



FEMA

Georgia

Department of Natural Resources

**COOPERATING TECHNICAL PARTNERS
EARLY DEMONSTRATION PROJECT MAPPING ACTIVITY
STATEMENT**

EARLY DEMONSTRATION MAS No. FY10.10

In accordance with the Cooperating Technical Partners (CTP) Partnership Agreement dated August 16, 1999 between Georgia Department of Natural Resources' Environmental Protection Division (GA DNR-EPD) and the Federal Emergency Management Agency (FEMA), Early Demonstration Project Mapping Activity Statement (PM MAS) No. . FY10.10 is as follows:

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SECTION 1—OBJECTIVE AND SCOPE

The objective of the Early Demonstration Project documented in this MAS FY10.10 is to recognize activities undertaken by CTPs as part of Risk MAP. For projects initiated in FY2009 or before, additional resources are being made available to demonstrate proof of concepts related to the Flood Risk Products and Datasets, community engagement, and a newer concept being referred to as Discovery. Early demonstration project funding could also be used by Cooperating Technical Partners (CTPs), to build a plan to increase their capability to successfully deliver Risk MAP. The desired outcomes and criteria for each of these areas are laid out below. Lessons learned from the early demonstrations will be applied to updating guidance, further refinement of concepts and products, and realizing production efficiencies and innovations for the project described in this MAS, which is for the Upper Chattahoochee River Basin Project including Coweta, Cobb, DeKalb, Douglas, Forsyth, Fulton, and Gwinnett Counties. All processes and deliverables shall be completed in accordance to the Federal Emergency Management Agency's (FEMA's) *Guidelines and Specifications for Flood Hazard Mapping Partners* (G&S) and appropriate Procedure Memoranda (PMs). These documents can be found on FEMA's website at http://www.fema.gov/plan/prevent/fhm/gs_main.shtm and http://www.fema.gov/plan/prevent/fhm/gs_memos.shtm.

This Early Demonstration will be completed by the following Mapping Partners:

- GA DNR-EPD; and
- Georgia DNR-EPD's Study Contractor (SC)

Desired Outcomes

Among the desired outcomes from these initiatives:

1. Regions have an enriched understanding of the Risk MAP vision and experience in delivering Risk MAP products and concepts.
2. Projects demonstrate progress towards achieving the Risk MAP goals, specifically goals 2, 3 and 5 as outlined in the Risk MAP Multi-Year Plan.
3. Validation that new/enhanced Risk MAP products demonstrate increased value through Risk MAP to State, local, and tribal stakeholders or insight as to which products require refinement and whether or not new products are necessary to achieve Risk MAP goals.
4. The costs for developing and delivering the products to State, local, and tribal stakeholders are better understood.
5. A refined process for developing and delivering the products that accounts for new activities, eliminates unnecessary steps, demonstrates efficiencies and standardizes best practices from across the Regions is created.
6. Regions understand how products can be applied to projects underway.
7. Regions understand what is needed to appropriately set up efforts for production planning and scoping and support HQ development of guidance on the Discovery process.

Activities that can be accomplished under this Early Demonstration Project MAS are as follows:

- Flood Risk Datasets
- Discovery
- Risk MAP Communications
- CTP Capability Building

See Memo dated June 23, 2010 and attached for additional details on implementation of these Activities.

Outreach/Risk Communication - Enhanced Property Notification

Responsible Mapping Partner: GA DNR-EPD Study Contractor

Scope: The objective of this pilot project is to provide additional outreach and risk communication during the Post Preliminary Processing of Digital Flood Insurance Rate Maps (DFIRM) for select counties scheduled for a flood map revision under GA DNR-EPD MAS FY09.09.

Through Map Modernization, the State of Georgia has remapped all 159 counties, consisting of vastly different levels of engagement of the local governments and public sector. Throughout the State, the main comment heard repeatedly was that the public was unaware the flood maps were changing and that it had different implications. Recognizing this and attempting to better communicate the level of risk associated at the parcel level, GA DNR-EPD proposes the following Pilot Project: Enhanced Property Notification.

