estimated depth of flooding for the studied areas. For approximate areas the floodplain information will include only the spatial extent of the Special Flood Hazard Area (SFHA). Users will be able to select a parcel and print a customized report detailing the parcel information (e.g., parcel number, address, section-township-range, FEMA map number, etc.), flood zone information, as well as the estimated flooding elevation and depth for both the effective FIRM's, the new Preliminary FIRMs, and the new final adopted FIRMs being prepared as part of the coastal area restudies. This differs from the existing service offered by FEMA's Map Service Center, which only provides digital images of the effective FIRM panels. Users would still have to visually locate where their property is on the panel. With this application, users will be able to leverage the address search capabilities of Google™, and have access to contact information for their particular community as well as other valuable information for their property (i.e., current effective zones, preliminary zones, flood depths, etc.). The web application will be user-friendly and be based on the already widely-used Google™ Maps. The interface will be intuitive, and an online user-guide will help navigate through the various functionalities. Examples of existing web sites include:

<http://206.239.151.15/nfwwmd>

<http://www.srwmdfloodreport.com>

<http://www.georgiafloodinfo.com>

A domain name will be decided with the District that clearly defines the purpose of the web site, and the site will be marketed using a variety of methods (discussed in TASK 5). The new application will consist of similar functionality as well as additional custom functionality and design to meet the various needs of the communities. The following tasks highlight the necessary steps to achieve this application.

## TASK 1: DATA COLLECTION AND ORGANIZATION

Data collected and assembled shall consist of the effective and/or preliminary floodplain information, flood models, flood profiles, LiDAR, and parcels. Agencies to contact other than FEMA and the District include the counties, and cities who may have the appropriate parcel and housing footprint data. The data will be organized in a manner conducive to web application development. Floodplain features will be migrated into a database of choice determined by the District. It is assumed that data transfers will be electronically, or via mail delivery. No meetings are needed or envisioned for this initial task.

## TASK 2: WEB SITE LAYOUT AND DESIGN

Task 2 consists of designing the layout of the web site, and will include color scheme, graphics design and page content. Dewberry/URS and the District shall collaborate and coordinate with the communities within the District to determine additional content, such as contact information, links, and report format. This task will include a few Web meetings with all nine of the local county government agencies as well as others who have expressed a desire to participate in this project with the District to go over the site layout, content and design. Depending upon the communities own data sources (such as parcel data and housing foot print data) some of the formats chosen may need to be customized slightly to accommodate the individual characteristics of the participating community.

The web application shall include an interactive map with common functions such as zoom, pan, and identify. In order to provide the best performance the District's data will be overlaid on top of a Google™ Maps web application to serve as a base map. Better data will be incorporated, if available. Additionally, the District's map contents will be cached as a fused image. This means that users will not be able to turn on and off specific layers in the map. This will provide better performance (i.e., less server resource usage, faster display on the web, etc.) with less potential for interruption of service for the public. The outreach development team will determine the map content and symbology used in the web application. Additionally, custom programming will be required to query database information, perform geoprocessing tasks, and provide the ability to locate a particular parcel by parcel number or through Google™ Maps service for locating addresses. This task will include Web meetings as necessary among the team to go over the site design, after which the application will be placed on Dewberry/URS's Web Server for an adequate period of time to allow for testing. The web tool will be designed in such a way as to be simple and easy to use by the public. However, the web tool developed will not be able to address all public concerns.

## TASK 3: EFFECTIVE FLOOD HAZARD INFORMATION

The FEMA effective flood hazard information shall be incorporated into the web site so that users will be able to quickly query the current flood zone(s) that affect them and associated information. Users shall be able to select a particular parcel and generate a custom report highlighting the associated flood information.

Information to in the report shall include the following:

- parcel number
- address, if available
- FIRM panel number
- effective date
- effective flood zone

Evacuation zones/routes will be shown as a separate dataset, if available. This is to help users, particularly in the coastal areas, to differentiate between the requirements for flood insurance versus inherent risks from surges greater than the 100-yr storm.

