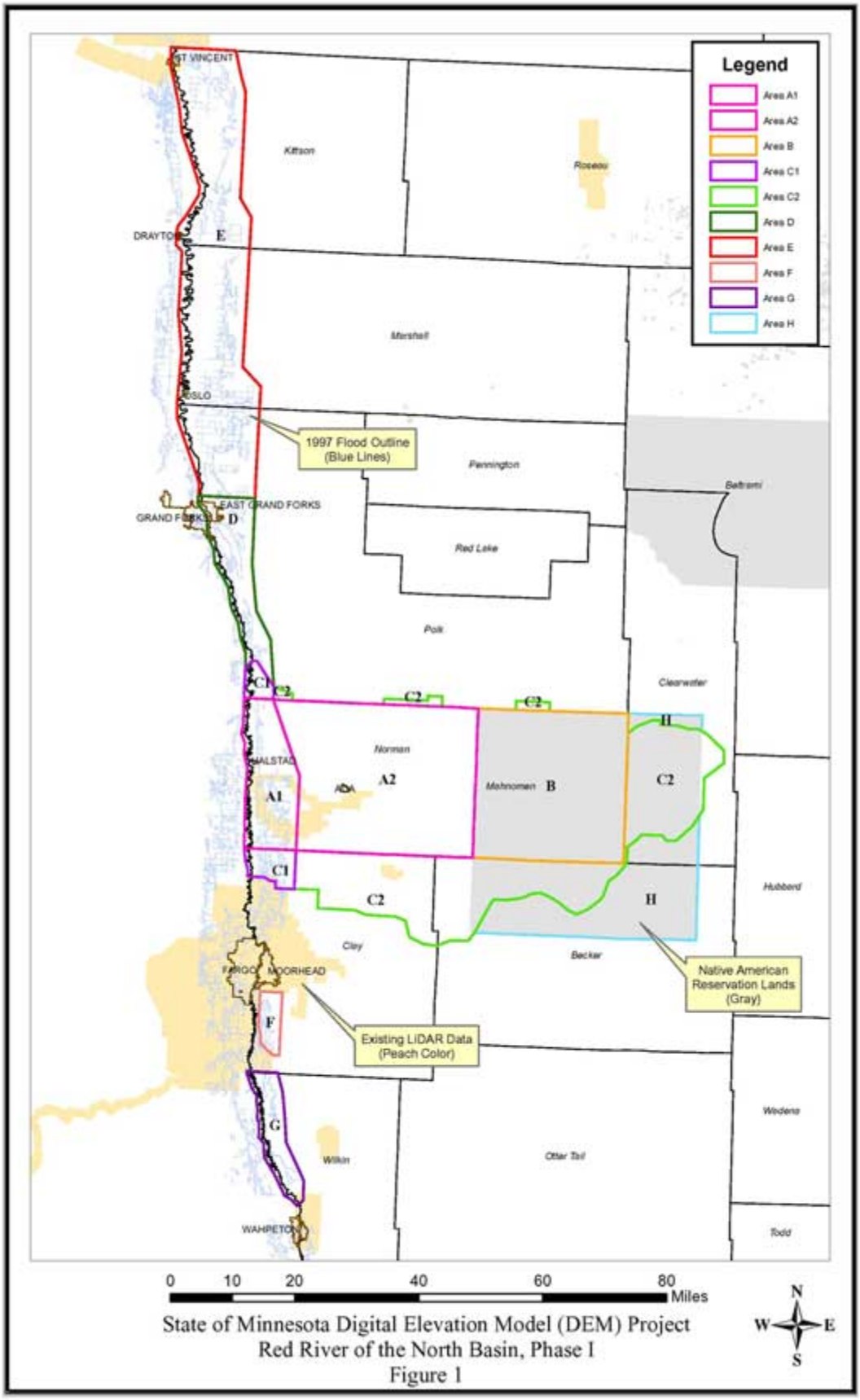
Minnesota DEM Project Phase I, Red River of the North Basin

By Obi Sium, Minnesota Department of Natural Resources; David Claypool, Ramsey County; and Aaron Buesing, U.S. Army Corps of Engineers

The State of Minnesota has entered into a contract with The Sanborn Map Company, Inc. of Colorado Springs, Colorado to collect Light Detection And Ranging (LiDAR) data and to produce a bare-earth digital elevation model (DEM) and other deliverables for a 3663 square mile area in northwestern Minnesota. Data collection began on April 25, 2006. The deliverables are due to the state five months after completion of data collection.

The project area is shown in Figure 1. The DEM will have 12 cm RMSEz vertical accuracy along the Red River of the North corridor (Areas A1, C1, D, E, F, and G) and 15 cm RMSEz vertical accuracy elsewhere (Areas A2, B, C2, and H). 12 cm RMSEz vertical accuracy provides data roughly equivalent to 1.2-ft contour mapping and 15 cm RMSEz vertical accuracy provides data roughly equivalent to 1.6-ft contour mapping.



State of Minnesota Digital Elevation Model (DEM) Project
Red River of the North Basin, Phase I
Figure 1

A technical committee comprised of Minnesota DNR, Minnesota Department of Transportation, Minnesota Association of County Surveyors (MACS), U.S. Geological Survey, and the Minnesota Land Information Management Center developed the Request for Proposals (RFPs) after reviewing and discussing many other RFPs. The RFP required submittal of a cost proposal that provided a detailed cost breakdown by deliverable for a project area ranging in size from 900 square miles to 4500 square miles. The RFP and proposals received are public information that may be quite useful for others thinking about collecting LiDAR data.

The state is partnering with the Wild Rice Watershed District, Norman County, Clay County, the White Earth Reservation, and Mn/DOT to add an additional $85,000 to the $496,000 obtained from FEMA for this project. The White Earth Reservation is providing additional money to fully fund collection of the portion of its land outside the state's original project area. The project cost will be approximately $159 per square mile. Without edge-of-water breaklines, the cost would have been about $116 per square mile, but the technical committee decided that using the data correctly would be much more challenging without the edge-of-water breaklines.

This project has proceeded under the direction of Obi Sium and David Claypool, who have co-chaired the Minnesota State Digital Elevation Model (MnSDEM) and Floodplain Mapping work group. Obi Sium is retiring from the DNR - Division of Waters in June 2006; at that time, David Claypool, who represents the MACS and is the Ramsey County surveyor, will become the chair of the MnSDEM and Floodplain Mapping work group. The project engineer is Aaron Buesing with the DNR - Division of Waters. Mr. Buesing is on a one-year detail from the U.S. Army Corps of Engineers, St. Paul District.

For technical questions, please contact Aaron Buesing at aaron.buesing@dnr.state.mn.us or 651-259-5723; for more general information on the project, please contact David Claypool at david.claypool@co.ramsey.mn.us or 651-266-2620.