The funding for this project will be relatively minimal compared to the potential value of risk communication. It is estimated that for each county it will cost approximately \$6,500. The FY09 counties that have expressed interest to participate in this pilot project include Cobb, Coweta, DeKalb, Douglas, Forsyth, and Fulton Counties.

When preliminary DFIRMs are issued, GA DNR-EPD will analyze the Special Flood Hazard Areas (SFHA) as shown on the preliminary maps and compare that back to the area as shown on the current effective maps. Additionally, local parcel data will need to be acquired for the entire project site from the local government. In cases where the parcel data will not be released to GA DNR-EPD, a step-by-step guide will be delivered to the local government to run their own analysis. Using the recently developed DFIRM data and newly acquired parcel data, a report will be created that categorizes each parcel within the project area as shown in the table below.

Category	1	2	3	4	5	6	7	8	9
	Property In SFHA			Property Out of SFHA					
Parcel ID	Newly Added	Newly Added to Floodway	Remains In	Newly Out (within 500' of SFHA)	Newly Out (over 500' out of SFHA)	Newly Out (In area shown as protected by a levee)	Remains Out (within 500' of SFHA)	Remains Out (over 500' out of SFHA)	Remains Out (In area shown as being protected by a levee)
Parcel A	X								

The nine (9) major categories that every parcel within a project area will be designated are summarized below:

1. **Newly Added to SFHA** – The flood hazard data as shown on the preliminary DFIRMs will add the parcel or portions of the parcel into the SFHA. The mandatory flood insurance requirement may apply to properties within this category. The Letter of Map Amendment (LOMA) process will be recommended for those contesting their inclusion in the SFHA.
2. **Newly Added to Floodway** – The flood hazard data as shown on the preliminary DFIRMs will add the parcel or portions of the parcel into the regulatory floodway and the SFHA. The mandatory flood insurance requirement may apply in addition to the more stringent requirements for properties located within the regulatory floodway to properties within this category. The LOMA process will be recommended for those who feel they have been inadvertently included in the floodway.

3. **Remains In SFHA** – The flood hazard data as shown on the preliminary DFIRMs will continue to show the parcel or portions of the parcel in the SFHA. The mandatory flood insurance requirement may apply to properties within this category. The LOMA process will be recommended for those contesting their inclusion in the SFHA.
4. **Newly Out of SFHA (within 500 feet of SFHA)** – The flood hazard data as shown on the preliminary DFIRMs will remove the parcel from the SFHA. The mandatory flood insurance requirement will not apply to properties within this category. However, due to the close proximity of the SFHA, the level of risk should be communicated to the property owner and the purchase of the Preferred Risk Policy is recommended.
5. **Newly Out of SFHA (over 500 feet outside of SFHA)** – The flood hazard data as shown on the preliminary DFIRMs will remove the parcel from the SFHA. The mandatory flood insurance requirement will not apply to properties within the category. However, a Preferred Risk Policy should be discussed to protect their investment.
6. **Newly Out of SFHA (in area shown as being protected by a levee)** – The flood hazard data as shown on the preliminary DFIRMs will remove the parcel from the SFHA due to protection from a levee. However, due to the close proximity of the SFHA and the risk of flooding due to levee failure or overtopping, the level of risk should be communicated to the property owner and the purchase of the Preferred Risk Policy is recommended.
7. **Remain Out of SFHA (within 500 feet of SFHA)** – The flood hazard data as shown on the preliminary DFIRMs will continue to show the parcel outside the SFHA. However, due to the close proximity of the SFHA, the level of risk should be communicated to the property owner and the purchase of the Preferred Risk Policy is recommended.
8. **Remain Out of SFHA (over 500 feet outside of SFHA)** – The flood hazard data as shown on the preliminary DFIRMs will continue to show the parcel outside of the SFHA. The mandatory flood insurance requirement will not apply. However, a Preferred Risk Policy should be discussed to protect their investment.
9. **Remains Out (in area shown as being protected by a levee)** – The flood hazard data as shown on the preliminary DFIRMs will continue to show the parcel outside of the SFHA. However, due to the risk of levee failure or overtopping, the level of risk should be communicated to the property owner and the purchase of the Preferred Risk Policy is recommended.