#### TASK 4: DEPLOYMENT

Dewberry/URS will host the application. The hosting consultant shall provide all hardware and software requirements including the necessary ESRI® licenses. A beta test will be conducted for a period of one month, during which the District and community officials can get familiar with and test the functionalities of the web application and its performance. Issues with functionality and performance shall then be resolved, after which the web site will be hosted for a period of 3 years.

#### TASK 5: SITE ADVERTISEMENT & OUTREACH

The outreach development team will coordinate with the District and other stake holders so that the web application will be linked from the District's web site (nwfwmdfloodmaps.com), FEMA's web site, and county government sites. The site will be submitted to various search engines including Google™, Yahoo!®, and Bing™. The development team will coordinate with the District on publishing advertisements in local newspapers, radio, and TV spots.

#### TASK 6: SITE SURVEY

The site visit statistics shall be monitored using custom code or Google™ Analytics. A site survey shall be developed to get feedback from the public. Included as part of this survey will be the need to possibly tailor all or some of the website development to adequately outreach to Hispanic populations or other nationalities. A report will be generated after 6 months of web use with any recommendations for changes to the website design or functionality.

#### TASK 7: PRELIMINARY FLOOD WATER SURFACE ELEVATIONS FOR PARCELS

Task 7 shall consist of calculating the flood elevations for parcels within the preliminary floodplain. Elevations for the preliminary 100-yr storm recurrence intervals shall be calculated. Since the information found in the digital flood insurance rate maps (DFIRM) cannot be readily used to accurately determine a flood elevation for a given parcel, water surface elevations will be calculated based on the original models, if available.

Task 7 will involve georeferencing existing or preliminary riverine models against available orthophotography, and adding additional interpolated cross sections to achieve more detail, if necessary. Quality control and quality assurance will be conducted to ensure that the resulting DTMs are consistent with the preliminary DFIRMs. For areas where digital models are not available, the water surface DTM will be created using the flood profiles if available. If no other information is available to aid in developing the DTM, the water surface model will be based solely on the BFE lines and floodplain boundary from the preliminary DFIRM database.

For coastal areas, regulated flood elevations are often directly extracted from the DFIRM. For this reason, the water surface DTM will be developed using the preliminary BFE elevations in the DFIRM (i.e., distinct whole foot elevations and coastal gutter lines).

## TASK 8: WEB SITE UPDATE WITH PRELIMINARY FLOOD INFORMATION FOR OUTREACH

Once the maps are preliminary (prior to the final map adoption phase) for FEMA's formal review process to begin, the flood information will be incorporated into the web site so that users can determine the expected new flood zone information. The custom reporting tool shall be revised to include the effective information earlier in TASK 3, as well as the following preliminary information:

- new terrain information
- preliminary flood zone
- preliminary panel number
- expected new effective date
- estimated base flood elevation
- estimated 100-yr flooding depth
- contact information (i.e., email, address and/or URL)

## TASK 9: FINAL MAP UPDATE

Once the new maps become effective, they will be updated on the new web site and published with the effective date. It is anticipated that changes will be minor and not involve recalculation of the flooding water surface elevations. If major changes are required, the District shall be consulted before proceeding with the changes.

## PROJECT BUDGET

**Task 1: \$7510**

**Task 2: \$40,220**

**Task 3: \$10,680**

**Task 4: \$41,340**

**Task 5: \$2670**

**Task 6: \$2670**

**Task 7: \$61,670**

**Task 8: \$16,020**

**Task 9: \$16,020**

**TOTAL COSTS: \$198,800**

## **SCHEDULE**

**Task 1-4: Completion 12 months after notice to proceed**

**Task 5&6: Completion 16 months after notice to proceed**

**Task 7&8: Completion 24 months after notice to proceed**

**Task 9: Completion 36 months after notice to proceed**