



Baltimore County, Maryland Cooperating Technical Partner Mapping Activity Statement

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Agreement CTP01-2 - Assessment of Dead Run Watershed Study

In accordance with the Cooperating Technical Partner (CTP) Memorandum of Agreement dated June 19, 2001, between Baltimore County, Maryland and the Federal Emergency Management Agency (FEMA), Mapping Activity Statement CTP01-2 is as follows:

- 1. Objective and Scope:** The objective of this Mapping Activity is the assessment and evaluation of the 1971 Watershed Study of Dead Run completed for the County by the Beavin Company and the effective FEMA study for Dead Run. For this, the assessment will examine the hydrologic and hydraulic models and assumptions made within them versus current conditions. The assessment will consider the need for flood data updates (requiring new or modified engineering analyses and/or floodplain mapping), map maintenance (updating non-engineering reference features, such as roads and corporate limits).

Period of Performance:

The period of performance will be in accordance with Agreement Article II.

- 2. Funding/Cost-Sharing:** For this Mapping Activity Statement, FEMA will provide funding in the amount of \$7056.00 and Baltimore County will provide professional services equal to the same amount.
- 3. Standards:** This assessment will be conducted and all products prepared in accordance with the procedures outlined in FEMA's *Assessment and Evaluation of Community Flood Mapping Needs* (document under development).
- 4. Products:** Baltimore County shall make the following products available:
 - All materials (hardcopy or digital) collected as part of this investigation. Hardcopy materials and computer disks or CD-ROMs should be clearly marked with community name and National Flood Insurance Program community identification number.
 - A summary report of the Dead Run Study assessment including:
 - Comparison of land use from FEMA Study and 1971 Study with current land use and ultimate development.
 - Comparison of FEMA and 1971 hydraulic models with current conditions noting all significant changes with and without FEMA map changes
 - Comparison of FEMA and 1971 modeling with models that would be proposed currently
 - Comparison of FEMA and 1971 precipitation assumptions with those that would be used currently
 - Comparison of FEMA and 1971 mapping and delineation of floodplain boundaries with current County mapping products and capabilities

July 16, 2001

Agreement CTP01-1 - Assessment of Community Mapping Needs
(Template Version 2.0, 12/7/00)

- Recommendations with estimates of tasks, schedules and costs to create models, mapping and information sufficient to re-issue the FEMA Flood Insurance Study for Dead Run Watershed
- FEMA's Mapping Needs Update Support System (MNUSS) will be populated by the community with information developed on update needs for the watershed

5. Schedule and Milestones: Upon completion, final products will be provided to the FEMA Regional Project Officer.

6. Certification: Not Applicable

7. Technical Assistance and Resources: FEMA, through its Mapping Coordination Contractors (MCCs), maintains archives of community flood study data. Archived data include copies of FEMA-issued Letters of Map Change (LOMCs), engineering and mapping support data and documentation, information on deferred map actions, and data collected as part of FEMA's Mapping Needs Assessment Process. A visit to research FEMA's MCC archives may be arranged by contacting the FEMA MCC Project Officer. For specific data items, the MCC may be contacted at 1-877 FEMA MAP (1-877-336-2627).

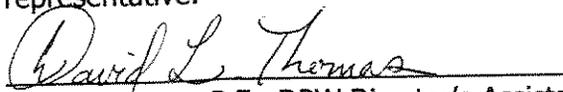
8. Contractors: Procurement of contractors using Federal funds provided as part of this Mapping Activity will comply with the requirements of 44 CFR 13.36 and N.C.G.S. 89C.

9. Quality Assurance/Quality Control (QA/QC) Procedures: Baltimore County will undertake internal QC reviews to ensure that the products described under Section 5 of this Mapping Activity Statement conform to the standards outlined under Section 4 of this Mapping Activity Statement. Additionally, Dewberry & Davis may undertake an independent review for compliance with these standards. The digital summary data files shall be checked against the source data to verify accuracy of data entry prior to submission to FEMA.

Reporting: Reporting requirements will be in accordance with Agreement Articles V & VI.

