Minnesota Geospatial Advisory Council
Metadata Workgroup Final Report

February 1, 2017

This report summarizes the accomplishments of the Minnesota Geospatial Advisory Council's Metadata Workgroup, outlines remaining issues, and recommends that the workgroup be sunset.

The council's Standards Committee formed the workgroup in March 2011. It was most active during 2011, with sporadic activity afterward, most of which occurred during 2015.

Members of the revived Standards Committee have decided that although metadata issues remain, there are insufficient resources and no high enough priority issues to continue the workgroup at this time. Metadata topics will be a standing item on Standards Committee meeting agendas, and if any issues become high enough priority, a workgroup could be reconstituted.

Workgroup accomplishments

The Metadata Workgroup's charter lists three major objectives:

1. Recommend methods for creating and editing metadata that are compatible with ArcGIS 10.
2. Recommend a metadata format for web services.
3. Recommend changes to the Minnesota Geographic Metadata Guidelines (MGMG) by evaluating new international standards.

The workgroup largely accomplished these objectives by:

1. Developing an updated stand-alone metadata editor that follows MGMG and by developing instructions for using ArcGIS 10 to create metadata compatible with MGMG.
2. Concluding that our current methods for documenting web services are sufficient for current basic needs.
3. Concluding that the existing version of MGMG is sufficient for current needs.

In addition, the workgroup:

4. Recommended metadata requirements for the Minnesota Geospatial Commons.
5. Presented for several years at the Minnesota GIS/LIS conference, held one workshop and presented one webinar.

The remainder of this report provides more details on these accomplishments and then outlines remaining issues.

Developed two new methods to create and edit metadata following the Minnesota Geographic Metadata Guidelines (MGMG)

1. Developed MME, an updated stand-alone metadata editor

Background: The previous stand-alone metadata editor (DataLogr) that had been customized to produce MGMG metadata had a very outdated interface so was little used.

Response: The workgroup customized the EPA's Metadata Editor (EME) to create the Minnesota Metadata Editor (MME). EME was selected because it uses a streamlined metadata standard that was very similar to Minnesota's MGMG, and the original EME source code was free and publicly available.

The workgroup's customization included:

- Removing EPA-specific content from the interface and the help
- Removing elements not contained in MGMG
- Removing MGMG elements that were not often used
- Adding several missing MGMG elements
- Editing picklist options to match MGMG
- Reformatting the input interface
- Updating the stylesheet to create a cleaner, more-readable html
- Improving the stylesheet to ensure that the html is more accessible to people who use screen readers (this task is in final testing before release)

Credits: The workgroup decided what customization was needed and tested the beta versions. Jim Gonsoski did the programming.

2. Recommended how to use ArcCatalog 10 to create MGMG-compliant metadata

Background: At ArcGIS 10.0, the Esri metadata model radically changed. The popular MGMG Editor add-in, customized by the Metropolitan Council for use with ArcGIS 8 and 9, was no longer functional. Since many organizations that could contribute geospatial data to the Minnesota Geospatial Commons were accustomed to creating their metadata in ArcCatalog, research was needed to find ways to make metadata created in ArcCatalog work for the Commons with the least customization.

Response: The workgroup decided that ArcGIS was changing too often to devote resources to customizing and maintaining an MGMG version of the native ArcGIS metadata editor. Instead, Susanne Maeder developed instructions on using ArcCatalog's existing editor to follow MGMG, *Producing ArcCatalog 10 Metadata for the Minnesota Geospatial Commons*.

Evaluated revising the Minnesota Geographic Metadata Guidelines (MGMG) to be compatible with new international standards

Background: MGMG v 1.2, a streamlined version of the Federal Geographic Data Committee's metadata standard[1], was adopted in 1998. Currently, it is a State of Minnesota guideline, not a full standard. For many years, the international community has been developing international metadata standards[2] and it was time to assess whether MGMG needed revising to match the "ISO standard".

- The workgroup drafted a crosswalk between MGMG and ISO. Many elements have a straightforward match; however, some issues proved sticky:
  - Some ISO elements have the same identifying tags and are distinguished only by their location within a structure of nesting fields. Since MGMG does not use the same structure, this would be a challenge to implement.
  - Several MGMG elements do not have a clear match to ISO.
- ISO provides several elements to describe web services, which we would like to be able to do, however, these fields did not seem to provide information that was understandable or useful for most people documenting services.

Response: The workgroup concluded that there are not yet sufficient business needs to migrate MGMG to be fully compliant with ISO. We are able to accomplish what we need to do with the current version of MGMG.[3]

Recommended metadata requirements for the Minnesota Geospatial Commons

Background: A handful of metadata elements are required by the Commons in order for the site to function; the site checks these elements and flags errors. Resources are not published until errors are fixed. The Commons also gives warnings in order to alert publishers to missing information. Publishers are encouraged to fill in these elements, but warnings do not block publication of a resource. The

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[1] The FGDC's standard is the Content Standard for Digital Geospatial Metadata (CSDGM); it is still widely used since many organizations have found that, at present, they have insufficient resources or business needs to migrate to the newer ISO standards.

[2] Most of the geospatial metadata elements are in the International Organization for Standardization's ISO 19115 standard, although some sections are contained in other ISO standards that apply to broader kinds of data, not just geospatial data, e.g., ISO 19157 which covers elements describing data quality. Each standard is in a different cycle of revision, so it's hard to point to one finished version that will cover all the elements needed to describe geospatial data. There has also an effort to develop a "North American Profile" (NAP) of the international standard; the main differences are that NAP provides more complete domain and code lists and more detailed best practices guidance. There has been little activity on NAP for the past several years.

[3] For example, the Minnesota Geospatial Commons allows publishers to link to their web services and web apps without needing additional web-service-specific elements from the metadata record; see an implementation of this in the Emerald Ash Borer resource which links to a web map and a map service in addition to other formats.

question was whether any additional MGMG elements should be mandatory, and which elements should simply be desired or optional for metadata to be published on the Commons.

Response: The workgroup developed a recommendation for each element. The report, *[Metadata Requirements for the Minnesota Geospatial Commons – Draft Recommendation](#)*, provides more detail about the criteria used, an overview of the recommendation and then more detailed best practices, concluding with a list of implementation issues.

The draft recommendation was approved by the Commons operational team, the Chief Geospatial Information Officer and, on June 24, 2015, the Minnesota Geospatial Advisory Council.

Presentations

- **Minnesota GIS/LIS Conference**
    - *Changes Coming to the Minnesota Geographic Metadata Guidelines*, October 7, 2011, St. Cloud. Presenters: Nancy Rader and Mark Kotz.
    - *Minnesota Metadata Editor (MME) Released*, October 5, 2012, St. Cloud. Presenter: Nancy Rader.
    - *[Next Generation Metadata – Content for the Geospatial Commons](#)*, October 9, 2015, Duluth. Presenters: Mike Dolbow, Susanne Maeder and Nancy Rader.
    - *Becoming a Publisher on the Minnesota Geospatial Commons*, October 27, 2016, Duluth. Presenter: Mike Dolbow.
- **Workshop**
    - *Safeguarding GIS Data through Metadata*, for MnDOT staff, June 25, 2015, Arden Hills. Presenters: Joella Givens, Nancy Rader, Chris Cialek, Susanne Maeder.
- **Webinar**
    - *Minnesota Metadata Editor*, topic in a MnDOT webinar series, October 20, 2015. Presenters: Jesse Pearson and Susanne Maeder.

Remaining issues

- **Finalize recommended metadata requirements for the Commons**
    - The [metadata requirements document](#) is still labelled "discussion draft". The Geospatial Technical Committee no longer exists to finalize it. Are any other steps or review needed in order for "discussion draft" to be removed?
    - Implement the recommendation via governance policies, especially addressing the question of what "mandatory" means in practice:
        - Should "mandatory" mean that a resource will not be published to the Commons unless the element is filled out, even if only to indicate that the information is unknown or not available? Currently, resources can be, and are, published with some mandatory elements blank.
        - Or are some mandatory elements actually treated only as "desirable". This would mean a resource would still be published if the element is blank, but publishers would be highly encouraged to fill something in right away or in future.

- o The DNR's data governance group is discussing more explicit guidelines for data stewardship and expectations for metadata for the agency's published data. This is a promising avenue for developing workable governance for Commons metadata.
- **Recommend best practices for documentation of services such as REST endpoints**
  - o The Commons allows for some information about web services; however, it may be desirable to provide more information, perhaps structured more usefully.
  - o For an insightful discussion of the additional detail needed for three different types of audiences interested in services (data consumers, data managers, and application developers), see the Commons Workgroup's *Web Services Requirements Subgroup Report* on "Comprehensive Web Service Documentation" (p. 1-4)
- **Maintain the Minnesota Metadata Editor (MME)**
  - o No staff are currently available to maintain or enhance MME.
  - o The next version of the EPA's Metadata Editor (EME v. 4.0) is available. It has several attractive features, such as being compatible with ISO19115 and not using an Access database; however, the EPA does not yet recommend it for use to document geospatial data. No staff are currently available to customize this version for use in Minnesota.
- **Revise MGMG 1.2?**
  - o In future, there may be a strong enough business need to justify the effort to migrate to the ISO 19115 metadata standard.
  - o In future, there may be a strong enough business need to adopt MGMG as a State of Minnesota geospatial **standard** rather than **guideline**. This would entail public review.
  - o The workgroup recommends monitoring North Carolina's experience with using a streamlined ISO 19115 standard that is very similar to MGMG; it has potential to be adopted widely at the state level across the U.S.
- **Update educational materials**? Although this was not part of the workgroup's mission, the following educational materials were produced or updated – perhaps additional materials would be useful:
  - o MME tutorial, linked from the MME webpage
  - o MME FAQ
  - o MME help was put online so it could be more easily accessed and updated
- **Conduct more training?** This was not part of the workgroup's mission, but could be useful in future. Metadata assistance is currently provided on an as-needed basis by staff working with Commons publishers, which is likely the best "teachable moment". If more training is needed, more resources will need to be identified.

Who should be informed about the workgroup sunsetting?
- Minnesota Standards Committee
- Minnesota Geospatial Advisory Council
- Minnesota Geospatial Commons team
- The workgroup's website will be updated to reflect the fact that it has sunset.

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With review and editing by several workgroup members.

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