



Southern Maine Regional Planning Commission  
Federal Emergency Management Agency  
Cooperating Technical Community  
Mapping Activity Statement  
21 September 2000  
Revised 28 March 2001,  
Revisions indicated by underlines and strikeouts

Agreement # EMB-2000-CA-0596 - Digital Topographic Data Development

In accordance with the Cooperating Technical Community (CTC) Memorandum of Agreement (MOA) dated to be determined between the Southern Maine Regional Planning Commission and the Federal Emergency Management Agency (FEMA), Agreement # EMB-2000-CA-0596 is as follows:

1. **Objective and Scope:** The objective of this Agreement is to develop digital topographic data (2' contours) for the following areas:
  - a. Saco River and Deep Brook floodplains and a buffer zone, from State Route 5 the Buxton town line to Saco Bay, pursuant to the Guidelines and Specifications for Study Contractors (FEMA 37), appendix 4;
  - b. Deep Brook floodplain and a buffer zone from State Route 5 to the Saco River;
  - c. Sawyer Brook floodplain and a buffer zone from the upper limits of the 1998 FIS report to the Saco River;
  - d. Goosefare Brook floodplain and a buffer zone from US 1 to its mouth at Saco Bay;  
and
  - e. Ferry Beach floodplain, from the mouth of the Saco River to the mouth of Goosefare Brook.

All of the above shall be completed pursuant to the Guidelines and Specifications for Study Contractors (FEMA 37), appendix 4.

The digital topographic data will be used for "Redelineation of Floodplain Boundaries" in a subsequent step (see separate mapping activity statement dated 21 September 2000, Revised 28 March 2001), except for item e. Digital topographic data will be developed for the Ferry Beach floodplain without any redelineation of the floodplain boundary.

2. **Period of Performance:** This Mapping Activity will begin on 1 October 2000 and end no later than September 30, 2001. This Mapping Activity may be terminated at the option of FEMA or Southern Maine Regional Planning Commission in accordance with the provisions of the CTC Memorandum of Agreement, dated to be determined.
3. **Funding/Cost-Sharing:** This activity will be funded by 75% by FEMA and 25% by the City of Saco, Maine.
4. **Standards:** The following standards and documents are relevant to this Mapping Activity:

- Survey Methodology:
  - Global Positioning System (GPS) Surveys: Follow National Geodetic Survey (NGS)-58, "Guidelines for Establishing GPS-Derived Ellipsoid Heights (Standard: 2 cm and 5 cm)," November 1997.
  - Aerial Surveys: Follow EM 1000-1-1000, "Photogrammetric Mapping," March 31, 1993.
  - Conventional Surveys: Follow standard American Congress on Surveying and Mapping (ACSM) procedures.
  - Hydro Surveys: Follow EM 1110-2-1003, "Hydrographic Surveys," October 31, 1994.
- Draft LIDAR specifications are available on FEMA's web site at [www.fema.gov/mit/tsd/MM\\_lidar.htm](http://www.fema.gov/mit/tsd/MM_lidar.htm).
- *Guidelines and Specifications for Study Contractors* (FEMA 37). FEMA is in the process of revising Aerial Mapping and Surveying Specifications in FEMA 37, Appendix 4. The revisions will include procedures for evaluating Triangulated Irregular Network (TIN) data in accordance with the new National Standards for Spatial Data Accuracy (NSSDA) for data used in automated and semi-automated hydrologic and hydraulic modeling. Once those specifications are complete, they will apply to this Mapping Activity.
- Digital mapping submissions will comply with the requirements of Chapter 9 and Appendix 7 of FEMA 37.

5. **Products:** Southern Maine Regional Planning shall make the following products available:

- TIN data on CD-ROM.
- Hardcopy topographic maps.
- Report summarizing methodology and results.
- Completed form number 5 of *Revisions to National Flood Insurance Program Maps, Application/Certification Forms and Instructions* (MT-2).
- Checkpoint analyses to assess the accuracy of TIN data including Root Mean Square Error (RMSE) calculations to support vertical accuracy.
- Identification of remote sensing data voids and methods used to supplement data voids.
- NGS data sheets for Network Control Points (NCP) used to control remote sensing and ground surveys.

6. **Schedule and Milestones:**

**Milestone 1:** Upon completion, products for the first milestone will be provided to the FEMA Project Officer. These include:

- Documentation of methodology, data analyses, date of survey/data collection, NCP, and other relevant information.
- Work plan for supplementing data voids caused by limitations of remote sensing and/or source of any supplementary data collection.

**Milestone 2 (Final Products):** Upon completion, final products for the first milestone will be provided to the FEMA Project Officer. These include:

- TIN data on CD-ROM.
- Hardcopy topographic maps.

- Report summarizing methodology and results.
- Completed form number 5 of *Revisions to National Flood Insurance Program Maps, Application/Certification Forms and Instructions (MT-2)*.
- Checkpoint analyses to assess the accuracy of TIN data including Root Mean Square Error (RMSE) calculations to support vertical accuracy.
- Identification of remote sensing data voids and methods used to supplement data voids.
- NGS data sheets for Network Control Points (NCP) used to control remote sensing and ground surveys.

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):
  - Registered professional engineer or licensed land surveyor, will certify topographic information, in accordance with 44 CFR 65.5(c).
  - Certification by the American Society for Photogrammetry and Remote Sensing (ASPRS) is also acceptable.
8. **Technical Assistance and Resources:** Southern Maine Regional Planning Commission may request support from FEMA's Mapping Coordination Contractor (MCC)/Technical Evaluation Contractor (TEC) in setting up control networks, assessing TIN data accuracy, and merging ground surveys with remote sensing to fill data voids. Specific technical and programmatic support provided through FEMA's MCC/TEC should be requested through the FEMA Project Officer specified in Section 12 of this Mapping Activity Statement. The MCC/TEC may be contacted at 1-877 FEMA MAP (336-2627).
9. **Subcontractors:** Photogrammetric work will be awarded to a subcontractor by a competitive bidding process, as required by FEMA
10. **Quality Assurance/Quality Control (QA/QC) Procedures:** The QA/QC procedures outlined in Chapter 10 and Appendix 4 (currently being revised) of FEMA 37 should be followed during the development of topographic data for hydrologic and hydraulic modeling and floodplain mapping. The data should be independently reviewed for compliance with the standards defined in Section 4 of this Mapping Activity Statement. This independent review will be conducted by Sean Myers P.E., Woodard and Curran Engineering, Portland, Maine.
11. **Reporting:** Reporting requirements will be in accordance with Agreement Articles V & VI.
12. **Points of Contact:** The FEMA Project Officer is Dean Savramis, and the CTC's Project Manager is Jonathan T. Lockman, AICP, Planning Director, SMRPC or subsequent personnel of comparable experience who are appointed to fulfill these responsibilities.

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

Paul Schumacher  
CTC Partner's authorized representative

3/28/01  
date

Stephen L. Ruyter  
FEMA authorized representative

6/6/2001  
date

\_\_\_\_\_  
State representative

\_\_\_\_\_  
date

\* In States where statutory and/or regulatory requirements require the State's review and/or approval of new flood hazard data, the State will be a signatory to a community's Mapping Activity Statement.