Individual template letters will be developed for each of the aforementioned categories and will explain how the new flood maps will personally affect them. The template letters will adequately address potential concerns the property owners may have and will give contact information for GA DNR-EPD staff that can individually assist them should the need arise. The letter will also reference the Georgia Flood M.A.P. website and the availability of supplemental flood risk information on the dynamic mapping portal available for property owner's to view. Finally, the letters will discuss options that the homeowners can investigate such as the Letter of Map Amendment process.

The communities/counties participating in this project will receive a spreadsheet that categorizes each parcel in their community/county. They will also receive all nine template letters, ready for a mail merge and distribution by the community/county. This project will effectively reach out to all affected property owners including those that do not have a federally backed mortgage who in the past would not be notified of changes to the floodplain designation for their property.

Standards: All processes and deliverables shall be completed in accordance to the Federal Emergency Management Agency's (FEMA's) Guidelines and Specifications for Flood Hazard Mapping Partners (G&S) and appropriate Procedure Memoranda (PMs).

Deliverables: The GA DNR-EPD's SC shall deliver the following to the FEMA Regional Project Officer in accordance with the schedule outlined in Section 4- Schedule.

1. A Summary Report including:
 - a. A table that has accurately identified the levels of risk for all properties in a project area
 - b. A lessons learned summary detailing recommendations for future projects
2. Step-By-Step Guide for Communities to perform their own analysis
3. All Records of Communication

Dam Breach Inundation Zone Modeling, Mapping, and Risk Assessment

Responsible Mapping Partner: GA DNR-EPD Study Contractor

Scope: Under the focus area of Flood Risk Products and Datasets, the GA DNR-EPD proposes to develop digital dam breach inundation mapping and determine flood risk assessments for two (2) Category I Dams in the FY 09 Upper Chattahoochee River Base (UCRB) project area scheduled for a flood map revision under GA DNR-EPD MAS FY09.09.

On the morning of November 6, 1977, the Kelly-Barnes Dam located upstream of Toccoa Falls and above the Toccoa Bible College failed after an extended period of rainfall sending a flood wave down the stream valley through the College. Thirty-nine (39) people died as a result of the flooding from the dam breach. In an effort to address dam safety in the aftermath of this catastrophe, the State of Georgia enacted the Safe Dams Act of 1978 which created the Georgia Safe Dams Program (GASDP) whose purpose is to provide for the inventory, classification, inspection and permitting of high hazard (Category I) dams in order to protect the health, safety and welfare of all the citizens of the State by reducing the risk of failure of such dams (O.C.G.A § 12-5-371).

Of the over three-thousand nine-hundred (3,900) State regulated dams in Georgia, GASDP has classified approximately four-hundred eighty (480) as high hazard, Category I. A Category I dam is one in which failure results in a probable loss of life as determined by routing a sunny day breach scenario to the first inhabitable structure impacted by the dam breach inundation zone. Because the Georgia Safe Dams Act does not require Emergency Action Plans (EAP) and only one inhabitable structure is all that is needed to determine hazard classification, dam breach inundation zones extend downstream of a dam only to the first structure leaving the total risk downstream undetermined. Additionally, virtually all of the breach inundation maps were developed by GASDP prior to the availability of geographic information system (GIS) mapping products and are only available in paper copy format rather than a georeferenced digital product.

The Floodplain Management Office will coordinate with GASDP to identify the two (2) Category I Dams to be studied and will incorporate dam breach model parameters established by GASDP guidelines. Dam breach inundation zone mapping will be determined for a sunny day dam failure scenario and will extend from the dam to a point downstream where the flood wave is contained in the stream channel. In general, the scope of this study is as follows:

1. Coordinate with GASDP to identify two (2) Category I Dams GASDP deems to be most critical in the UCRB project Counties;
 - a. Obtain the dam inventory database maintained by GASDP of all GASDP regulated dams in the UCRB project Counties.
 - b. Develop a geodatabase of the GASDP regulated dams attributed with database information.
2. Develop sunny day breach scenario routings for the selected dams;
 - a. Models will be developed utilizing HEC-RAS unsteady state modeling.
 - b. Breach routings will extend from the dam downstream to a point where the flood wave is contained in the stream channel.
 - c. Cross sections will be cut from topographic GIS data provided for the UCRB project.
 - d. Bridge/culvert crossings downstream will be surveyed for size of opening.
 - e. Breach model parameters to follow guidance provided by the Federal Energy Regulatory Commission and endorsed by GASDP Engineering guidelines.
3. Develop dam breach inundation zone mapping;
 - a. Sunny day scenario model results to be exported via HEC-GeoRAS to ESRI ArcMAP platform for automated dam breach inundation zone delineation on topographic GIS data provided for the UCRB project.
 - b. Cross sections to be attributed with data that includes but is not limited to arrival time, time to peak, peak water surface elevation, discharge, and velocity.
4. Develop depth grids indicating depth of peak flow for the extents of the breach zone.
5. Develop a HAZUS Risk Assessment for the dam breach inundation zones of each Category I Dam studied under this contract, and;
6. Perform a potential loss of life analysis for each dam.

During September 2009 flooding in Metro Atlanta, GASDP reports that four (4) Category I Dams overtopped, and the auxiliary spillways of an additional forty-six (46) Category I Dams engaged. While no complete dam breaches occurred, erosion headcuts progressed up to the control section of multiple earthen spillways perilously close to resulting in a dam breach. The September 2009 floods taught us many lessons; one of those being the value that dam breach zone mapping could provide for Emergency Action Planning and Emergency Response in the event of dam failure. This early demonstration project develops digital dam breach inundation zone mapping to the point where the flood wave re-enters the channel and assesses the risk associated with the failure. All inhabitable structures, roadway, and railroad crossings subject to being inundated by the flood wave will be captured. Therefore, in addition to determining the total risk associated with a dam failure, the modeling and mapping information determined by this study will assist GASDP and the local emergency responders in identifying structures at risk and plan emergency response measures accordingly in the event of a dam failure.

Deliverables: The GA DNR-EPD's SC shall deliver the following to the FEMA Regional Project Officer in accordance with the schedule outlined in Section 4– Schedule.

- HEC-RAS Models for sunny day failures for the 2 dams
- Cross Sections and dam breach inundation zone mapping in geospatial format with model results including arrival times and peak elevations for each dam
- Depth Grids for each dam
- HAZUS Risk Assessment for each dam
- Study report including methodologies and results summaries
- A lessons learned summary detailing recommendations for future projects
- All Records of Communication

SECTION 2—PERIOD OF PERFORMANCE

The activities outlined in this MAS will be completed as specified in the Agreement Articles of the Cooperative Agreement. The Mapping Activities may be terminated at the option of FEMA or Georgia EPD in accordance with the provisions of the Partnership Agreement dated August 16, 1999. If these mapping activities are terminated, all products produced to date must be returned and the remaining funds from uncompleted activities, provided by FEMA for this MAS, will be returned to FEMA. Deliverables for these Early Demonstration Projects will be delivered no later than February 28, 2011.

SECTION 3—FUNDING/LEVERAGE

FEMA is providing funding, in the amount of \$110,000 to Georgia CTP for the completion of these Early Demonstration Activities. GA EPD shall provide any additional resources required to complete the assigned activities for these Early Demonstration Activities. The leverage listed below is based on blue book values or actual costs where Blue Book values don't exist. The current Blue Book is dated January 2009 and can be downloaded from FEMA's Information Resource Library at <http://www.fema.gov/library/viewRecord.do?id=2473>.

Table 3.1 Contribution and Leverage

Project Task	FEMA Contribution	Partner Contribution	% Partner Leverage of Total Project Cost	Total Project Cost
Property Notification			----	
Dam Inundation				
TOTAL FUNDING AMOUNTS				

SECTION 4—STANDARDS

Mapping partners working on a Early Demonstration Project are responsible for complying with all related PMs published by FEMA as of the date of this agreement. Relevant standards can be found in the G&S and PMs, FEMA's Federal Regulation 44 CFR and the appropriate year CTP Guidance. CTPs should also coordinate with their Regional office to determine additional standards that should be met.

G&S may be downloaded from the FEMA Flood Hazard Mapping website at http://www.fema.gov/plan/prevent/fhm/dl_cgs.shtm.

SECTION 5—SCHEDULE

The activities documented in this FY10.10 shall be completed in accordance with Table 5.1 but not to extend beyond February 28, 2011. A mid-term progress report will be due by November 30, 2010. If changes to this schedule are required, the responsible Mapping Partner shall coordinate with FEMA and the other Mapping Partners in a timely manner. Please also identify to whom the products associated with each task are to be submitted to (i.e. the MIP, FEMA Regional Office, etc)

Table 5.1 Project Activities Schedule

Activities	Responsible Partner(s)	Cost	Delivery Date
Enhanced Property Notification	GA EPD's SC		2/28/2011
Summary Report (up to 7 counties)			2/28/2011
Community Guide & Instruction (1)			11/30/2010
Record Of Communication			2/28/2011
Dam Inundation	GA EPD's SC		2/28/2011
Dam Inventory Geodatabase			11/1/2010
HEC-RAS Unsteady State Models			1/17/2011
Cross Sections			11/29/2010
Bridge/Culvert Survey			11/1/2011
Breach Inundation Zone Mapping			2/7/2011
Breach Zone Depth Grids			2/7/2011
HAZUS Risk Assessment			2/28/2011
Potential Loss of Life Analysis Report			2/28/2011
TOTAL COST			

SECTION 6—CONTRACTORS

GA EPD intends to use the services of Dewberry & PBS&J as contractors for these Early Demonstration Project. GA EPD shall ensure that the procurement for all contractors used for this Early Implementation Project complies with the requirements of 44 CFR 13.36.

FY10 PM MAS/SOW Template Version 1.0
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SECTION 7—REPORTING

Financial Reporting: Because funding has been provided to GA EPD by FEMA, financial reporting requirements for GA EPD will be in accordance with Cooperative Agreement Articles. GA EPD shall also refer to 44 CFR 13.41.

GA EPD shall provide financial reports to the FEMA Regional Project Officer and Assistance Officer in accordance with the terms of the signed Cooperative Agreement for this MAS.

Status Reporting: Status reports will be submitted on a quarterly basis in accordance with the financial reporting submittals. GA EPD shall refer to 44 CFR 13.4 to obtain minimum requirements for status reporting. The Project Officer, as needed, may request additional information on status.

GA EPD may meet with FEMA and/or its contractor up to bi-weekly, or more frequently if needed, to review the progress of the project in addition to the quarterly financial and status submittals. These meetings will alternate between FEMA's Regional Office, the GA EPD office, and conference calls, as necessary.

Earned Value Data Entry:

As there are no tasks within the Mapping Information Platform (MIP) Workflow associated with Early Demonstration Projects, the MIP cannot be used to set baselines and track progress against these baselines. However, the FEMA Regional office and the CTP should set a cost and schedule baseline at the beginning of the project and review it quarterly when assessing the status of the project. The Project Officer may request additional information regarding status on an ad-hoc basis.

SECTION 8—PROJECT COORDINATION

Throughout the project, all members of the PMT will coordinate, as necessary, to ensure the products meet the technical and format specifications required and contain accurate, up-to-date information. Coordination activities shall include:

- Meetings, teleconferences, and video conferences with FEMA and other PMT members will occur monthly and ad hoc basis, as required;
- Telephone conversations with FEMA and other PMT members on a scheduled monthly and an ad hoc basis, as required;
- E-mail, facsimile transmissions, and letters, as required.

SECTION 9—POINTS OF CONTACT

The points of contact for this Early Demonstration Project are Kristen Martinenza, P.E., CFM, the FEMA Regional Project Officer; Collis Brown, the Project Manager for GA EPD; or subsequent personnel of comparable experience who are appointed to fulfill these responsibilities. When necessary, any additional FEMA assistance should be requested through the FEMA Regional Project Officer.

Each party has caused this MAS to be executed by its duly authorized representative.

Collis O. Brown

Collis Brown, CFM
Project Manager
Georgia EPD

9-13-2010

Date

Kristen Martinenza

Kristen Martinenza, P.E., CFM
Regional Project Officer
Federal Emergency Management Agency, Region IV

9/20/10

Date

