

GEORGIA'S MAP MODERNIZATION SCOPING EFFORT

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Abstract. This paper discusses the Georgia Flood Map Modernization Program and the associated study scoping effort. Georgia is partnering with the Federal Emergency Management Agency (FEMA) to create, update, and republish the Digital Flood Insurance Rate Maps (DFIRMs) for all 159 counties and 531 communities in the State. The Georgia Department of Natural Resources Environmental Protection Division (EPD) has taken responsibility for the program for the State of Georgia. This project will benefit virtually every citizen of the State by creating more accurate and more easily accessible flood maps.

Through this process, local governments in Georgia may contribute mapping data to the process. With Georgia having the most local government jurisdictions per state in FEMA Region IV, the identification and assembly of local data is an enormous effort.

The EPD contributes contractor services, technical support and eventually map production services and other tools to benefit local governments. The technical assistance provided by the EPD encompasses all aspects of the FEMA map modernization effort, including project scoping, hydrologic and hydraulic modeling, floodplain delineation, QA/QC, DFIRM production, outreach and eventually long-term map maintenance.

INTRODUCTION

The Federal Emergency Management Agency (FEMA), now a division of the Department of Homeland Security, has embarked upon a historic flood map modernization program. The purpose of this program is update the Flood Insurance Rate Maps (FIRMs) for the United States, taking advantage of the capabilities of State and local partners as well as recent improvements in flood mapping technology.

FIRMs are widely used by lending institutions and governmental agencies for the purpose of determining flood insurance requirements and floodplain management requirements, respectively. With each initiation of a federally-backed or federally-insured mortgage for a residential property, lenders are obligated to utilize the FIRMs to determine if the

house is located within the 1% annual chance (100-year) floodplain, and if so, to require that flood insurance be purchased and carried on the home. Community officials are also required to utilize the FIRMs when reviewing new development or substantial improvement of properties. These officials use the FIRMs to determine if the property is within the 1% annual chance floodplain or floodway, or other significant flood zones. The level of regulation they must then impose varies with the zone the property is located within. Clearly, the consequences of inaccurate or outdated FIRMs are colossal and have profound impacts on government, builders, lending institutions, and private citizens.

As of December 2004, 43 counties in Georgia had countywide or partial county topo data more current than the 1:24000 scale digital USGS topo maps available statewide. At least 87 counties in Georgia have GIS capabilities, and another 23 are planning to add these capabilities in the near future. There are hydrologic and hydraulic related materials useful to the map modernization effort in at least 57 of the counties.

On a national basis, over half of the current inventory of FIRMs is more than 15 years old, and 70% are older than 10 years (FEMA, 2004). Georgia's FIRMs are an average of 12 years old. Georgia also has a high percentage of communities with no FIRM's at all. The lack of FIRMs means that some communities have no official flood mapping on which to base land-use decisions, and private citizens are severely hampered in their efforts to construct homes out of the floodplain.

STATE ROLE

Currently, 64.5 percent of Georgia's 690 communities participate in the National Flood Insurance Program (NFIP). Of these, 143 are county governments and 302 are municipalities. The Georgia Environmental Protection Division (EPD), Floodplain Management Unit serves as the liaison between FEMA Region IV and the communities. Four EPD staff provide the following services to communities and citizens:

- Guidance, technical assistance, and training
- Assistance in interpreting flood maps and related technical data and understanding the requirements of flood insurance.
- Assistance to local floodplain administrators in maintaining their community's compliance with the National Flood Insurance Program (NFIP)
- Assistance for non-participating communities in applying for participation in the NFIP.
- Review of state-funded and federally funded development projects for floodplain management compliance, and,
- Technical assistance following States of Emergency or Declared Disasters.

On August 16, 1999, the State of Georgia entered into a Cooperating Technical Partner (CTP) agreement with FEMA Region IV. Through Mapping Activity Statements (MAS) negotiated with FEMA each fiscal year, the State has taken on increasing responsibility for production of DFIRMs. In 2004, the State of Georgia Flood Map Modernization Plan (EPD, 2004) requested that FEMA delegate responsibility for the development and updating of Digital Flood Insurance Rate Maps (DFIRMs) within all 159 counties in the State. The time period for this effort has preliminarily been defined as five years, stretching until Fiscal Year 2009.

Georgia's level of participation in the DFIRM production process is well above average when compared to other States. For example, Georgia is actively managing the creation of nine countywide DFIRMs at this time, and is in the planning process for dozens more countywide maps. Georgia is thus categorized as a "mapping state," one where full responsibility for the production of DFIRMs lies with the State. Similarly, the State is developing web-based project management sites, new outreach plans and programs, and will draft two new technical standards related to floodplain mapping during the coming year. The State is participating at one of the highest level of participation allocated by FEMA.

