Minnesota Geospatial Advisory Council Meeting

March 3, 2021

Webex. See meeting invite for details.

10:00 – 12:00

Agenda

1.	Call to order (Chair) a. Introductions (welcome new members Bryan McCoy and Stacey Stark) b. Approval of agenda c. Approval of meeting minutes from 12/9/2020 d. Approval of meeting minutes from 1/6/2021	10:00	10 min
2.	Review and accept committee annual reports and edits to EPC charter (All) – *page 2*	10:10	5 min
3.	GAC accomplishments and work plan review and approval (Kotz) – *page 40*	10:15	10 min
4.	Making progress on GAC priorities and initiatives; metrics, etc. (Richter/Ross)	10:25	15 min
5.	Outreach Committee Success Story Hub (Anderson/Wikstrom)	10:40	10 min
6.	Lidar update (Sjerven/Vaughn)	10:50	10 min
7.	Break	11:00	5 min
8.	Archiving Implementation report and Pilot Workgroup approval (Mattke) – *page 42*	11:05	15 min
9.	Legislative update	11:20	5 min
10.	Updates on MN GAC priority projects and initiatives – *page 50*	11:25	20 min
11.	Announcements or other business	11:45	15 min
12.	Adjourn	12:00	

Agenda Item 2. Review and accept committee/workgroup annual reports

3D Geomatics Committee

Work Plan Date:

January 18, 2021

Chair and Vice Chair:

Sean Vaughn, Co-Chair
Minnesota IT Services@DNR
763-689-7100 x226
sean.vaughn@state.mn.us

Gerry Sjerven, Co-Chair
Minnesota Power
218-355-3990
gsjerven@mnpower.com

Link to Committee Charter:

The 3DGeomatics Charter (http://www.mngeo.state.mn.us/committee/3dgeo/3dgeo_committee_charter.pdf)

ACCOMPLISHMENTS FROM 2020

Accomplishments

Executive Steering Team Accomplishments

1. Continued to meet monthly
2. Continued to work with Workgroups on progress and updating each group's website presence.
3. Fully implemented a Sharepoint site for committee collaboration, including creation of contact list, libraries for workgroups, hosted by MnGeo and administered by MnGeo Staff
4. Established 3-ranked GAC priorities for 2021
   1.) Priority #13 | Accurate hydro-DEMs (hDEM) that serve modern flood modeling and hydro-terrain analysis tools, and the development of more accurate watercourses and watersheds

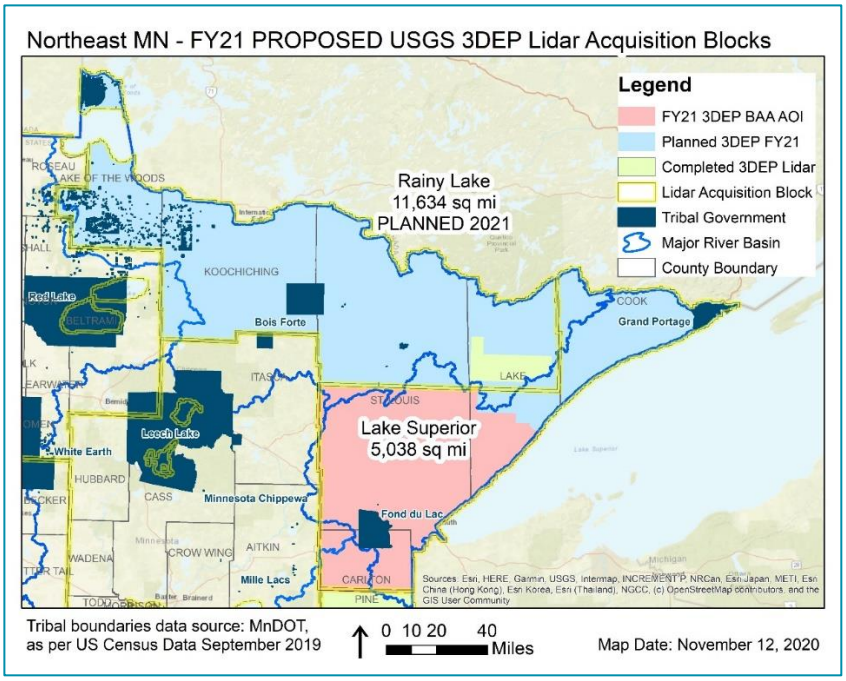
2.) Priority #8 | New LiDAR data acquisition across Minnesota for use in developing new derived products guided by committee developed standards

3.) Priority # 11 | Development of a culvert data standard for data sharing across the geospatial and infrastructure asset management communities and to support development of a future statewide culvert inventory

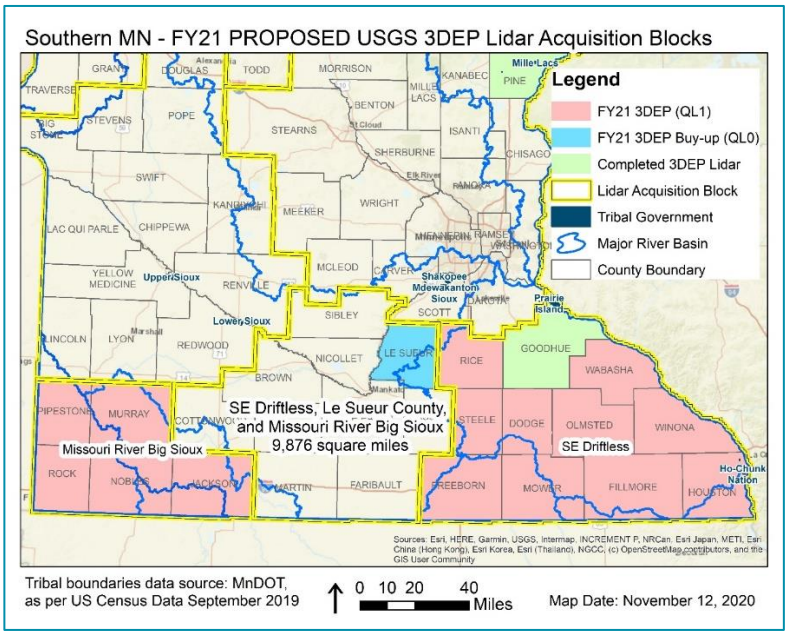
Workgroup Accomplishments

5. Data Acquisition Workgroup

- Continued with significant Lidar acquisition outreach, meetings, emails and communications with stakeholder and partners from State agencies, Counties, Non-Profits, private companies and other partners.
- Met weekly to manage lidar data acquisition and outreach in support of the Minnesota Lidar Plan
- Representatives attended monthly 3DGeo Steering Team meetings
- Representative attended monthly National States Geographic Information Council (NSGIC) 3DEP Group Meetings
- Hosted an outreach/update online meeting with Southern Minnesota geospatial and local partners on October 7 to discuss possible USGS grant submission for lidar acquisition in 2021. Meeting had over 90 participants.
- Hosted an online outreach meeting on November 17 with members of the Central Mississippi (Metro) area to discuss a 2022 lidar acquisition. Meeting had over 60 participants.
- Submitted two USGS 3DEP Broad Agency Announcement (BAA) grant request for Spring 2021 lidar acquisition.



- If this BAA grant proposal is successful it will complete the Northeast Lidar Acquisition Area (LAA) illustrated with peach shading in the image below.



- The Southern Minnesota BAA proposal is comprised of two full 3D Geomatics Committee - Lidar Plan Lidar Acquisition Blocks. The peach shaded regions of the map below illustrate the Southeast Driftless LAB covering the entire southeast corner of Minnesota and the Missouri River Big Sioux LAB covering watersheds and counties in the southwest

6. **Infrastructure Workgroup**
    - The Infrastructure Workgroup has established a Cultural Resources subgroup within its organization. A full membership meeting was held on November 12, 2020
    - Working on developing membership list
    - Develop 2021 workplans for the Infrastructure Workgroup and Cultural Resources Subgroup
    - Representatives attended monthly 3DGeo Steering Team meetings
7. **Vegetation Workgroup**
    - Vegetation Workgroup continues to meet on the second Tuesday, every other month.
    - Representatives attended monthly 3DGeo Steering Team meetings
    - Continue to work on the workplan.
8. **Hydrogeomorphology Workgroup**
    - See attached
9. **Education Workgroup**
    - Education Workgroup continues to meet each first Tuesday of the month
    - Education Workgroup continues to find agency liaisons and education partners throughout the state
    - Education Workgroup continues to catalog and inventory existing Lidar education resources
    - Representatives attended monthly 3DGeo Steering Team meetings

EDUCATION WORKGROUP CONTINUES TO UPDATE WORKPLAN FOR 2021WORK PLAN FOR 2021

Planned Activities and Deliverables:

- Meetings will continue to convene from 10:00 – 11:30am on the third Tuesday of the month no less than eight times per year.
- Continue committee outreach and education to engage and inform GIS, remote sensing, and 3D geospatial communities to determine needs for specific data standards, products, and to generate interest in shared funding of lidar acquisition.
    a. This will be accomplished by:
        i. Developing a communication plan
        ii. Developing a collect of standardized outreach materials for various stakeholders and audiences
        iii. Expanding content on MnGeo website for the distribution of 3D Geomatics Committee educational materials and serve as a clearinghouse of 3D technology information
        iv. Review methods to engage stakeholders to gauge user needs

v. Reviewing previous surveys to identify potential needs and areas of focus
vi. Collaborating and partnering with the Geospatial Advisory Council's (GAC) Outreach Committee

- Continue to update the existing Minnesota State Lidar Plan and Story Map through the development of a review committee
- Continue to support existing 3DGeo Committee Workgroups and explore the need for any additional workgroups
- Expand and support the Infrastructure, Vegetation, Education, Hydrogeomorphology and Data Acquisition Workgroups.
    a. Continue solicitation of membership
    b. Assist with the development of Workgroup work plans.
    c. Identify and update workgroup champions to lead formation of workgroups.
        i. Each Workgroup will be encouraged to have a chair or co-chairs.
        ii. Each workgroup will have at least one member serving on the 3DGeo Executive Steering Team
        iii. Each Workgroup will strive to represent a wide range of expertise with active participation, minimum 6 meetings a year
        iv. Chair or Co-Chair will be available for 3D Geomatics Committee panel at the annual MN GIS/LIS Consortium Conference
        v. Encourage workgroups to publish an agenda of topics covered in their meetings
    d. Steer development of Workgroup mission statements, goals, work plans, and timelines
- Establish timelines for Workgroups.
    a. Workgroups will develop drafts of work plans for 2021 for the January 2021 GAC meeting
- Work with GAC Chair to have 3DGeo Workgroup chairs/co-chairs or Champions present updates to GAC in person.

Committee Structure

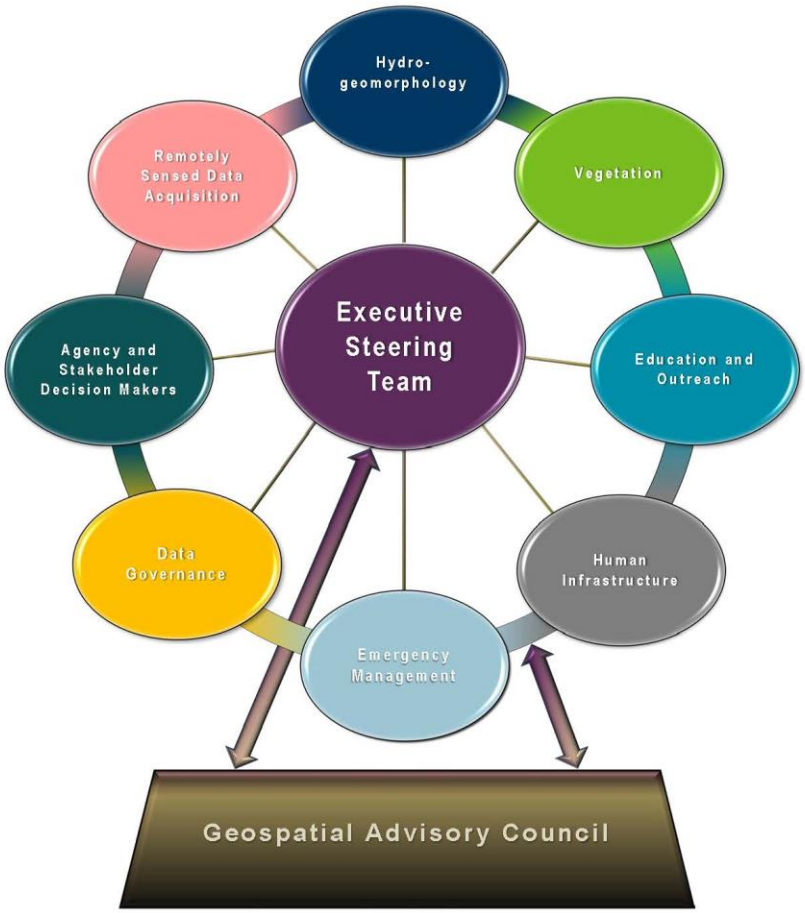
Workgroups (sectors of expertise):

Hydro-geomorpholoy
Vegetation
Education & Outreach
Human Infrastructure
Emergency Management
Data Governance
Data Acquisition
Agency & Stakeholder Decision Makers

Committee Organizational Diagram

3D Geomatics Committee Organization

Version 9.3.2019



Q: What is the 3DGeo Committee?

A: The 3D Geomatics Committee (3DGeo) is committed to identifying and promoting the need for planning, training, funding, acquisition, and management of three-dimensional geomatic data and derived products. The **architecture** of 3DGeo brings dozens of stakeholders together to serve common goals under one Geospatial Advisory Council (GAC) charter. **Membership** of 3DGeo is comprised of subject matter experts organized by workgroup sectors. Each workgroup operates by the guidance of its own work plan. Workgroup members specialize in data development, management, dissemination, application, and end user business needs. An **Executive Steering Team** leads committee administration, decision making and GAC reporting. The **colored ring** connecting workgroups represents membership crossover between sectors of expertise; it illustrates the blending of roles and the knowledge base amongst the workgroups when needed (i.e., there are no barriers and some committee members serve more than one workgroup and the Executive Steering Team). **Spokes** in the diagram indicate a hub for communication with the Executive Steering Team (each workgroup has at least one member attending Executive Steering Team meetings). The **heavy arrows** represent quarterly updates and occasional presentations from the Executive Steering Team and periodic special reports from the Workgroups delivered to the GAC. In summary, the **design of this committee** allows a large and diverse membership to have 1) small, focused, and expert-led meetings that carry out unique committee action items, and 2) intricate ties with Minnesota's foundational and authoritative spatial data products like LiDAR, with decision making responsibilities.

For updates and comments contact committee co-chair: Sean Vaughn MNIT@DNR, sean.vaughn@state.mn.us

Roles and Responsibilities:

- Committee guidance and management is provided by the 3DGeo Executive Steering Team.
- Workgroup representation on the Steering Team is accomplished by having at least one champion and/or chair/co-chair(s) added to the Steering Team. Some listed will be on a workgroup.
- Membership will continue to expand for each workgroup

Executive Steering Team Membership

Name	Workgroup/ Sector	Agency	Email
Gerry Sjerven	Infrastructure/ Utility (Co-Chair)	MN Power	gsjerven@mnpower.com
Sean Vaughn	Hydro/State (Co-Chair)	MNIT@DNR	sean.vaughn@state.mn.us
Dan Ross	At Large	MnGeo	dan.ross@state.mn.us
Clinton Little	Stakeholder/ Manager	DNR Costal Program	clinton.little@state.mn.us
Jennifer Corcoran	Vegetation/ State	DNR Forestry	jennifer.corcoran@state.mn.us
Joel Nelson	Hydro/Education	U of MN	nels1945@umn.edu
Mark Reineke	Hydro/Private	WSN	mark.reineke@wsn.us.com
Chris Sanocki	Hydro/Federal	USGS	sanocki@usgs.gov
Andrea Bergman	Hydro/State	MNIT@DNR	andrea.bergman@state.mn.us
Rick Moore	Hydro/State	MNIT@DNR	rick.moore@state.mn.us
Collin Lee	Infrastructure/ State	DOT	colin.lee@state.mn.us
Jack Kluempke	Infrastructure/ State	Commerce	jack.kluempke@state.mn.us
Alison Slaats	Acquisitions / State	MnGeo	alison.slaats@state.mn.us
Jim Krumrie	Acquisitions / State	SHPO	Jim.Krumrie@state.mn.us

Resources:

The 3DGeo Committee will use the work and accomplishments of many earlier committee efforts.

Past Committees

Digital Elevation Committee
(http://www.mngeo.state.mn.us/committee/elevation/index.html)

LiDAR Research and Education Subcommittee
(http://www.mngeo.state.mn.us/committee/elevation/research_education/index.html)

Hydrography Committee (http://www.mngeo.state.mn.us/committee/hydro/)

Data Resources

Elevation Data for Minnesota
(http://www.mngeo.state.mn.us/chouse/elevation/index.html)

LiDAR Elevation Data for Minnesota
(http://www.mngeo.state.mn.us/chouse/elevation/lidar.html)

November 4th, 2015 LiDAR Committee Scoping Meetings Materials

Committee/Workgroup Needs:

The Executive Steering Team will be working with the GAC Outreach Committee and the MN GIS/LIS Consortium to help solicit membership for each workgroup, and identify workgroups missing from this plan.

Dependencies and Interrelationships:

Steering Team

- MnGeo hosts and designs 3DGeo webpages with Executive Steering Team collaboration.
- MnGeo hosts 3DGeo SharePoint site with content provided by the Executive Steering Team

Workgroups

Workgroups depend on the Executive Steering Team for guidance related to committee reporting and governance.

Risks:

- LiDAR and other 3D data procurements will not be standardized.
- Inaccuracies will be incorporated into future derived elevation data.
- Lack of standards for data development and data application of 3-D data derived products.
- Projects utilizing state funding will produce data not suitable for distribution and application in other projects.

Additional Comments:

Date approved by the Geospatial Advisory Council:

HYDROGEOMORPHOLOGY WORKGROUP

Work Plan date:

November 13, 2020

Co-chairs:

Andrea Bergman, Jamie Schulz, and Rick Moore

Steering Committee Liaison:

Sean Vaughn

Link to workgroup charter:

http://www.mngeo.state.mn.us/committee/3dgeo/3dgeo_committee_charter.pdf

WORK PLAN FOR 2021

Planned activities and deliverables:

1. Education and Outreach
    a. Maintain SharePoint Calendar with current and upcoming events members should be aware of
    b. Design one-page handout that describes the Workgroup and highlights the successes and future efforts of this collaborative group
    c. Update the existing 2-page fact sheet on the Workgroup
    d. Look for opportunities to connect with hydrography related committees and workgroups within the Agencies
    e. Develop needs statement to guide LiDAR derived hydrography products

2. Coordination across 3D Geomatics Workgroups
    a. Connect with other workgroups to coordinate collaborative efforts
    b. Attend 3D Geomatics Steering Team Meetings to present workgroup updates
    c. Create a list of Agency programs that fund projects related to LiDAR, share with 3D Geomatics Steering Team

3. DEM Hydro-modification Subgroup (formerly Breachline Database Subgroup)
    a. Establish a Digital Dam Breachline (burn line) QA/QC Protocol
    b. Establish a draft centralized authoritative map of current breachline datasets
    c. Promote the Need for a Digital Dam Breachline (burn line) QA/QC Project
    d. Explore the role of the DNR Culvert Inventory App or a modified version Breachline Inventory App in digital dam breachline mapping and dissemination

e. Advise and collaborate on the GAC Priorities - Culvert Data Standard and Hydro-DEMs

4. Data Catalog Subgroup
    a. Identify data needs not covered by existing data
    b. Identify requirements of LiDAR collects to meet these needs
    c. New webpage for the subgroup

5. Foundational Hydrography Data Stewards Subgroup
    a. Add text to Hydrogeo webpage to identify the foundational hydro data layers
    b. Quarterly meetings

6. Broaden scope/mission to include relationship to soils
    a. Establish a subgroup to incorporate concepts of how landforms and water create soil types

7. Maintain ongoing support duties
    a. Work with MNGEO (Nancy Rader) to maintain workgroup web page
    b. Maintain web pages for each subgroup (Hydromod, data catalog)
    c. Identifying and Recruiting Membership
    d. Maintain SharePoint site – current and relevant content
        i. Focus on using SharePoint for collaboration, such as documents for DEM Hydro-modification subgroup
        ii. Identify SharePoint steward for the Workgroup pages

Roles and responsibilities:

Membership will include diverse users and stewards of hydrography and soils data. Provide guidance to data stewards and users on initiatives that relate to LiDAR derived end products.

Resources:

The Hydrogeomorphology Workgroup will use the work and accomplishments of the former Hydrography Committee and collaborate with other current 3D Geomatics Committee Workgroups.

Workgroup needs:

The Hydrogeomorphology Workgroup will depend on guidance from the 3D Geomatics Steering Committee.

Dependencies and interrelationships:

The workgroup will work with the 3D Geomatics Steering committee to coordinate LiDAR acquisition standards.

Risks:

- Taking on too much responsibility and underestimating the amount of commitment to the workgroup.
- Inaccuracies in historical data will be incorporated into future derived hydrography data.
- Lack of standards for data development and data application of hydrography data. Bad data will translate into lost time and money.
- Lack of communication between government agencies at all levels and private sector partners pertaining to hydrography data.

Additional Comments:

Date approved by the 3D Geomatics Steering Committee:

3D Geomatics Committee - Data Acquisition Workgroup Work Plan

Work Plan Date:

January 21, 2021

Chair and Vice Chair:

Sean Vaughn, Co-Chair
Minnesota IT Services – DNR
763-284-7223
sean.vaughn@state.mn.us

Gerry Sjerven, Co-Chair
Minnesota Power
218-355-3990
gsjerven@mnpower.com

Alison Slats, Co-Chair
Minnesota IT Services – MnGeo
651-201-3194
alison.slaats@state.mn.us

Link to Committee Charter:

The 3D Geomatics Committee Charter
(http://www.mngeo.state.mn.us/committee/3dgeo/3dgeo_committee_charter.pdf)

2020 Accomplishments

The Data Acquisition Workgroup has been actively working as a dedicated subgroup since early 2019. While 2020 goals were not documented in an official workplan, 2020 accomplishments included:

- Met weekly to manage lidar data acquisition and outreach in support of the Minnesota Lidar Plan
- Representatives attended monthly 3DGeo Steering Team meetings

- Representatives attended monthly National States Geographic Information Council (NSGIC) meetings related to 3D Elevation Program (3DEP)
- Continued with significant Lidar acquisition outreach, meetings, emails and communications with stakeholders and partners from State Agencies, Federal Agencies, Counties, Cities, Non-Profits, private companies, and other partners. Highlights include:
    - Prepared surveys and sent them to attendees and potential partners in both Northeast and Southern Minnesota and conducted meetings to gauge interest in a USGS grant submission (submission date was October 2020)
    - Hosted an online outreach meeting on November 17 with members of the Central Mississippi (Metro) area to discuss a 2022 lidar acquisition. Meeting had over 60 participants.
    - Hosted an outreach/update online meeting with Southern Minnesota geospatial and local partners on October 7 to discuss possible USGS grant submission for lidar acquisition in 2021. Meeting had over 90 participants.
    - Hosted outreach/update online meeting on August 21 with Southern Minnesota geospatial and local partners to discuss possible USGS grant submission for lidar acquisition in 2021. Meeting had over 100 participants.
    - Hosted outreach/update online meeting on July 9, 2020 with Northeast Minnesota geospatial and local partners meeting to NE partners. Meeting had over 80 participants.
- Submitted two USGS 3DEP Broad Agency Announcement (BAA) grant request for spring 2021 lidar acquisition in November 2020.
- Team outlined contents for lidar Communications Plan that will be created in 2021.
- The USGS indicated that our initial collect in the Rainy Lake Block would not be possible in the spring of 2020. They notified the Acquisition group that the acquisition may occur in the fall. Through additional discussion between USGS and the acquisition group, the collect was postponed until the spring of 2021.
- The planned lidar acquisition planned for spring 2021 in Rainy Lake Lidar Acquisition Block was extended into the Lake Superior Block with guidance and input from the data acquisition workgroup team, and with generous additional funding from both USGS and NRCS. ($870,000).
- The Acquisition Team completed a proposal to the Environment and Natural Resources Trust Fund (ENTRF) Legislative-Citizen Commission on Minnesota Resources (LCCMR) MNIT LCCMR proposal that strives to:
    - Conduct forestry fieldwork, produce lidar-derived statistical data layers, develop empirical forest inventory models, and create comprehensive all-lands forest inventory dataset
    - Develop hydro-modified DEMs and derived products to support integrated land-water-vegetation resource management and decision making at the watershed scale.

    - Design, develop and deploy an education program for understanding and effectively using lidar data and lidar derivative products.
    - Design, develop and deploy lidar data and derivative product storage and dissemination system.
- The LCCMR proposal did not move forward for funding. The acquisition group discussed next steps for resubmittal.
- Team worked on content for Minnesota's USGS 3DEP factsheet & 3D Nation narrative.
- Lidar Acquisition Blocks statewide were added to Sea Sketch (USGS collaboration tool) on behalf of Minnesota & 3D Geo Committee
- Team members met with other states to discuss how they are managing lidar funding and the sources of funds. Team met and/or corresponded with North Carolina, Oregon, South Carolina, Utah, Kentucky, and Wisconsin.
- Using local funds the Acquisition Team leveraged over $6,000,000 in additional federal funding towards Minnesota lidar interests from the 3DEP Program, through 4 successful BAA's.

WORK PLAN FOR 2021

Planned Activities and Deliverables:

Workgroup and Workplan activities

- Ensure harmonization between workgroup planned activities, other 3DGeo Workgroups, the Minnesota Lidar Plan, and sector visions for data acquisition 5 to 10 years out.
- Develop a subgroup or ad-hoc committee to discuss Return on Investment (ROI)
- Meet weekly to plan and make progress on work plan activities

Outreach/Communication Plan

- Continue committee outreach and education to engage and inform GIS, remote sensing, 3D geospatial communities to determine needs for lidar data standards and derived products.
- Collaborate and partner with the Geospatial Advisory Council's (GAC) Outreach Committee.
- Continue and increase committee outreach to decision makers about the need for lidar data and derivative products and the benefits of funding acquisition.
- Create new website, or expand content on MnGeo website, for the distribution of educational materials and to serve as a clearinghouse of 3D technology information.
- Additional outreach/communications deliverables include (not in order of importance):
    - Developing a communication plan

- Developing a collection of standardized outreach materials and/or fact sheets for various stakeholders and audiences, particularly for local governments (e.g., County, City)
- Review previous surveys to identify potential needs and areas of focus
- Review and update the existing Minnesota Lidar Plan and StoryMap through a review committee made up of members from each workgroup and meetings of the steering committee
- Participate in NSGIC 3DEP Workgroup
- Workgroup chairs/co-chairs or Champions present updates to GAC in person
- Hold informational webinars and in-person and/or online meetings regarding the Minnesota Lidar Plan
    - Rotate outreach throughout the state on a block by block basis

Funding/Acquisition Work

- Recruit funding champion at the executive level
- Coordinate with USGS on the lidar acquisition in 3 areas of Minnesota including reviewing work orders, attending check-in meetings with USGS and the vendor(s).
- Coordinating funding contracts with local partners, assisting in tracking ground conditions for mission lift off, and communicating about acquisition as needed.
- Coordinate the creation of a tool (or identify a set of existing tools) to track conditions on the ground (and over water) in advance of the lidar acquisitions going on in three large areas of the state.
- Present with NSGIC and other states at the International Lidar Mapping Forum (ILMF) (rescheduled from 2020 cancelation)
    - Line up presentations at other user group, conferences, and association meetings.
- Continue legislative and grant funding search and proposal development for acquisition and derived products, LCCMR grant, other federal grant resources (e.g., FEMA, NOAA, USFS, NRCS)
- Strategic planning and outreach for 2022
    - Through continued engagement with potential partners throughout MN, in an effort to determine the AOI(s) for a BAA proposal in fall 2021 for a potential spring 2022 collect
    - Continue PR/Outreach, about the Lidar Plan, funding, and for a new Lidar Acquisition Block (LAB) or two – MN River East, MN River West, Central Mississippi River (Metro), and Upper Mississippi River (NC Lakes) stakeholders were engaged in 2020
    - Create a timeline for new LABs in 2022 and start deciding LABs for 2023
    - Plan for and submit USGS BAA grant proposals in Fall 2021 for acquisition in 2022

Roles and Responsibilities:

- Develop timeline for prioritized planned activities
- Committee guidance and management is provided by the 3DGeo Executive Steering Team.
- Workgroup representation on the Steering Team is accomplished by having at least one champion and/or chair/co-chair(s) added to the Steering Team. Some listed will be on a workgroup.
- Membership will continue to expand for the workgroup overtime and in response to attrition

Data Acquisition Workgroup Team Membership

Name	Agency	Email
Gerry Sjerven	**MN Power**	gsjerven@mnpower.com
Sean Vaughn	**MNIT@DNR**	sean.vaughn@state.mn.us
Alison Slaats	**MnGeo**	alison.slaats@state.mn.us
Jennifer Corcoran	**DNR Forestry**	jennifer.corcoran@state.mn.us
Clinton Little	**DNR Costal Program**	clinton.little@state.mn.us
Joel Nelson	**U of MN**	nels1945@umn.edu
Matthew Baltes	**USDA-NRCS**	matthew.baltes@usda.gov
Brandon Krumwiede	**NOAA**	brandon.krumwiede@noaa.gov
Collin Lee	**MnDOT**	colin.lee@state.mn.us
Joe Sapletal	**Dakota County**	Joe.sapletal@co.dakota.mn.us
Jeff Weiss	**MNIT@DNR**	Jeff.Weiss@state.mn.us

Resources:

The Data Acquisition Workgroup will work with the 3DGeo Executive Steering Team and use the work and accomplishments of other 3DGeo Workgroups to assist in the procurement of 3D data for Minnesota.

Past Committees

Digital Elevation Committee
(http://www.mngeo.state.mn.us/committee/elevation/index.html)

LiDAR Research and Education Subcommittee
(http://www.mngeo.state.mn.us/committee/elevation/research_education/index.html)

Hydrography Committee (http://www.mngeo.state.mn.us/committee/hydro/)

Data Resources

Elevation Data for Minnesota
(http://www.mngeo.state.mn.us/chouse/elevation/index.html)

LiDAR Elevation Data for Minnesota
(http://www.mngeo.state.mn.us/chouse/elevation/lidar.html)

November 4th, 2015 LiDAR Committee Scoping Meetings Materials

Committee/Workgroup Needs:

The Data Acquisition Workgroup will work with other 3DGeo Workgroups for outreach, membership, and crosswalk of expertise related to the acquisition of unique data like lidar.

Dependencies and Interrelationships:

Steering Team

- The Data Acquisition Workgroup will depend on guidance from the 3D Geomatics Steering Team.
- MnGeo hosts and designs 3DGeo Data Acquisition Workgroup webpages with Executive Steering Team collaboration.
- MnGeo hosts 3DGeo SharePoint site with content provided by the Data Acquisition Workgroup

Workgroups

Workgroups depend on the Data Acquisition Workgroup for guidance related to procurement of data and standards supporting 3D data.

Risks:

Available Time:

Taking on too much responsibility and underestimating the amount of commitment to the workgroup and action items.

Without the Data Acquisition Workgroup:

- Lack of coordination leads to inefficiencies and unnecessary expenses.
- Lack of standardization in Lidar and other 3D data procurements results in misinformation.
- Inaccuracies will be incorporated into future derived elevation data.
- Lack of standards for derived data development and data application of 3D data derived products creates inaccuracies.

- Projects utilizing state funding will produce data not suitable for distribution and application in other projects.

Additional Comments:

Date approved by the 3D Geomatics Steering Committee:

Cultural Resources Workgroup

Work Plan date: 1/14/2021

Chair and vice chair: Chair: Jim Krumrie (jim.krumrie@state.mn.us, 651-201-3299)

Link to committee/workgroup charter:

Committee on 3D Geomatics Work Plan (state.mn.us)

ACCOMPLISHMENTS FROM 2020

The Cultural Resources Workgroup was formed in 2020 and met for the first time on Thursday, November 12th, 2020 via WebEx along with the Infrastructure Workgroup.

WORK PLAN FOR 2021

Planned activities and deliverables:

1. Meet quarterly to discuss 3D Geomatics in historic preservation and archaeology:
    - Examples of projects where used
        - Specific requirements
        - Lessons learned
    - Ideas for future projects
        - Specific requirements
        - Further research
2. Document 3D Geomatics usage priorities based on input from workgroup members:
    - Evaluate currents uses, needs, and short comings
    - Quality Levels (QLs) that fit Cultural Resource needs
    - Detail future use cases based on QLs
3. Present usage priority document to 3D Geomatics Committee for implementation consideration.

Roles and responsibilities:

Members will be asked to devote only a few hours per quarter for meeting time & preparation and possibly further research.

As chair of workgroup, Jim Krumrie will be responsible for the usage priority document created in the section above but will request help from other members.

The following people have shown interest in this workgroup:

Name	Email	Organization
Eigenberger, Erika	erika.eigenberger@merjent.com	Merjent
Ferris, Kade	kade.ferris@redlakenation.org	Red Lake Nation THPO
Flynn, Pamela	pamela.flynn@merjent.com	Merjent
Foss, Jacob	Jacob.Foss@state.mn.us	MnDOT
Hoppe, Jill	jillhoppe@fdlrez.com	Fond du Lac THPO
Jackson, Franky	franky.jackson@piic.org	Prairie Island THPO
Jones, Maggie	maggie.jones@state.mn.us	MnDOT
Kaeding, Adam	AdamKaeding@106group.com	106 Group
Magner, Mike	mike.magner@state.mn.us	MnDNR
Maki, David	maki@archaeophysics.com	Archaeophysics
Martin, Teresa	teresa.martin@state.mn.us	MnDOT
Mather, David	David.Mather@state.mn.us	SHPO
Pnewski, Joseph	jpnewski@twopinesresource.com	Two Pines Resources
Pratt, Daniel	arch3llc@gmail.com	Arch3
Sandlund, Catherine	Catherine.Sandlund@state.mn.us	SHPO
Schmidt, Andrew	aschmidt@streamlineassociates.net	Streamline Associates
Tworzyanski, Jennifer	Jennifer.Tworzyanski@state.mn.us	OSA

Resources:

The wealth of knowledge and experience of the members of this workgroup is its greatest resource.

Committee/workgroup needs:

Request a SharePoint page be created under the Infrastructure Home page for workgroup collaboration and all members of the workgroup be given read/write access.

Dependencies and interrelationships:

This workgroup will work with the broader Infrastructure workgroup and others as needed to complete its mission.

Risks:

Like any volunteer organization the greatest risk is member apathy but given the level of initial interest this seems unlikely.

There may also be problems with software and hardware during the quarterly meetings or otherwise but these should be temporary at most.

Additional Comments:

Cultural Resources Subgroup Mission: To engage subject matter experts and interested stakeholders in the planning, acquisition, dissemination and use of 3D Geomatics data for Cultural Resource purposes in Minnesota.

Archiving Implementation Workgroup

Report date:
January 19, 2021

Prepared by:
Ryan Mattke, Workgroup Chair, matt0089@umn.edu

Meetings:
The workgroup met for the final time on December 18.

Meeting minutes are available here: http://www.mngeo.state.mn.us/workgroup/archiving/

Progress on work plan:

- Completion
    - Subgroups have drafted sections of what will be an overall Final Report
- Next steps
    - Final report will be presented at March GAC meeting
    - New group (Archiving Pilot Workgroup) will move the work forward in 2021

Additional comments:

Awards Committee

Work Plan date: January 20, 2021

Co-Chairs: Len Kne
Phil Nagel

Committee/workgroup Charter

Accomplishments from 2020

- Reviewed one nomination packet for the Governor's Commendation (did not recommend advancing for an award)

Work Plan for 2021

Planned activities and deliverables:

- On request, review nominations for commendation
- Develop promotional materials and outreach to solicit nominations for 2021
- Develop promotional materials to feature at the annual GIS/LIS Fall conference

Roles and responsibilities:

Name	Role
David Brandt	Represent metro counties in discussions
Len Kne	Represent educational institutions in discussions - Schedule and conduct meetings. Ensure notes are taken. Update team site with notes, recommendations and any changes to plan document
Andra Mathews	Represent State agencies in discussions
Phil Nagel	Represent private industry in discussions - Schedule and conduct meetings. Ensure notes are taken. Update team site with notes, recommendations and any changes to plan document
Cory Richter	Represent Metro cities in discussions
Ryan Stovern	Represent greater Minnesota counties in discussions

Resources:

- MNGeo resource pages for past recipients of the Governor's Commendation Award and nomination criteria

Committee/workgroup needs:

- Teleconference capabilities
- Representative from non-profit sector
- Representative not currently serving on the GAC
- Web-based committee collaboration workspace (SharePoint, Google Docs type software)

Dependencies and interrelationships:

- Communicating with MnGeo staff to receive current year nominations and to submit committee recommendations by the designated date in order to award the commendation at the annual GIS/LIS Fall conference.
- The committee will also work with the Outreach Committee to promote awareness of the award to encourage future nominations and to celebrate past recipients.

Risks:

Members of the committee may have to withdraw from discussion of applications due to direct involvement with the nominated project, or because they would benefit from the project receiving the award (i.e. being a member of an organization that was part of the project).

Additional Comments:

Date approved by the Geospatial Advisory Council:

Emergency Preparedness Committee

Work Plan Date: January 27, 2021

Chair: Steve Swazee, chair@mgacepc.org, 651-456-5411
Vice Chair: Randy Knippel, vchair@mgacepc.org, 952-891-7080

Link to Committee/workgroup Charter:
https://drive.google.com/file/d/1X2WjFojnD3yV5zsqDcaYJXGi4VSAQHab/view?usp=sharing

---

Accomplishments from 2020

Full Committee/Leadership Team

- Meetings:
  - Leadership Team: Conducted six Zoom meetings during 2020
  - Full committee: Conducted Zoom meetings on October 1, December 10. Two other in-person quarterly meetings were cancelled due to COVID
- Randy Knippel continued in role as EPC liaison to the Metropolitan Emergency Managers Association (MEMA) by attending association monthly meetings throughout 2020
- Substantially reworked EPC back office IT infrastructure: www.mgacepc.net
- Set up dedicated Zoom, YouTube, Twitter, Facebook, Eventbrite and Mail Chimp accounts for the EPC
- Created database of 20 plus GIS personnel willing to volunteer their services to the GIS community during disasters
- In collaboration with Gopher State One Call (http://www.gopherstateonecall.org/), created the Underground Utilities Mapping Project Team – see dedicated section below
- Developed a dedicated EPC public facing website: www.mgacepc.org
- Created the Minnesota Situational Awareness Viewer (MNSAV) for the public which displays a variety of response related data: https://mnsav.org

Critical Infrastructure Assessment (CIA) Project Team – *MGAC PRIORITY*

- Meetings: Conducted exploratory discussions throughout the year with a variety of knowledgeable individuals and met with HSEM about collaboration on November 11 and 29
- Created ArcGIS online proof of concept map for counties to validate their data: http://z.umn.edu/MNCI
- Presentation at Association of MN Emergency Managers, September 2020, cancelled due to COVID
- Commenced developmental efforts to enable publishing of comprehensive statewide dataset of fire and police to the Minnesota Geospatial Commons

Damage Assessment Data Standard (DADS) Project Team – *MGAC PRIORITY*

- Project Team three-year effort came to an end when its Damage Assessment Data Standard was unanimously approved by the MGAC on September 9

Geospatial Assistance (GA) Project Team - Forming

- Commenced steps to develop Project Team charter and work plan for implementation 1st quarter 2021

Situational Awareness Sharing Initiative (SASI) Project Team - Forming

- Commenced steps to rework previous charter and work plan (2016) and reactivate Project Team for activities starting 1st quarter 2021

Underground Utilities Mapping (UUM) Project Team – *MGAC PRIORITY*

- Meetings:
  - Leadership Team: Conducted a total of six Zoom meetings during 2020
  - Full committee: Conducted four Zoom meetings on August 6, September 17, October 29, December 17
- Charter and work plan were approved by Project Team during the September 17 meeting and approved by EPC Leadership Team on September 20
- Achieved all work plan goals for first six months through activities of 35 individuals:
  - Created the administrative structure and tools needed to support team efforts
  - Established and executed on monthly plan of regular Project Team meetings
  - Developed four sub-teams with specific areas of focus, leadership and respective project assignments

U.S. National Grid (USNG) Project Team – *MGAC PRIORITY*

- Meetings - Continued to serve as leadership of the national USNG Implementation Work Group (USNGIWG) to collaborate with individuals across the nation interested in implementing the USNG coordinate system in their communities (https://sites.google.com/a/sharedgeo.org/usng-iwg/). Conducted four quarterly online meetings: January 22, April 22, July 22, October 28
- Presentations/Outreach delivered
  - Apr 17 - Iowa Public Television
  - May 7 - Minnesota chapter of the Society of Broadcast Engineers
  - September 24 - American Trails webinar
  - October 5 - Illinois GIS Association Annual Conference
- Presentations/Outreach scheduled
  - February 15 - Wisconsin Land Information Association Annual Conference, 3-hour workshop
  - February 19 - Wisconsin Land Information Association Annual Conference, two, 1-hour presentations
- Completed updated of USNG 10K maps for Minnesota and delivered same on MNSAV
- Worked with MN DNR to integrate USNG 10K ESRI REST services/OGC WFS services into their products, and made same available through the EPC MNSAV application (See bottom of this web page: https://mgacepc.org/mnsav/)

Work Plan for 2021

Planned Activities and Deliverables:

Full Committee/Leadership Team

- Conduct at least three meetings of the full committee during 2021
- Conduct at least four meetings of the leadership team (Chair, Co-chair, and Project Team chairs)
- Continue efforts to cleanup committee's online presence and bring efficiency to its IT infrastructure
- Randy Knippel to serve as EPC liaison to the Metropolitan Emergency Managers Association (MEMA) by attending that association's monthly meetings

Critical Infrastructure Assessment (CIA) Project Team – *MGAC PRIORITY*

- Conduct at least three meetings of the Project Team during 2021
- Develop updated data model (prioritizing fire and police) based on the previous standards identified in Minnesota Structures Collaborative project
- Publish comprehensive statewide dataset of fire and police to the Minnesota Geospatial Commons
- Present on this project at the Association of MN Emergency Managers in September 2021

Geospatial Assistance (GA) Project Team

- Conduct at least three meetings of the Project Team during 2021
- Complete charter and work plan and receive approval from the EPC Leadership Team
- Develop first draft of procedures to help emergency managers understand steps for requesting aerial imagery and/or GIS support from federal, state and private assets

Situational Awareness Sharing Initiative (SASI) Project Team

- Conduct at least three meetings of the Project Team during 2021
- Complete rework of previous SASI charter and work plan and receive approval from the EPC Leadership Team
- Assume responsibility for continued development and maintenance of the Minnesota Situational Awareness Viewer (MNSAV – see: https://www.mnsav.org)
- Begin close coordination with the Critical Infrastructure Assessment Project Team to plan for eventual hosting of that Project Team's data efforts on MNSAV.

Underground Utilities Mapping (UUM) Project Team – *MGAC PRIORITY*

- Conduct at least eight monthly meetings of the Project Team during 2021
- Complete at least one "low hanging fruit" action item by each of the Project Team's four sub-groups
- Deliver at least one presentation about overall team efforts at an established community appropriate conference (or webinar)
- Publish at least one article about the Project Team in a publication of importance to the industry

U.S. National Grid (USNG) Project Team – *MGAC PRIORITY*

- Conduct at least quarterly meetings of the USNG Implementation Work Group during 2021
- Develop documentation for production of 10K maps
- Refine, update, and publish Minnesota statewide 1K maps
- Work with SharedGeo to complete a new USNG mapbook publishing application on USNG Center (www.usngcenter.org)
- Develop an introductory USNG video
- Conduct workshops and presentations where appropriate

Roles and Responsibilities:

Role	Name	Affiliation
Chair - EPC	Steve Swazee	Executive Director, SharedGeo
Vice Chair - EPC	Randy Knippel	GIS Manager, Dakota County
Chair - Critical Infrastructure Assessment (CIA) Project Team	Stacey Stark	Associate Director, U Spatial
Chair - Geospatial Assistance (GA) Project Team	Brian Huberty	Retired remote-sensing expert
Chair - Situational Awareness Sharing Initiative (SASI) Project Team	Nicole Helgeson	Developer, SharedGeo
Chair - Underground Utilities Mapping (UUM) Project Team	Barb Cederberg	COO, Gopher State One Call
Chair - U.S. National Grid (USNG) Project Team	Randy Knippel	GIS Manager, Dakota County

- Project Teams vary greatly in size but must have a minimum of five participants to be approved by the EPC Leadership Team. It is anticipated that in 2021, more than 50 individuals will be participating in EPC Project Team activities.

Resources:

- Committee members primarily rely on resources available to them through their employer, with their employer's endorsement:
  - Time commitment
  - Software and hardware
  - Expenses
- EPC's dedicated Zoom, YouTube, Twitter, Facebook, Eventbrite and Mail Chimp accounts
- EPC's developed Google based online collaborative system for supporting back office administrative functions
- SharedGeo funding and resources

Committee/workgroup needs:

- Through access to the above described resources, it is believed the EPC has all items necessary to successfully commence and complete operations as envisioned during this calendar year

Dependencies and Interrelationships:

- Other MGAC committees/work groups that depend on this committee's success or vice versa: None known
- Describe any relationships that exist with other committees/work groups: None known
- Other: Through the legislation enacting the MGAC, this Committee occasionally requires the following support from MnGeo:
  - Administrative assistance
  - Hosting of EPC products
  - Promotion of EPC efforts with the state's interagency

Risks:

- List risks which could impede the Project Team's ability to successfully accomplish its goals.
    - Volunteer support and engagement erodes
    - Stakeholders refuse to support efforts
- List steps which can be taken to mitigate the risks?
    - Ensure the EPC's Project Teams have solid leadership, as well as access to responsive and effective administrative support
    - Use outreach to highlight the value of Project Team efforts to stakeholders, team employers/participants, Minnesota government and the public

Additional Comments:

- Although not an official Project Team, the 20 plus individuals who have volunteered to be available to assist other GIS personnel during disasters have recently decided to review and update the Geospatial Emergency Management Specialist (GEMS) training program previously created by the EPC's Education Work Group in 2010. This effort is expected to be completed in 2021.
- In 2020, in addition to considerable manhours, SharedGeo donated $500 to the EPC to pay for direct administrative costs (Zoom, etc.)
- Chair Swazee firmly believes extent of EPC activities clearly demonstrates the need for a dedicated, full-time support employee assigned to MnGeo. This concept was previously discussed during creation of legislation which brought into existence the MGAC and MnGeo. The return on investment through use of GIS as a force multiplier in the Emergency Service Sector to save lives and reduce suffering in Minnesota would far exceed the additional expenditure required to create the position.

Date Approved by the Minnesota Geospatial Advisory Council:

Updated Emergency Preparedness Committee Charter

All changes made were essentially housekeeping/administrative changes for increased clarity and currentness.

Charter: Emergency Preparedness Committee

Version 7

January 27, 2021

The Mission of the Emergency Preparedness Committee (EPC) is to:

- increase awareness in the geospatial community and Emergency Services Sector (ESS) about opportunities to leverage geospatial technology to enhance emergency management and response, and
- facilitate the creation of relationships within and between the geospatial and ESS communities before emergencies happen, so that the GIS community is better positioned to make a positive impact on emergency situations, and the ESS is better positioned to utilize that resource.

Objectives and Deliverables:

- Create and maintain an organizational structure and process that engages committee members to initiate and complete projects in support of the committee's mission.
- Annually conduct a minimum of three (3) general meetings which provide opportunities for professional development and networking with an emergency preparedness focus. Meetings are open to members, invited guests, and the general public. These may be conducted virtually, in-person, or a combination of the two.
- Identify key stakeholders in the ESS community and develop strategic alliances with them.
- Develop and promote geospatial standards that support emergency management and response.
- Develop educational materials that support awareness and use of geospatial technology in emergency situations.

Resource Requirements and Timing: Resources are volunteers, relying on additional resources available to them personally, or through the support of their respective organizations. Project Teams of the EPC will assess their capabilities to accomplish their objectives and either adjust their objectives to fit their collective capabilities or pursue additional volunteers with the required resources.

Anticipated Participants and Their Roles and Responsibilities: The EPC Leadership Team is typically five to seven (5-7) people who are the chairs of currently active Project Teams and the Chair and Vice Chair of the EPC. Project Teams form as projects are defined by enlisting volunteers from the EPC membership and other parties who express interest in a project. Leadership Team members, active Project Team members, and others involved in EPC supporting activities are considered active members of the EPC. All other individuals on the rolls of the EPC are considered interested parties, individuals who may become active members at any time through increased involvement.

The Leadership Team develops an annual work plan, organizes meetings and identifies projects based on four major themes: Data, Education, Outreach, and Response.

Projects are established with clear objectives and enough volunteer participants to form a "Project Team" to complete it. The Project Team concept is generally defined as:

- One or more subject matter experts assigned to investigate or solve a specific issue, supplemented by at least four other volunteers,
- Individuals are selected or recruited for their experience, energy, and imagination, and
- There is a focus on specific objective or scope of work.

Proposed projects must meet the following criteria:

- Limited scope – projects will be managed based on incremental steps as defined by their work plan,
- Time bound – project anticipated length will be set by its charter, and if necessary, updated annually by work plan,
- Expertise – projects will require a subject matter expert champion.

To commence a Project Team, initial chairs will complete a charter and work plan using the EPC report templates (https://sites.google.com/site/mgacepcnet/admin-standards). These will be submitted to the EPC Leadership Team for evaluation. Projects will be evaluated using a project prioritization matrix which verifies minimum criteria is met and uses additional criteria to determine relative value among EPC projects. Once approved, a Project Team is formed, and the chair is then responsible for preparing any additional required documents using the EPC report templates found at the above link.

Prepared by:

Stephen D. Swazee Sr.
chair@mgacepc.org
651-456-5411

Date approved by the Minnesota Geospatial Advisory Council (GAC):

Version 6 approved by the GAC: March 22, 2017
Version 7 approved by the GAC: approval requested at 3/3/2021 GAC meeting

Image Service Sustainability

Work Plan date: January 2021

Chair and vice chair:
Matt McGuire (matt.mcguire@metc.state.mn.us)
Mike Dolbow (Mike.dolbow@state.mn.us)

Committee/workgroup Charter

Accomplishments from 2020

None

Work Plan for 2021

Planned activities and deliverables:

- Layer Status Change Meeting (goal: by Jan 30, 2021)
- Prioritized Technical Recommendations to MnGeo (goal: by Jan 30th, 2021)
- Composite Layer Definition Change Recommendation to MnGeo (goal: Feb 28, 2021)
- Inform GAC and Archiving Committee of status changes (goal: by Feb 28, 2021)
- Propose (internal to committee) New Layer protocol in Image Server Sustainability Plan (goal: no date set)
- Propose (internal to committee) a Technical Service Recommendation (goal: no date set)

Roles and responsibilities:

Name	Role
Matt McGuire	Schedule and conduct meetings. Update team site with notes, recommendations and any changes to plan document. Communicate layer status changes to GAC
Mike Dolbow	Ensure notes are taken.
Alison Slaats	Represent MnGeo (Service Owner). Communicate layers status changes to MnGeo and communicate from MnGeo to the committee as necessary.
Brent Lund	Technical Liaison. Provide service metrics used as basis for status change discussion quarterly or yearly.
Jennifer Corcoran	Represent Forestry needs in discussions
Nancy Read (MMCD)	Represent Metro Regional Agency needs
Dennis Kepler	Represent Greater MN in discussions
Ryan Mattke	Represent the University of Minnesota, research/library needs and the GAC's Archiving Implementation Workgroup in discussions
Chris Mavis	Represent Surveying needs in discussions
Joe Sapletal	Represent County GIS needs in discussions

Resources:

- MnGeo Image Server usage layer list and annual layer usage metrics.
- MnGeo Image Server Sustainability Plan document

Committee/workgroup needs:

Teleconference capabilities

Dependencies and interrelationships:

Communicate with GAC Archiving Committee. If an adequate and agreed-upon "archiving method" does not present itself before layers are to be removed from the service, that may prove to be a blocker for this Committee's work.

Risks:

Possibility of group not agreeing on any layers to remove. Mitigation approach is to rewrite document as needed to ensure MnGeo has the power and consent to remove low usage layers as necessary to sustain the service.

Risk – members of the broader community may insist on all layers existing forever.

Additional Comments:

- There will be a consistent need to communicate the goals of this Committee and what precisely potential status changes mean. Otherwise stakeholders will need to be continually educated about what it means to remove a layer from the service, because many will interpret that as "being deleted forever".

Date approved by the Geospatial Advisory Council:

Outreach Committee

Work Plan date:
January 18, 2021

Chair
Nick Meyers, Chair
Esri
612-597-7027
nmeyers@esri.com

Link to committee/workgroup charter:
http://www.mngeo.state.mn.us/committee/outreach/Outreach_Committee_charter.pdf

Accomplishments from 2020

- Set promotion of free and open data as our priority, based on GAC number one priority.
- Worked with other GAC Committees to increase collaboration and coordination to promote outreach efforts.
- Continued collecting testimonials on the importance of GIS and free and open data from GIS experts and policy makers.
- Established relationship with League of MN Cities to help disseminate the importance of open data to all the Cities within MN.
    - Article Published Spring of 2020 and included element for COVID and digital transformation
- Partnering with GIS/LIS Consortium to setup an ArcGIS Hub as a centralize portal for sharing and disseminating information.
    - ArcGIS Hub final draft will be available the end of Q1 2021 to share with GAC and GIS/LIS Boards

Work Plan for 2021

Planned activities and deliverables:

- Establish ArcGIS Hub for centralize portal with GIS/LIS Consortium
- Work with other GAC Committees to increase collaboration and coordination to promote outreach efforts
- Look for presentation opportunities to promote free and open data
    - League of Minnesota Cities article
    - Association of Minnesota Counties
- Look for newsletters, blogs, and other forms of media to promote free and open data
- Identify ways to partner with Hackathon events
- Continue to collect success stories and share with stakeholders
- Develop branding for the resources we create, create one-page documents on the value of GIS and free and open data for stakeholder use

Roles and responsibilities:

Active Committee Members

- Nick Meyers (Chair)
- Andrew King-Scribbins
- David Kramar
- Brad Anderson

- Victoria Reinhardt
- Cory Richter
- Gerry Sjerven

Resources:

- Equipment - none
- Software - ArcGIS Hub through GIS/LIS – Will be used as a destination for GIS outreach, success stories, and information. No cost for the GAC
- Data - none
- Other – Additional Committee Members

Committee/workgroup needs:

- The Committee will be working with GIS/LIS staff to identify an appropriate centralized portal for the committee and other stakeholder.
- A co-chair

Dependencies and interrelationships:

We expect this year to increase our working relationships with the other GAC committees, GIS/LIS Consortium, and the GIS community stakeholders.

Risks:

With membership down to about 3-4 members there is risk that key objectives will not be met.

Additional Comments:

The Outreach Committee needs a renewed sense of purpose and new members to function beyond basic outreach about open data. The ArcGIS Hub page will be a great way to extend the GAC's outreach to include GIS/LIS reach. Tools built into the Hub will allow self service ways for the GIS community to upload success stories, share open data sites, and integrate social media platforms (twitter, youtube, etc.) into the page as well.

Date approved by the Geospatial Advisory Council

Parcels and Land Records Committee

Work Plan date:
01/19/2021

Chair:
Preston Dowell
Chair, Parcels and Land
Records
Deputy County Surveyor
St. Louis County
218-742-9824

Link to committee/workgroup charter:

https://www.mngeo.state.mn.us/committee/cadastral/parcels_and_land_records_committee_charter.pdf

Accomplishments from 2020

Continued outreach on boundary alignment. MnGEO submitted Land Survey Coordinator Position in budget request for 2021.

Work Plan for 2021

Planned activities and deliverables:
Finalize boundary alignment project summary and project plan. Continue outreach on why boundary alignment is necessary and how we plan on achieving it *(GAC Priority #3)*.

Begin development of a PLSS inventory for the State of Minnesota. Begin development of a PLSS corner standard. Build awareness for the need of a PLSS remonumentation program *(GAC Priority #14)*

Work with outreach committee to promote data authorities to continue and/or start sharing their parcel data *(GAC Priority #2)*.

Support effort by MnGEO to implement Land Survey Coordinator Position at MnGEO *(GAC Priority #2,#3,#14).*

Develop subcommittees to distribute workload.

Roles and responsibilities:
The committee will be working closely with the surveying community and its members. Roles and responsibilities of committee members will be defined as the phases of the project plans are developed and implemented.

Current Member List:

Member Name	Affiliation	Committee Role
Curtis Carlson	MNIT	
Mike Dolbow	MNIT	
Preston Dowell	St Louis County	PLRC Chair
Sam Gibson	Washington County	
Lisa Hanni	Goodhue County	
Peter Jenkins	MnDOT	
Matt Koukol	Ramsey County	
Geoffrey Maas	MetroGIS	
Chad Martini	Stearns County	
Robin Mathews	Pine County	
Chris Mavis	Hennpin County	
George Meyer	Otter Tail County	Past Chair
Bart Richardson	MnDNR	
Dan Ross	MnGeo	Project Champion
Curt Schley	MSA Professional Services	
Alison Slaats	MnGEO	
Mark Sloan	Clay County	
Jeff Storlie	St. Louis County	
Ryan Stovern	St. Louis County	
Kevin Sutherland	MN DOT	
Brandon Tourtelotte	Pro-West	
Pat Veraguth	Douglas County	
Mark Volz	Lyon County	
Jen Ward	Pro-West	
Hal Watson	MnDNR	

Resources:
At this time the resources needed are time on the behalf of the committee members, and interested stakeholders, along with locations for meeting locations and conference calls. These resources will be provided in kind by committee members.

The PLSS inventory mapping application will need to be developed, hosted and maintained. The committee will provide conceptual framework for the application and data schema. The development, hosting and maintenance ideally this would be taken on by MnGEO. This would be a long term commitment for hosting and maintaining the

data.

Dependencies and interrelationships:
Continued interaction with the Standards Committee will be needed to provide feedback as questions and/or comments are received on the parcel data standard. Outreach and communication will also take an important role in promoting use and participation in the standards data sharing. We will need to collaborate with the outreach committee to promote and expand statewide publicly available parcel data.

Risks:
The primary risk of both parcel data sharing and an eventual PLSS data sharing will be resistance by the data authorities. Mitigation continues to be outreach, and promotion of the benefits of data sharing.

The available time of PLRC members will also be a risk in developing and maintaining the PLSS status map. This project will take significant effort to build and maintain. The implementation of a Survey Coordinator position would also help mitigate the volunteer time needed for the PLSS status map as well as other responsibilities defined in the PLRC projects.

Additional Comments:
None

Date approved by the Geospatial Advisory Council:

Standards Committee

Work Plan date:	January 19, 2021
Chair and Vice Chair:	Chair, Mark Kotz Metropolitan Council Vice Chair, Curt Carlson MnGeo
Link to charter:	https://www.mngeo.state.mn.us/committee/standards/

Accomplishments from 2020

- **Committee Leadership**
  - Curt Carlson stepped up to be Vice Chair of the Committee
- **Damage Assessment Data Standard**
  - Completed public review period, made adjustments and achieved GAC approval of Standard
- **Road Centerline Data Standard**
  - Worked closely with MnGeo staff to review and modify standard to ensure its compatibility with NG9-1-1. Modifications approved by GAC.
- **Address Point Data Standard**
  - Worked closely with MnGeo staff to review and modify standard to ensure its compatibility with NG9-1-1. Modifications approved by GAC.
- **Trails and Bikeways Data Standard**
  - Completed first public review period of the standard.
- **Standards Logistics**
  - Revised the structure of standards document to reduce the maintenance of redundant information.
  - Improved the functionality of domain and lookup table spreadsheets by adding navigation from the list of domains to each domain table tab and back to the main list.

Work Plan for 2021

Planned activities and deliverables for 2021:

- Work with stakeholder groups to modify remaining original Governor's Council on Geographic Information (GCGI) standards to the GAC format and have adopted by the GAC. This will involve review and possibly changes to these standards.
  - Minnesota Geographic Metadata Guidelines
  - Codes for Identifying Reaches and Watercourses
  - Codes for Identifying Watersheds
  - Codes for Identifying Lakes and Wetland Basins
- Complete the Trails and Bikeways Data Standard for approval by the GAC
- Facilitate the creation of usage guides for key GAC standards
- If ready in 2021, work with stakeholders on an emergency service provider boundary standard
- If ready in 2021, work with stakeholders on a stormwater data standard

Roles and responsibilities:
The Standards Committee's primary responsibility is to facilitate and manage a transparent and inclusive process by which geospatial standards can be proposed, discussed, refined, adopted, and revised for the benefit of the broad Minnesota geospatial community.

Resources:
The primary resources needed by the Committee are contributions of members' time and expertise.
The Committee requires the use of MnGeo staff time for updating and maintaining its web presence

Committee needs:
- Continued commitment of committee leaders to provide key direction, support and work
- Committee member active participation
- Support for creation and maintenance of standard domains and standard validation tools (Met Council staff currently providing this support)
- MnGeo hosting of GAC website and committee file sharing site
- Organization and leadership of stakeholder groups who are creating proposed standards
- Individual stakeholders willing to provide comment and feedback on standards

Dependencies and interrelationships.
The Standards Committee has been committed to maintaining solid relationships with other committees, work groups, stakeholder groups and organizations. The Standards Committee is dependent on stakeholder interests with a business need to develop and advance candidate standards which aim to satisfy those needs.

Risks:
Potential risks include burnout of key leaders or inability of leaders to commit the significant time required for this committee to be successful, reduction in interest and participation of members, meeting fatigue, lack of clarity or understanding about the GAC standards process

Date approved by the Geospatial Advisory Council:
Submitted for approval at 3/3/2021 GAC meeting

Agenda Item 4. GAC accomplishments and work plan review and approval

GAC Work Plan

Work Plan date: 1/19/21

Chair and vice chair: Mark Kotz, Cory Richter

Link to GAC Mission and Guiding Principles:

Link to GAC Committees and Workgroups:

Accomplishments from 2020

- Approved a Damage Assessment Data Standard
- Approved changes to Address Point Data Standard to better align with NG9-1-1 needs
- Approved changes to Road Centerline Data Standard to better align with NG9-1-1 needs
- Conducted the annual Minnesota Geospatial Priorities Survey and prioritization process
- Approved the Geospatial Commons Advisory Committee as a GAC committee and approved its charter (Note: this committee has not formed)
- See committees and workgroups page for their annual reports with 2020 accomplishments

Work Plan for 2021

Planned activities and deliverables:

The GAC meets on a quarterly basis. The Leadership Team meets between GAC meetings. The bulk of the work is done by the committees and workgroups of the GAC. Key goals of the GAC itself for 2021 include:

- Approve a GAC Trails and Bikeways Data Standard
- Ratify remaining older standards approved by the Governor's Council on Geographic Information
- Promote and facilitate progress on the statewide geospatial projects and initiatives identified by the GAC
- Begin an effort to measure progress on GAC priorities
- Continue to increase outreach to the geospatial and related communities. This will be done both through the formal efforts of the Outreach Committee and less formally by GAC members further reaching out to and coordinating with their sectors.
- Develop a YouTube channel with MnGeo to share GAC committee content
- Conduct an annual geospatial community priorities survey
- See committees and workgroups page for their annual reports with 2021 planned activities

2021 Priorities

Rank	Project or Initiative Name
1	All public geospatial data in MN to be free and open to everyone
2	Statewide publicly available parcel data
3	Updated and aligned boundary data from authoritative sources
4	Statewide publicly available road centerline data
5	Statewide publicly available address points data
6	A project team to develop geospatial data sharing methodologies to support the state's underground utilities community
7	Establish a workflow for developing, sharing and maintaining statewide, publicly available, authoritative geospatial data for primary critical infrastructure themes
8	New lidar data acquisition across Minnesota for use in developing new derived products guided by committee developed standards
9	Improvements to the MnGeo Image Service, such as Web Mercator support, tiling, and complementary options such as "composite of latest leaf off imagery", and downloading options
10	The implementation of an archive for Minnesota geospatial data
11	Development of a culvert data standard for data sharing across the geospatial and infrastructure asset management communities and to support development of a future statewide culvert inventory
12	Maps, procedures, templates and other materials to help all levels of government implement the U.S. National Grid
13	Accurate hydro-DEMs (hDEM) that serve modern flood modeling and hydro-terrain analysis tools, and the development of more accurate watercourses and watersheds
14	Remonumentation of all section corners in the state
15	A trails data standard
16	Outreach and education to show success stories for geospatial technology
17	A Geospatial Commons advisory group to provide advice, guidance and strategic direction for the Commons from the broad perspective of the MN geospatial data stakeholder community
18	A forum (committee, workgroup, etc.) for MN geospatial professionals to discuss and share best practices, standards, lessons learned, etc. for implementing and supporting the geospatial components of NG9-1-1
19	Statewide and regional (e.g. Twin Cities metro) publicly available basemap services
20	A parks data standard
21	A project team to develop a long-term, statewide strategy for optical, lidar, radar, aerial and satellite imagery
22	Dynamical Downscaled Climate Information (high resolution climate projection data)
23	Best practices based on Criminal Justice Information Services (CJIS)/Bureau of Criminal Apprehension (BCA) guidance for connecting law enforcement data to GIS systems for analysis and sharing
24	Statewide, publicly available, authoritative geospatial data for businesses with state-required licenses, permits or registrations
25	Best practices/guidelines for sharing snow emergency parking restrictions between cities
26	An inventory and assessment of Minnesota's geospatial data assets
27	Summary data by region for property crimes in an accessible GIS format
28	Data standard for street parking restrictions

Roles and responsibilities:

Chair: Mark Kotz
Vice Chair: Cory Richter
MnGeo Ex-Officio member/CGIO: Dan Ross
Leadership Team: (acts as an executive group to develop agendas, identify strategic items, etc.)
Members: Jeff Bloomquist, Dave Brandt, Len Kne, Mark Kotz, Chris Mavis, Victoria Reinhardt, Cory Richter, Dan Ross, Ryan Stovern

Resources:
No significant resource commitments for the GAC beyond the time/talent of members.

Council needs:
The GAC relies on MnGeo staff for scheduling and hosting meetings, creating minutes and other administrative functions.

Dependencies and interrelationships:
Committees and Workgroups: The GAC is completely dependent upon the committees and workgroups that do most of the actual work of the GAC. The GAC must also stay in touch with a wide group of stakeholders in the geospatial community to be able to represent their interests. Most GAC members represent a specific sector, though a few are at-large members.

Risks:
A change in legislation or lack of MnGeo support could negatively affect the ability for the GAC to accomplish goals as could inability of GAC leaders to commit the significant time required for this council to be successful.

Additional Comments:

Date approved by the Geospatial Advisory Council: Submitted for approval at 3/3/21 GAC meeting.

Agenda Item 9. Archiving Implementation Workgroup report and Archiving Pilot Workgroup approval

Minnesota Geospatial Advisory Council - Archiving Implementation Workgroup Final Report

Introduction

The Minnesota Geospatial Advisory Council (GAC) partners with a cross-section of organizations that include city, county, regional, state, federal and tribal governments as well as education, business and nonprofit sectors, and other stakeholder groups that benefit from geospatial technology to further the coordination among the Minnesota geospatial community.

Data archiving of geospatial information encompasses a wide range of considerations and practices for preserving public geospatial records and historical materials. In 2018, the GAC authorized the creation of an Archiving Workgroup with the purpose of defining the guidelines, best practices, and procedures for archiving geospatial data in Minnesota so that a wealth of valuable geospatial data can be preserved and available for future use. The Archiving Workgroup aimed to engage with data stewards and stakeholders at various levels of government, academic institutions, private sector interests, non-profit organizations and citizens of the state, and to collaborate with the Minnesota Geospatial Information Office (MnGeo) to propose datasets and methods for geospatial data archiving. In August of 2019, the Archiving Workgroup submitted its report, which included a recommendation for an Archiving Implementation Workgroup. Over the course of 2020, this group worked to define recommendations for Minnesota's future geospatial data archive. The explorations and recommendations of the Archiving Implementation Workgroup both complement and extend the reports and recommendations of the Archiving Workgroup. The Archiving Workgroup operated on a higher, overview level of planning, which the Archiving Implementation Workgroup was designed to take a deeper dive into specific aspects of developing a geospatial archive in Minnesota.

The work plan was divided into five subgroups that each contributed to this report:

- Outreach & Education - build support for archiving geospatial data and engage with data creators at various levels of government, academic institutions, and other relevant stakeholders
- Program Design - recommend governance, staffing, and a coordination strategy
- Technology- determine technical infrastructure needs, file types, and workflows
- Pilot Exploration - develop a pilot project for archiving geospatial data
- Funding - explore funding strategies and develop recommendations

Summary of Recommendations

Program Design

The program design recommendations include a governance framework, staffing needs, and a coordination strategy for the archive. The **governance framework** consists of a GAC Archiving Committee, an Operations Group, and a Working Team. **Staffing needs** will be ongoing and include at least one full-time Archivist. Recommendations also include at least one Archival Assistant and a software developer – full time at first, part-time after launch. The **coordination strategy** includes an outline of the benefits for the Minnesota geospatial community, as well as specific roles for Data Providers, Data Consumers, and Project Sponsors.

Technology

The technology recommendations include details on file formats, metadata, and infrastructure. Regarding **file formats**, the archive will store the original formats, but may also choose to create and store alternative formats. The **metadata** necessary for archiving includes descriptive metadata, structural & technical metadata, and administrative metadata. In the area of **infrastructure**, there are recommendations for storage, discovery platform, and exit strategy. For storage, the archive will need to balance the needs of vector data, raster data, and LiDAR data with regards to storage space, as well as preservation and access copies. The discovery platform will likely be similar to many existing data portals. However, due to the nature of the resources in the archive, the interface may need additional functionality not typically available in other portals, such as temporal searching and filtering, a schema for defining complex item relations, the ability to parse large datasets, disclaimers about the nature of historical data, and digital object identifiers for data citations and long-term access. Consideration was also given to the need for a detailed exit strategy, as technology eventually needs to change and migrate.

Workflows

A key aspect of the archive implementation will be establishing workflows for acquiring archival data. Building on the previous work outlined in the Archiving Strategy Report, the group devised two paths for adding geospatial data to the archive: one path for **data ingested from the Commons** and another path for **items added directly from data providers**. All Commons data will by default be eligible for archiving and will be added to the archive on an annual basis or more frequently as deemed by the Archivist or data provider. Items added directly from data providers would include data that an organization stores locally on internal servers or physical media, as well as data from counties, cities, and other organizations that distribute resources on their own portals instead of the Commons. This data will receive curatorial review before being accepted, and the Archivist will work with the data provider to prepare files for consumption. Although this method will require more manual processing, it may ultimately serve to facilitate the ability for new data providers to contribute to the Commons. The workflow recommendations also note that the archive system will require continual administration and

management. These **internal preservation system activities** include data management practices, fixity checks, regular backups, accessibility considerations, and systems reviews.

Funding

With regards to a **funding strategy**, the recommendation is to pursue a legislative appropriation while also exploring the potential for grant funding during the implementation phase. If it is determined that the archive should be hosted at the University of Minnesota, then the leadership in the Libraries and Office of Vice President for Research will need to be engaged in order to get their support for a funding request.

Next Steps

1. Create an **Archiving Pilot Workgroup** to:
    a. Evaluate and test a range of potential archive technologies
    b. Create a proof of concept with a sample set of data
    c. Continue to perform community outreach
2. Continue to pursue **funding strategies** in order to build the foundation for a funding ask, likely in the 2023 legislative session.

LINK TO FULL REPORT

Archiving Pilot Workgroup - Charter

Mission statement:

Evaluate and test a range of potential archive technologies, create a proof of concept with sample sets of data, and continue to perform community outreach in order to build on the work of the Archiving Implementation Workgroup and the Archiving Workgroup.

Objectives and Deliverables:

Objectives

- Pilot Project
    - Evaluate and test potential archive technologies
    - Create a proof of concept with pilot data sets in a repository
- Outreach & Education
    - Send appropriate communications in order to:
    - continue to build support for the archiving effort within these communities:
        - MnGeo
        - Government agencies at all levels
        - Academic researchers
        - Students, teachers, historians, etc. through MNHS Library
        - All users of historic geospatial data
        - Higher Education
        - Non-profit organizations
        - Private sector
        - Tribal nations

Deliverables

- Technology recommendations
- Ongoing Outreach & Education plan
- Funding recommendations
- Report
- Present at 2021 MN GIS/LIS Conference

Resource requirements and timing:

People time
Monthly web meeting
Deliverables likely by August 2021

Anticipated participants and their roles and responsibilities:

Group Membership:

Pilot Subgroup:

- Sarah Barsness - Minnesota State Archives
- Melinda Kernik - University of Minnesota Libraries
- Carol Kussmann - University of Minnesota Libraries
- Karen Majewicz - University of Minnesota Libraries (Vice Chair)
- Ryan Mattke - University of Minnesota Libraries (Chair)
- Zeb Thomas - MNIT / Minnesota Department of Natural Resources

Outreach Subgroup:

- Andra Mathews - Minnesota Department of Transportation
- Ryan Mattke - University of Minnesota Libraries (Chair)
- Nancy Rader - MNIT / MnGeo

Resource People (consulted as needed):

- Jon Hoekenga - Met Council
- Randy Knippel - Dakota County
- Brent Lund - MNIT / MnGeo
- Jesse Reinhardt - Hennepin County

Stakeholders:

MnGeo
Government agencies at all levels
Minnesota State Archives (Minnesota Historical Society)
Researchers
All users of historic geospatial data
Higher Education
Non-profit organizations
Private sector

Prepared by:

Ryan Mattke
matt0089@umn.edu

Date approved by the Geospatial Advisory Council:

Archiving Pilot Workgroup - Work Plan

Work Plan date:

March 2021

Chair and vice chair:

Ryan Mattke - University of Minnesota Libraries (Chair)
Karen Majewicz - University of Minnesota Libraries (Vice Chair)

Link to committee/workgroup charter:

Archiving Pilot Workgroup Charter

Accomplishments from 2020

- Initial planning/formation

Work Plan for 2021

Planned activities and deliverables:

- Evaluate and test potential archive technologies (**May-October 2021**)
- Create a proof of concept with pilot data sets in a repository (**October 2021**)
- Draft outline of presentation for GIS/LIS (**May 2021**)
    - To be submitted in **May 2021**
- Engage with data creators at various levels of government, academic institutions, and relevant stakeholders (begin sending communications by **July 2020**)
- Report for GAC (**December 2021**)
- Present at 2021 GIS/LIS (**October 2021**)

Roles and responsibilities:

Pilot Subgroup:

- Sarah Barsness - Minnesota State Archives
- Melinda Kernik - University of Minnesota Libraries
- Carol Kussmann - University of Minnesota Libraries
- Karen Majewicz - University of Minnesota Libraries (Subgroup Lead)
- Ryan Mattke - University of Minnesota Libraries
- