Charter

Project Title: Minnesota Geospatial Metadata Standard (MGMS)

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Don't Duck Metadata!

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• Introduction

Geospatial metadata is documentation that describes geospatial data. Its standardized format helps people find, use and share data, and makes data more trustworthy and reusable. Search engines use standardized metadata to find data; users rely on metadata to evaluate the appropriateness of data for their particular needs; and data providers protect themselves with the disclaimers contained in metadata.

Minnesota state government staff have invested a great deal of effort over the years to promote best practices using standardized geospatial metadata, with considerable success. A good part of their success is due to a relatively streamlined standard, the Minnesota Geographic Metadata Guidelines (MGMG), and a user-friendly MGMG metadata entry and editing tool customized for Esri's widely used ArcGIS software. As many as 5,000 geospatial datasets describing Minnesota can be discovered via the national Geospatial OneStop website today because metadata records have been created and posted for them. Over 800 geospatial datasets can be discovered using Minnesota's GeoGateway search website; most of these records were created using MGMG.

Due to changes in user needs, in GIS software and in national metadata standards, as well as the increasing use of geospatial web services, our methods of creating, maintaining, and using Minnesota's geospatial metadata need to be reevaluated and updated. To address these issues, the MnGeo Standards Committee has created a Metadata Workgroup. The workgroup's goals are to:

- Develop a short-term solution that allows users of ArcGIS 10 to create and edit MGMG metadata.
- Recommend updates to MGMG.
- Recommend metadata fields that document geospatial services.
- Recommend new state geospatial metadata standard(s) that describe data and services.
- Develop a solution for creating and editing metadata using the new standard(s).
- Coordinate with other efforts that rely on geospatial metadata.

• Business Need or Opportunity

Four business needs have made the efforts of the Metadata Workgroup a very high priority:

1. **New metadata tools and an updated stylesheet**. The most immediate need is for a tool that works in Esri's ArcGIS version 10, but it is also desirable to have an improved standalone metadata application as well as a new online tool.

   Two tools are currently available to create and maintain MGMG records: DataLogr and ArcCatalog. DataLogr is a free standalone tool that functions well but has an outdated interface that deters all but the most dedicated users. The ArcCatalog MGMG Editor has been the MGMG tool of choice for ArcGIS users; however, it no longer works out-of-the-box in ArcGIS 10. In addition, some users have requested an online tool that would require only a browser. Such a tool is included with Esri's Geoportal Extension and likely

would increase the number of data producers who document their data.

A stylesheet determines the look-and-feel of how metadata content is presented, for example, which fields are displayed, text formatting, and overall layout. The existing MGMG stylesheet needs updating to improve the attractiveness and usability of MGMG records.

2. **Standardized documentation of geospatial services**

Existing MGMG fields describe datasets but not services[1]. Services are a rapidly growing way to distribute geospatial information and the need to document them with standardized fields is pressing.

3. **An approved State of Minnesota geospatial metadata standard that covers both data and services**

Currently, MGMG is a guideline, not a formal standard. Before adopting it as an official State of Minnesota standard, it needs to be reevaluated in response to user feedback and in light of recently developed national and international standards. The basis for MGMG is a 1998 federal standard, the Content Standard for Digital Geospatial Metadata, which is on the verge of being replaced by the North American Profile (NAP) version of international metadata standards; a decision needs to be made about how and when to adapt to this change. Also to be decided is whether geospatial services documentation should be a separate standard or be part of the standard for dataset documentation.

4. **Coordination with other projects that rely on geospatial metadata**

The Geospatial Commons Workgroup needs to recommend and implement a metadata standard for geospatial datasets and services; the proposed production version of the Commons (a site to allows users to search for, evaluate, obtain, and share geospatial data and services) would use Esri's Geoportal Extension v. 10 and would provide an online tool to create and maintain metadata.

The Office of Enterprise Technology (OET) is developing a high-level metadata standard with which geospatial metadata needs to be compatible; this standard is needed to support a new portal, Minnesota OpenData, which allows the public to search for Minnesota data, and is coordinated as part of the federal data.gov effort.

• Business Objectives

- Provide short-term method(s) for creating and editing MGMG metadata that are compatible with ArcGIS 10.
- Recommend either revising MGMG or migrating to NAP.
- Recommend metadata fields to describe web services.
- Recommend metadata standard(s) for data and services for adoption as state standards.
- Provide tools and/or applications to create and maintain metadata to the recommended standard.
- Provide updated stylesheet(s) for displaying metadata.
- Identify and describe any follow-on projects that may be needed or recommended including needed updates to training materials and to MnGeo's metadata resources help webpage
- Report progress and findings to MnGeo, the Standards Committee, the Geospatial Commons Workgroup and the geospatial community.

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[1] Geospatial services provide users with just the data they need to view or download without the user needing to download entire datasets, or they return an answer to a request for processing (e.g., geocoding services), without the user needing to download data.

• Project Description

- Create and approve a project charter and acquire sponsor and participant commitment
- Create and approve a detailed project plan
- Identify options for creating and maintaining metadata in ArcGIS 10, including how to:
  o Import and maintain existing MGMG metadata
  o Create new metadata
- For the short-term, develop or customize a way to create and edit MGMG metadata that is compatible with ArcGIS 10 and distribute it to the public.
- Identify pros and cons of revising MGMG versus migrating to NAP. Determine further steps depending on the results of this analysis.
- Develop a crosswalk from MGMG fields to NAP fields.
- Research existing fields that document geospatial services, including those in NAP and GeoService Finder, and recommend which fields should be used.
- Recommend metadata standard(s) that include data and services for adoption as a state standard, and work with the Standards Committee to shepherd its way through the standards adoption process.
- Develop or customize tools and/or applications to create and maintain metadata to the recommended standard.
- Update the MGMG stylesheet.
- Based on the above research and development and customization work, make recommendations for creating and maintaining Minnesota geospatial metadata:
  o for ArcGIS 10 users
  o for users of other GIS software
  o for providers of geospatial services
- Make recommendations for updating training materials and MnGeo's metadata resources help webpage.
- Write a final report.
- Present findings to stakeholders.
- As needed, seek commitment and resources to further develop or customize tools, applications, training materials or websites.

• Deliverables

- Short-term solution to create and edit MGMG metadata that is compatible with ArcGIS 10.
- Crosswalk from MGMG to NAP.
- Recommended metadata standard(s) for data and services to bring to the Standards Committee.
- Metadata creation and editing solution(s) for the new metadata standard.
- Updated stylesheet(s).
- Recommendations for updating metadata training materials and resources.
- Final project report.
- Coordinated decisions on metadata standards with the Geospatial Commons Workgroup and with OET's Minnesota OpenData metadata standard workgroup.

• Anticipated Milestones and Timeframes

A number of stakeholders have high-priority needs for the results of this project, so it is expected to move along quickly, especially in the areas of metadata creation and maintenance in ArcGIS 10 and of documenting geospatial services. The group expects to report on project status at the October 2011 GIS/LIS Consortium Conference. A more detailed list of milestones will be developed for the project plan.

• Constraints

- The effort relies on voluntary participation by organizations and their staff.
- This project does not have an allocated budget.
- International and national metadata efforts continue to evolve, and thus present a moving target.
- There is no clear direction yet from the FGDC to use NAP.
- NAP education materials and a commonly accepted tool are not yet complete or available.
- Potential metadata tools that can be customized are produced by other agencies. Current information:
  - EPA Metadata Editor (EME) source code is anticipated to be released in May 2011.
  - Esri's Software Development Kit, which will contain portions of Esri's ArcGIS Metadata Toolkit, is in progress but has no release date.

• Assumptions

- Either a revised MGMG or the NAP metadata standard can meet the majority of State business needs for geospatial metadata.
- Participating organizations will support staff involvement with this project.
- The project will be completed in phases as time and resources allow.
- The need for the project is a high enough priority for the participating agencies that the project stands a very good chance of success.

• Roles

Executive Sponsor
- David Arbeit, Minnesota CGIO, MnGeo

Project Owners
- Chris Cialek, MnGeo
- Mark Kotz, Metropolitan Council

Workgroup Chair
- Nancy Rader, MnGeo

Workgroup Members
- Chris Cialek, MnGeo
- David Fawcett, Minnesota Pollution Control Agency
- Jim Gonsoski, Minnesota Department of Agriculture
- Jon Hoekenga, Metropolitan Council
- Mark Kotz, Metropolitan Council
- Susanne Maeder, MnGeo
- Jesse Pearson, Minnesota Department of Transportation
- Eileen Quam, Office of Enterprise Technology
- Hal Watson, Minnesota Department of Natural Resources

Stakeholders and Interests
- Minnesota state and regional agencies that provide GIS data and services internally and externally, especially those that maintain online sites for this distribution, including MnGeo, the MN Dept. of Natural Resources, MN Dept. of Transportation, Metropolitan Council, Legislative Coordinating Commission GIS Office, MN Pollution Control Agency, and the MN Dept. of Agriculture.
- Anyone who has used MGMG in ArcGIS 9 and has migrated to ArcGIS 10.

- Anyone in Minnesota who creates and shares geospatial services.
- Minnesota Geospatial Commons Workgroup – Need to recommend a metadata standard for the Commons (both for data and for services).
- MnGeo Standards Committee – Need to recommend a metadata standard for adoption as a state standard.
- Minnesota Office of Enterprise Technology – Need to approve state IT and data standards.
- State contractors who create or maintain geospatial data – Need to follow approved state standards.
- State agencies that contract for the creation or maintenance of geospatial data – Need to monitor contractor compliance with approved state standards.
- Federal Geographic Data Committee
- Minnesota State Legislature – Desire for Minnesota government data to be transparent (available, findable, and usable) for the public.