Through the CTP agreement, the State is provided funding by FEMA for the production of DFIRMs as well as for the management of the DFIRM process. The amount of funding provided to the State is determined by FEMA Region IV each fiscal year, and is a function of the success of the State in producing DFIRMs, the ability of the State to obtain cost-share contributions from State or local sources, and the effectiveness of the State in linking improved floodplain management with improved floodplain mapping. The State is utilizing both EPD staff and consulting engineering firms to perform this work. The State's progress towards its objective is monitored quarterly by FEMA, and FEMA's agent, the National Service Provider (NSP).

The State's Flood Map Modernization plan mirrors the criteria defined by Congress for FEMA in funding the national map modernization program. These criteria include yearly goals for :

- Population having digital GIS flood data available via the World Wide Web,
- Population with adopted final FIRMs; and,
- Percent leveraged (cost-shared) effort toward digital GIS flood data.

FEMA also has a goal of allocating substantive portions of its map modernization funding through CTPs like the State of Georgia to further the development of flood mapping capabilities at the State and local level.

THE FLOOD STUDY SCOPING PROCESS

The first, and most essential, element of floodplain map development is the scoping process. During the scoping phase, communication between the State and localities is initiated and planning level cost estimates are refined based on detailed assessment of flood map update needs. Initially, the State contacts the communities to be impacted by the flood map update process, and invites them to a scoping meeting to be held within the county. At this meeting, State officials first present an overview of the Georgia Map Modernization plan, and then interact with local officials to customize the plan to their community. Participation and sharing of data is highly encouraged at these meetings, and participants are provided a short list of useful information to bring to the meeting in the invitation letter. The public typically does not participate in the scoping meetings because of the technical nature of the proceedings, but the meetings are open to anyone interested in participating, and the conduct of the meetings is well documented as a requirement of Federal law.

Meeting invitees include the floodplain administrators, public works directors, zoning and planning staff, and building permit staff within the communities. Other State agencies, such as the Georgia Department of Transportation, are represented, as their interests and projects often impact the floodplain. Finally, Federal agencies with flood control or flood modeling roles such as the United States Geological Survey, U.S. Army Corps of Engineers, Natural Resources Conservation Service, and Tennessee Valley Authority, are invited as well. In short, any agency with a vested interest in improving the quality of flood maps within a county is invited. In some cases, follow up calls to communities are made to further encourage participation or to clarify what types of data are useful to the scoping process.

GEORGIA FLOOD STUDY SCOPING EFFORT

In September and October of 2004, Georgia led one of the largest and most intense flood study scoping efforts ever conducted in the United States. The State coordinated and conducted meetings in 35 counties across the State over a six-week period. Counties in or near the Atlanta, Macon, Chattanooga, Columbus, Rome, Augusta, Savannah, and Valdosta metropolitan areas were included. One common thread among the counties visited was a higher than normal growth rate in recent years to help meet FEMA's population density metric.

In preparation for these meetings, 877 meeting invitation letters were mailed, and presentation material for all 35 meetings was developed. Two distinct scoping teams were created to maximize the coverage of the state while minimizing travel expenses. Each scoping team was lead by State water resources program staff. Team members included floodplain engineers and scientists from the State's contractor and a representative of FEMA's program manager, the National Service Provider (NSP). Normally, FEMA staff would also have participated in the meetings, but, because the meetings were held immediately after the three devastating hurricanes that struck the Southeast, FEMA staff were occupied with disaster response duties in the Region. Scoping team size was typically four or five.

The template presentation and methodology for the scoping process was discussed and developed via a series of conference calls over a one month period prior to the scoping effort. By the time the scoping teams first met, the presentation was already well refined and merely needed touch up work. On the day prior to the first scoping meeting, all members of both teams met in the Atlanta area to conduct a final review of the process, put the finishing touches on the scoping presentation, and to conduct an abbreviated run-through of the meetings.

For the first six meetings, all of which were within the "production" counties described later, both scoping teams attended and participated in the same meeting. This allowed the two teams to fully synchronize and refine the message being conveyed and the methods used to stimulate discussion. The "production counties" also required more staff resources at each meeting because of the more complex and more immediate actions to be taken following the meeting.

Of the 35 counties visited, six counties were designated as Fiscal Year 2004 "Production" counties, indicating that a flood map update for the county would be initiated immediately following the scoping meeting. The other 29 counties were designated "pre-scoping," meaning that the data gathered in those meetings would be used to better refine State cost estimates and priority schemes for production in coming Fiscal Years.

Counties designated as "production" included Cherokee, Cobb, Coweta, Floyd, Hall, and Paulding.

