NSDI Cooperative Agreements Program
Category 3: *Enhancing the Maryland Mapping Resource Guide for Metadata Outreach*
Final Project Report

Cooperative Agreement Number: 03HQAG0137

Project Title: Enhancing the Maryland Mapping Resource Guide for Metadata Outreach

Project Start and End Dates: September 08, 2003 to August 31, 2004

Lead Project Organization: Towson University Center for GIS

Project Lead: John M. Morgan, III

USGS Mapping State Liaison: Roger Barlow

Collaborating Organizations: Maryland Department of Natural Resources
Maryland State Geographic Information Committee

Project Summary

Since 2000, the Towson University Center for Geographic Information Sciences (CGIS), in partnership with the Maryland State Geographic Information Committee (MSGIC), has been actively involved in coordinating development and delivery of geospatial resources through a series of USGS/NSDI/FGDC CAP Grants.

Funding from a 2002 Category 3 FGDC CAP award enabled CGIS and the Maryland State Geographic Information Committee (MSGIC) to create the Maryland Mapping Resource Guide (MMRG). Developed primarily to address MSGIC's needs, MMRG is a user-friendly interface to the Maryland State and local government metadata clearinghouse node that simplifies the search for metadata in Maryland through a customized search engine. Metadata search results offer users options to browse a summary or a complete version of a metadata record, or to preview OGC mapservice-enabled data in an OGC WMS interactive viewer and then link to data download sites.

- MSGIC's focus group efforts revealed that data producers need ways to easily *create* metadata. The current CAP project enhanced MMRG by adding a metadata input interface that offers specific tools for creating and posting metadata to the node.

This final report describes the 2003-2004 Category 3 project methodology and outcomes.

The final product can be visited at www.marylandgis.net.

Project Objectives

The goals for extending MMRG capabilities included the following:

- Increase the number of ways to publish metadata;
- Increase the number of metadata publishers;
- Create an interactive information exchange for Maryland's GIS professionals and citizens to discover, access, view, and share data and resources.

Project Accomplishments

Following enhancements to the original design, MMRG enables metadata to be created, collected, published, and shared using one of the following four methods.

1. A wizard-based approach using an account-based login offers users an option to add or edit their metadata via a question-answer input form. Input metadata can represent a specific dataset, contact information, a GIS project, or resources such as scripts, manuals, and/or documents. When submitted, all metadata is placed in .xml format, meeting FGDC Content Standard for Digital Geospatial Metadata, Version 2 (CSDGM), and imported directly to the metadata node. An administration site simplifies input maintenance.

2. Users who have already created FGDC-compliant metadata can access a Metadata File Upload Form through an account-based login that allows automatic import of existing metadata into the node.

3. Partner organizations using ArcGIS to create metadata are assigned a gatekeeper to ensure that metadata created in ArcCatalog is parsed and FGDC compliant. Once verified, the metadata is posted to the node through the metadata service.

4. A metadata harvesting capability added to MMRG periodically collects or push relevant Maryland-related metadata from other NSDI nodes, thus increasing the value of the metadata.

Relative to sustainability, MMRG is a working site intended to undergo periodic renovation in order to remain a stable, sustainable resource.

Challenges

Inherent challenges during the project involved technical issues.

CGIS and MSGIC established a relationship with the Chesapeake Information Management System (CIMS) to ensure MMRG compatibility with the CIMS metadata creation tool COMET. CIMS agreed in concept to make adjustments allowing relevant metadata created in COMET to be posted directly to MMRG.

CGIS employed ESRI ArcIMS Software, which has been in use at CGIS for the past three years. Version 4.01 includes a Z39.50 protocol component that enables metadata search, storage, and retrieval through the NSDI as a clearinghouse node. Integration of metadata storage and OGC compliant mapping capabilities on the hosting servers allows dynamic linkage and display of sample thumbnails or simple data viewers.

Concurrently, CGIS developed a distributed IMS architecture for high reliability and repaid response time under load. The intention was to spread metadata and Web mapping architecture across multiple servers, which were included as CGIS's in-kind match to the project. This infrastructure was leveraged by a coordinated effort to launch a statewide data browser in partnership with the Maryland State Highway Administration.

1. A Web server would host various services, including metadata.
2. The next server tier was to comprise the application and spatial server
3. All metadata was to be stored in a relational database on a separate data server.

Relationship with USGS

Since 2000, CGIS and MSGIC have produced useful GIS and metadata products through a series of USGS/NSDI/FGDC CAP grants. Without the strength of USGS assistance, CGIS and MSGIC would have difficulty continuing their commitment to work toward representing and meeting the needs of Maryland's GIS community.

Maryland's USGS state liaison, Roger Barlow, has devoted significant energy and attention to the CGIS/MSGIC projects. His input, advice, encouragement, and attention are invaluable.

Enhancements to MMRG build on prior joint investment and commitment by USGS, CGIS, and MSGIC. CGIS will continue managing MMRG to keep pace with technological developments and ensure that it develops in a manner consistent with NSDI direction.