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HURRICANE RECOVERY

GIS teams support Katrina rescue and recovery efforts

NEW ORLEANS — More than 1,600 U.S. Army Corps of Engineers (Corps) employees have been actively engaged in the hurricane recovery efforts throughout Mississippi, New Orleans, and Louisiana, providing residents with temporary housing, roofing, water, ice, and power; removing debris; repairing levees around New Orleans; and pumping floodwater out of the region. But before recovery efforts could get fully underway, geographic information system (GIS) professionals were called on to create maps of the area.

"The region needs to be mapped out first before these recovery efforts can begin because the hurricane blew away most of the street signs so rescue teams and recovery teams have no idea what streets they are on," said Stephen Mcdevitt, GIS, USACE, New York District, who is one of three national action officers responsible for deploying and managing GIS teams throughout the disaster region.

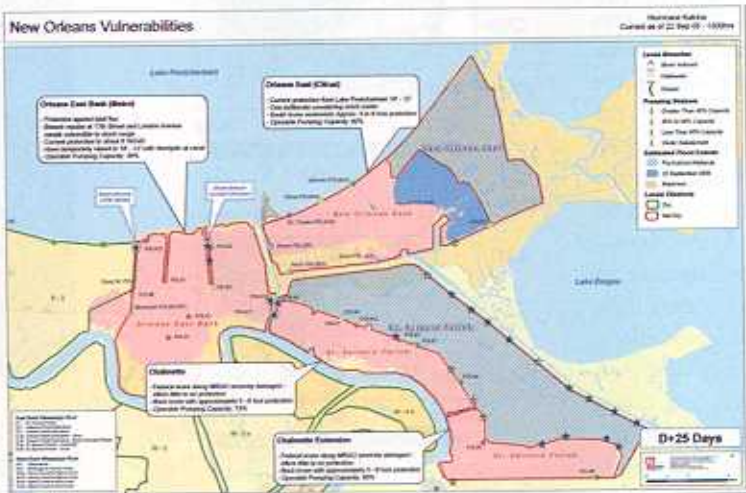
Creating GIS images was the first step to performing recovery efforts that included the following:

Damage assessment — To create maps of the entire region, aerial photos were taken and then laid over geographic coordinates and brought into a computer mapping system.

Rescue and recovery — GIS teams gathered data of where hurricane victims were located and fed this information into the GIS database. This data was combined with the aerial photography and other geographic data to produce maps that search and rescue workers used to locate and recover stranded individuals.

Building temporary homes — Temporary housing is only allowed on land that is not prone to flooding, is safe, and is close to services such as hospitals and schools. Data on the flood zones was

combined with other data types to produce maps that show the best locations for temporary housing.



A GIS map shows vulnerable areas of New Orleans.

Removing debris — The GIS maps can show engineers where debris is located. Engineers can calculate how much debris there is from these maps and determine how much it would cost to remove it. These maps also can show where the land is clear. Clear land is needed for "staging areas" to hold the equipment that will be used to remove the debris. In addition, GIS can show engineers the optimal routes for removing and transporting the debris.

Pumping floodwater — The GIS can perform 3-D analysis and modeling to estimate how long it will take for floodwaters to subside using different pumping rates.

A Corps GIS support team reviews maps created to help hurricane rescue and recovery efforts.



In addition, GIS teams in the field provided data of where pump stations were located and which ones were working.

Identifying impacted communities — The GIS can create demographic maps that identify what economic and racial groups are impacted the most. These maps are created by combining hurricane path data, aerial images, wind speed data, and census data. These maps are used by various groups involved in the rescue and recovery efforts, such as The Red Cross.

GIS is one of several tasks that must be initiated immediately when acting on a disaster relief situation. "Communicate, coordinate, and cooperate are the three essential C's for getting things going and accomplishing what you need to in a short amount of time in disaster situations," Mcdevitt said. He suggested the following to engineers faced with initiating a disaster relief mission:

- Plan ahead.
- Create a team of diversified specialists. Many of the GIS team members are non-GIS specialists, but come from other disciplines. Their additional skills can meet many needs during a disaster.
- Organize and utilize available resources. The Corps called upon contractors to be able to begin work immediately. "In the beginning, we needed to take aerial photography of the disaster and were able to immediately call a contractor to perform this work," said Mcdevitt.
- Keep communication lines open. The Corps has been working closely with other federal and state agencies.

"There is an incredible variety of ways that GIS can be used to help support disaster missions," Mcdevitt said. "A picture is worth a thousand words, and if that picture has a lot of useful information on it, people do relate to them." ■

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