The primary difference between the "production" and "pre-scoping" meetings was the level of emphasis on provision of data immediately following the meeting. For the production counties, it was essential for meeting participants to submit data to the State within 30-60 days following the meeting. At each of the production scoping meetings, a point was made of asking each participant to commit to sending data within the specified time frame, and each promised bit of data was cataloged. Follow up phone calls were made several weeks after the meeting to discuss any data promised as well as to answer any questions that might have arisen.

The general agenda of the meeting included the following distinct elements:

- Introduction of scoping team staff and roles
- Introduction of meeting attendees and roles
- Purpose of meeting and benefits to community
- The National flood map modernization program
- The Georgia flood map modernization program
- An overview of the flood mapping process; and,
- A breakout session to discuss community-specific map update needs and data available

The Georgia map modernization program depends on the involvement of communities for the success of the program. Therefore, it was vital that communities understand why the process would benefit them and what realistic expectations they could have of the project. The benefits to communities include:

- Updated DFIRMs providing a GIS flood layer and a flood database for the community
- An improved tool for floodplain management
- Provision of better flood insurance coverage and rating by using the new data
- Improvements to the format of the FIRMs, making them easier to use.
- Significantly enhanced community input into the mapping process.
- The use of previous community flood mapping investments to make the map more accurate; and,
- The wise use of federal, state, and local investments

The most important part of the meeting was the breakout session. During this portion of the meeting, all attendees broke up into groups of 3-5 people and met with one or more scoping team members to describe and detail their flood map update needs and the data they had available to contribute to the process. Typically, attendees from the same community would break into groups to discuss and prioritize their needs for a few minutes and then would meet with scoping team staff. Federal and state agency attendees typically circulated among groups, offering information wherever appropriate and supplementing local knowledge. Prior to the meeting, scoping team members

had prepared and separated paper maps and copies of the effective FIRMs for each community. During the breakout session, each team member took charge of recording needs for a certain community or area. In some more heavily populated areas or at particularly well-attended meetings, two scoping team members served on each breakout team. Breakout team members used very simple methods to convey the information. Scoping team members were equipped with worksheets to record certain key pieces of information. Whenever a need was recorded, it was drawn onto the paper maps using highlighters, and the name of the person submitting the update need was recorded. Additionally, the justification for the need was recorded. FEMA reporting requirements and good fiscal management require that the justification for a particular flood map update action be well-defined and have a high cost-benefit ratio.

Most meetings lasted about two hours. Following the meetings, the scoping team prepared summaries of the data gathered and entered the information into FEMA's scoping database. The State also contacted dozens of meeting attendees to follow up on general information requests and to clarify data received.

In the production counties, the next step in the process is to define the official scope of work for the flood map update project and continue the communication with the communities. It is essential that communities see that their needs have been taken seriously, translated into workable and efficient flood map update actions, and that the data they provided will be used to improve the quality of the map. For the pre-scoping counties, a similar process occurs, but more informally, since production will not occur until at least the next fiscal year and there will be both the time for and the need for follow up meetings with the community.

THE FLOOD MAP PRODUCTION PROCESS

Georgia's flood map production is expected to span over a 24-30 month period, and includes a number of distinctive steps. Pre-scoping encompasses database research and development of a draft scope of work for any given county as well as a draft priority scheme covering multiple counties. Scoping includes the steps discussed in this paper as well as the refinement of the costs of the flood study for the county and re-prioritization of counties based on data gathered. Data acquisition and hydrology and hydraulics (where applicable) logically comes next in the process, and encompasses the acquisition or manipulation of data into a format useful for the Flood Insurance Study. Following this, the actual GIS DFIRMs are produced using the data gathered or transferred from effective maps. This is a lengthy and complex process involving matching the

floodplains to available orthophotography and base mapping and also preparing the cartographic labeling and layouts for the final maps. Once the preliminary map is complete, it is issued to the community for review and formal comment. A meeting is held with the community approximately 30 days after map issuance to go over the new product. A 90-day appeals period is held if new flood elevations have been posted on the map, and then a 6-month compliance period begins where the community must adopt new floodplain ordinances to match the revised map. Once the community has adopted the new ordinances, the new map becomes effective and must then be used for insurance and floodplain management purposes.

CONCLUSION

The State of Georgia has taken a large and ambitious role in the development of updated Digital Flood Insurance Rate maps for the State. The study scoping process is one crucial element of the DFIRM updates. Current digital topo data, aerial photography, GIS capabilities, and hydrologic and hydraulic information is very important to the success of this effort in Georgia. This paper describes the flood study update process followed by Georgia and the benefits to all citizens of the State.

REFERENCES

- Federal Emergency Management Agency, Multi-Year Flood Hazard Identification Plan (MHIP), 2004: Washington, DC, 100+ p.
- Georgia Department of Natural Resources, Environmental Protection Division, The Georgia Flood Map Modernization Plan, 2004: Atlanta, Georgia, 47 p.