10. Points of Contact: The FEMA Regional Project Officer is Jon Janowicz, and the CTP Project Manager is David Thomas or subsequent personnel of comparable experience who are appointed to fulfill these responsibilities. If it is necessary, the assistance of FEMA's MCC should be requested through the FEMA MCC Project Officer, Doug Bellomo.

Each party has caused this Mapping Activity Statement to be executed by its duly authorized representative.


 David Thomas, P.E., DPW Director's Assistant
 Baltimore County, Maryland

9/17/01
 Date


 Robert Gunter
 Federal Emergency Management Agency

9/21/01
 Date



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**Baltimore County, Maryland
Cooperating Technical Partner
Mapping Activity Statement**

Agreement CTP01-03 – Coastal Hazard Analyses and Floodplain Mapping

In accordance with the Cooperating Technical Partner (CTP) Memorandum of Agreement dated June 19, 2001, between Baltimore County, Maryland and the Federal Emergency Management Agency (FEMA), Mapping Activity Statement CTP01-03 is as follows:

- 1. Objective and Scope:** The objective of this Mapping Activity is to review and critique the effective FEMA coastal hazard analyses and floodplain mapping in Baltimore County, Maryland. Coastal flooding sources include: Chesapeake Bay, Patapsco River Watershed, Back River Watershed, Middle River Watershed and Gunpowder Falls Watershed. Analyses will include a review of the effective flood elevations for all tidal areas of Baltimore County and Baltimore City. These were originally prepared by the Virginia Institute of Marine Sciences in June of 1978. The result of the review will include recommendations including effort and cost to update the storm surge model study if necessary.
- 2. Period of Performance:** This Mapping Activity may be terminated at the option of FEMA or Baltimore County in accordance with the provisions of the June 19, 2001, CTP Memorandum of Agreement. The period of performance will be in accordance with Agreement Article II.
- 3. Funding/Cost-Sharing:** FEMA will fund this activity in support of the riverine restudy activities being prepared by Baltimore County.
- 4. Standards:** The following standards and documents are relevant to this Mapping Activity:
 - Detailed coastal analyses and floodplain mapping will follow the standards set forth in FEMA 37, *Guidelines and Specifications for Study Contractors* (January 1995), with exception of Chapters 4, 5, 6, and 7, which apply to riverine hydrologic and hydraulic analyses only. For coastal hydrologic and hydraulic analyses, standards set forth in Appendices 1, 1A, 1B, and 1C (as applicable) and FEMA's *Guidelines and Specifications for Wave Elevation Determination and V Zone Mapping* (final draft March 1995) will apply. In addition, standards set forth in Title 44 of the Code of Federal Regulations (CFR), Part 65 will apply. FEMA 37 is available at FEMA's Web site at http://www.fema.gov/mit/tsd/EN_reg.htm. Title 44 of the CFR is available at FEMA's Web site at www.access.gpo.gov/cgi-bin/cfrassemble.cgi?title=199944.
 - Computer models used for coastal analyses will meet the requirements of 44 CFR 65.6(a)(6) and be on FEMA's *Numerical Models Accepted by FEMA for NFIP Usage* (http://www.fema.gov/mit/tsd/EN_modl.htm).
 - Guidance on tropical cyclones and storm surge modeling has been established and documented in FEMA's *Coastal Flooding Hurricane Storm Surge Model, Vols. 1, 2, and 3* (August 1988).
 - Topographic mapping used to delineate coastal floodplains and hazard zones will be of adequate scale and topographic definition to provide reasonable accuracy. Planimetric features will be compatible with the base map (with respect to horizontal accuracy)

September 14, 2001

**Agreement CTP01-3 – Coastal Hazard Analyses and Floodplain Mapping
(Template Version 2.0, 12/7/00)**

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selected by FEMA for digital FIRM production. Topographic mapping taken from aerial photogrammetry or surveys will comply with the requirements of Appendix 4 of FEMA 37. Topographic mapping source to be used are anticipated to be provided by Baltimore County.

- Any coastal levee or dike systems to be shown on the community's FIRM as providing protection from the 1% annual chance flood and maximum wave elevation will comply with the requirements of 44 CFR 65.10. Chapter 7 and Appendix 1 of FEMA 37 provides guidelines for evaluating levee systems, with specific standards established for coastal levee structures. Additional evaluation criteria are contained in the U.S. Army Corps of Engineers Coastal Engineering Research Center report titled *Criteria for Evaluating Coastal Flood-Protection Structures - Technical Report CERC 89-15* (December 1989).
- Flood elevations and coastal floodplain boundaries and hazard zones will reasonably tie in to non-revised information in accordance with 44 CFR 65.6(a)(2).
- Digital mapping will comply with the requirements of Chapter 9 and Appendix 7 of FEMA 37.
- Digital Elevation Models (DEMs) and field survey data will meet vertical accuracy requirements contained in Appendix 4 of FEMA 37.

5. Products: FEMA will make available the items anticipated to be created from the list outlined in Chapter 11 of FEMA 37 in the Technical Support Data Notebook (TSDN) format. These include:

- Copies of supporting computations
- A coastal study technical documentation notebook with all back-up data, description of methodology, and input and output files used in the analyses and mapping (see Appendix 1A of FEMA 37).
- A comprehensive report on the validity of the 1978 Storm Surge Study used to establish stillwater elevations for the Baltimore County and City Flood Insurance Studies. This will include recommendations for improvement if necessary, including estimates of cost and time to complete.

6. Schedule and Milestones:

Milestone 1 (Scoping Phase): Products for the first milestone to be provided to the FEMA Regional Project Officer include:

- Annotated copies of effective FIRM(s) depicting limits of proposed study.
- Documentation of the proposed source of topographic data, scale, contour interval, source/methodology, date of survey/data collection, vertical and horizontal datums, and comparison of planimetric features with the digital FIRM base map selected for use by FEMA.
- A written summary of the initial data research, proposed coastal analysis methodologies and models, and a work plan.
- Copies of topographic maps depicting proposed wave transect locations and reaches of shoreline represented by each.

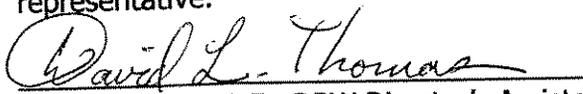
Milestone 2 (Stillwater Analysis Phase): Products for the second milestone to be provided to the FEMA Regional Project Officer include an assessment of existing stillwater elevations and hydrologic modeling, or draft hydrologic analyses in accordance with the

TSDN format. If a new storm surge model is applied, follow standards set forth in Appendix 1B of FEMA 37. Evaluation of wave setup is another consideration for stillwater elevation determinations of a restudy.

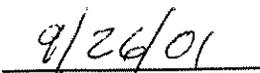
Final products will be made available in accordance with the Period of Performance described in Section 2 of this Mapping Activity Statement.

- 7. Certification:** The following certifications apply to this Mapping Activity (as appropriate):
- Coastal hydrologic and/or hydraulic analyses and data will be certified by a registered Professional Engineer or Licensed Land Surveyor in accordance with 44 CFR 65.6(f).
- 8. Contractors:** Dewberry and Davis will complete this work for FEMA and Baltimore County. Procurement of subcontractors using Federal funds provided as part of this Mapping Activity will comply with the requirements of 44 CFR 13.36.
- 9. Quality Assurance/Quality Control (QA/QC) Procedures:**
Dewberry and Davis will undertake internal QC reviews to ensure that the products described under Section 5 of this Mapping Activity Statement conform to the standards outlined under Section 4 of this Mapping Activity Statement. An independent review for compliance with these standards will be undertaken by Baltimore County, if necessary.
- 10 Reporting:** Reporting requirements will be in accordance with Agreement Articles V & VI.
- 11. Points of Contact:**
The FEMA Regional Project Officer is Jon Janowicz, and the CTP Project Manager is David Thomas or subsequent personnel of comparable experience who are appointed to fulfill these responsibilities. If it is necessary, the assistance of FEMA's MCC should be requested through the FEMA MCC Project Officer, Doug Bellomo.

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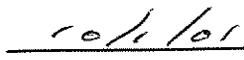
David Thomas, P.E., DPW Director's Assistant
Baltimore County, Maryland



Date



Robert Gunter
Federal Emergency Management Agency



Date

Doug Bellomo,
Federal Emergency Management Agency*

Date

* MCC PO approval is required only for Mapping Activity Statements in which the MCC is programmed to participate.