Experience from the Minnesota Geographic Metadata Guidelines

Nancy Rader
Minnesota Geospatial Information Office

FGDC Metadata Working Group meeting, July 8, 2015
Overview

- **Minnesota Geographic Metadata Guidelines (MGMG)**
  - What are they and why provide that option?
  - What's worked well? What hasn’t?

- **Minnesota Geospatial Commons**
  - Clear business reason to create metadata
  - New recommendation for mandatory/desirable/optional elements

- **What’s next - ISO?**
  - Similar approach to a simple ISO profile? North Carolina’s?
  - Tool?
Set things in order before there is confusion.

–Tao Te Ching

POWERED BY metadata
What is MGMG?

- Streamlined version of FGDC CSDGM standard
  - Includes all mandatory FGDC fields
  - Seven sections, many fields simplified
  - Doesn’t specify mandatory/optional
  - Simple HTML presentation

<table>
<thead>
<tr>
<th>Section 1</th>
<th>Overview</th>
</tr>
</thead>
<tbody>
<tr>
<td>Originator</td>
<td>Minnesota Department of Natural Resou</td>
</tr>
<tr>
<td>Title</td>
<td>Hillshade, LiDAR-derived, Minnesota</td>
</tr>
<tr>
<td>Abstract</td>
<td>The hillshade is a black-and-white image shining from the northwest.</td>
</tr>
<tr>
<td>Purpose</td>
<td>Hillshades make it easier to visualize chain</td>
</tr>
<tr>
<td>Time Period</td>
<td>Hillshades were generated from a number</td>
</tr>
<tr>
<td>Currentness</td>
<td>/elevation/lidar.html</td>
</tr>
<tr>
<td>Reference</td>
<td>Complete</td>
</tr>
</tbody>
</table>
Why create MGMG?

- Provide a simpler standard that many people would actually use

- But still provide enough info so:
  - Users can assess fitness for use
  - Publishers can remember what they did
  - Balance between “lite” and “complex”

- And retain compatibility with FGDC

- MGMG is an option, it is not mandated
Metadata Structure Examples

- Many of the elements are the same and use the same tags

<table>
<thead>
<tr>
<th>FGDC</th>
<th>MGMG</th>
</tr>
</thead>
<tbody>
<tr>
<td>TITLE</td>
<td>TITLE</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>ABSTRACT</td>
</tr>
<tr>
<td>BOUNDING BOX COORDINATES</td>
<td>BOUNDING BOX COORDINATES</td>
</tr>
</tbody>
</table>
### Metadata Structure Examples

- Some elements are simpler in MGMG

<table>
<thead>
<tr>
<th>FGDC</th>
<th>MGMG</th>
</tr>
</thead>
<tbody>
<tr>
<td>(SINGLE) DATE</td>
<td>(SINGLE) DATE</td>
</tr>
<tr>
<td>BEGINNING DATE</td>
<td></td>
</tr>
<tr>
<td>END DATE</td>
<td>DATE DETAILS</td>
</tr>
<tr>
<td>DATE DETAILS</td>
<td></td>
</tr>
</tbody>
</table>
FGDC

LINEAGE

Source Information
- Source Citation
  - Citation Information
- Source Scale
- Type of Source Media
- Source Time Period of Content
  - Time Period Info
  - Source Currentness
- Source Citation Abbrev
- Source Contribution

Process Step
- Process Description
- Source Used Citation
- Process Date & Time
- Source Produced
- Process Contact
  - Contact Information

MGMG

LINEAGE

(one free text field, uses tag for the first process step)

Some are much simpler in MGMG

<table>
<thead>
<tr>
<th>mandatory</th>
<th>mandatory, if applicable</th>
<th>optional</th>
</tr>
</thead>
</table>
### Seven Sections of the Minnesota Geographic Metadata Guidelines

**Minnesota State Guideline 17-1.2**

<table>
<thead>
<tr>
<th>1 Identification</th>
<th>2 Data Quality</th>
<th>3 Spatial Data Organization</th>
<th>4 Spatial Reference</th>
<th>5 Entity and Attribute</th>
<th>6 Distribution</th>
<th>7 Metadata Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Originator</td>
<td>Attribute Accuracy</td>
<td>Native Data Set Environment</td>
<td>Horizontal Coordinate Scheme</td>
<td>Publisher</td>
<td>Metadata Date</td>
<td></td>
</tr>
<tr>
<td>Title</td>
<td>Logical Consistency</td>
<td>Geographic Reference (Tabular)</td>
<td>Ellipsoid</td>
<td>Publication Date</td>
<td>Metadata Contact Information</td>
<td></td>
</tr>
<tr>
<td>Identifier (optional)</td>
<td>Completeness</td>
<td>Spatial Object Types</td>
<td>Horizontal Datum &amp; Units</td>
<td>Distributor Information</td>
<td>Metadata Standard Information</td>
<td></td>
</tr>
<tr>
<td>Abstract</td>
<td>Positional Accuracy</td>
<td>Tiling Scheme</td>
<td>Resolution</td>
<td>Distribution Liability</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Purpose</td>
<td>Lineage</td>
<td></td>
<td>Altitude Datum &amp; Units</td>
<td>Transfer Format</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Content Date</td>
<td>Source Scale</td>
<td></td>
<td>Depth Datum &amp; Units</td>
<td>Transfer Size</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Currentness</td>
<td></td>
<td></td>
<td>If Raster</td>
<td>Ordering Instructions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Progress</td>
<td></td>
<td></td>
<td>If Geographic</td>
<td>Online Linkage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintenance and Update Frequency</td>
<td></td>
<td></td>
<td>If UTM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spatial Extent Description</td>
<td></td>
<td></td>
<td>If Geographic</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bounding Coordinates</td>
<td></td>
<td></td>
<td>If UTM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Keywords</td>
<td></td>
<td></td>
<td>If State Plane</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constraints</td>
<td></td>
<td></td>
<td>If County Coordinate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contact Information</td>
<td></td>
<td></td>
<td>If User Specified Projection</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Browse Graphic Information</td>
<td></td>
<td></td>
<td>If Other</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Associated Data Sets</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[www.mngeo.state.mn.us/committee/standards/mgmg/metadata.htm](http://www.mngeo.state.mn.us/committee/standards/mgmg/metadata.htm)
Implementation: Tools + Training

- Tools then:
  - DataLogr
  - Customized ArcCatalog Editor (v. 8 & 9)

- Tools now:
  - Minnesota Metadata Editor (MME), customized version of EPA’s EME 3.1
  - Working on guidance for ArcCatalog v. 10 (FGDC)

- FGDC CAP grants helped support training around the state and development of training materials available on our website

MME: [www.mngeo.state.mn.us/chouse/mme/](http://www.mngeo.state.mn.us/chouse/mme/)
MGMG: What’s worked well?

Keeping it simpler
- Easy to explain
- Focuses on what users most need to know and what publishers are most able to write
- No one has asked for more detail, except for entities & attributes
- HTML less cluttered

Providing tools + training

“Don’t duck metadata” tag line!
MGMG: What hasn’t worked well?

MGMG → FGDC goes well,
but FGDC → MGMG can lose some info

Maintaining customized tools
- DataLogr: out-dated
- MGMG ArcCatalog Editor: no longer works with v. 10
- MME: need more resources to maintain

Metadata still often perceived as optional

That last point is changing with the
Minnesota Geospatial Commons…
A collaborative website where publishers can share geospatial data, maps, services and applications and users can access these resources.

https://gisdata.mn.gov/
Metadata fuels the Commons

Initial search results:

[Image of a website screenshot showing a search for datasets and a specific resource: "Roads, Minnesota."

This dataset represents road centerlines for all public roads within the state of Minnesota. The roads are broken from intersection to intersection and attributed with...]

11 resources found
Metadata fuels the Commons

More info:
Metadata fuels the Commons

**Title**

**Abstract**

**Keywords**

**Roads, Minnesota**

This dataset represents road centerlines for all public roads within the state of Minnesota. The roads are broken from intersection to intersection and attributed with information based on their designated route. Key attribute fields include route system (Interstate, US Highway, Minnesota Highway, County State Aid Highway, County Road, Township Road, etc.), Route Number (35W, 10, 53), and Name. A detailed description of the Roads layer attributes is included in Section 5 of this document - Entity and Attribute Overview.

Some route numbers are temporary. '900' Routes are for route segments that formerly were part of a trunk highway which was turned back to a local entity. These are temporary numbers assigned while MnDOT waits for an official local designation. These numbers are assigned in the 900-999 range and are not official route numbers but just for temporarily assigning data to unnumbered routes.

**Preview**

- **Static Preview - Sample Image**
- **Shapefile**
- **Esri ArcGIS Server Map Service**
- **ESRI File Geodatabase**
- **OGC GeoPackage**
- **Full Metadata Record**

**Full metadata**

- roads
- route direction
- route number
- routes
- tis code
- transportation
# Metadata fuels the Commons

<table>
<thead>
<tr>
<th>Originator</th>
<th>Minnesota Department of Transportation (MnDOT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date details</td>
<td>The downloadable dataset represents the route network as reported to MnDOT following the construction season ending in 2012. The online map services are updated periodically. The most recent update was 1/29/2014. Check the &quot;Service Date&quot; information on the services webpage to verify the date: <a href="http://gisservices.dot.state.mn.us/ArcGIS/rest/services/MNDOT_ROADS/MapServer">http://gisservices.dot.state.mn.us/ArcGIS/rest/services/MNDOT_ROADS/MapServer</a></td>
</tr>
<tr>
<td>Access constraints</td>
<td>None</td>
</tr>
<tr>
<td>Purpose</td>
<td>This dataset was developed to fill a need at MnDOT for a continuous, statewide GIS base map of the transportation system. It is part of the Transportation Information System (TIS). <strong>This data is to be deprecated in early 2015. Replacement data will have new Route IDs and more accurate measures based off the cartographic lengths.</strong></td>
</tr>
</tbody>
</table>

**Bounding box coordinates**

[Map data @ OpenStreetMap contributors](http://www.openstreetmap.org/copyright)

Tiles by MapQuest
Making connection between metadata and a site people want to use to:
  – find, evaluate and access data
  – publish their data

Bringing in new publishers who haven’t created metadata before
Question

How much metadata do I need to write for the Commons?
Metadata Recommendation

Goal

- Which metadata elements are required for the Commons?
- Guidance on quality and quantity of information

Criteria

- *Curated site, resources should be worth finding*
- Needed for a user to determine fitness for use
- Needed to support a Commons function
## Full recommendation:

[www.mngeo.state.mn.us/councils/statewide/Commons_MGMG_element_requirements_recommendation.pdf](http://www.mngeo.state.mn.us/councils/statewide/Commons_MGMG_element_requirements_recommendation.pdf)
Implementation Options

- *Expectations for Publishers* document: [https://gisdata.mn.gov/content/?q=help/publisher_expectations](https://gisdata.mn.gov/content/?q=help/publisher_expectations)
- Update best practices materials
- Work with new publishers
- Validate anything that can be automatically tested
- Monitor user feedback
- Periodically remind publishers to check metadata for accuracy
- Provide improved tools
- If all else fails, suspend from publishing until comply with metadata requirements
Next Steps – ISO?

- Has been too complex so far
  - Would like to use the web services elements

- Evaluate North Carolina’s ISO-based state government / local profile
  - Similar approach of a simpler profile
  - Collaborate on tools and training?

- Tools: customize EME 4 → MME 4?
Summary

- Option for simpler standard
  - main info most users need to evaluate data for fitness of use

- Need to provide a package: standard + tool(s) + training
  - eliminate as many roadblocks as possible

- Curated site (the Commons) provides a clear business reason to create metadata

- State/local ISO-based profile has promise
Questions?

Nancy Rader
Minnesota Geospatial Information Office
nancy.rader@state.mn.us
651-201-2489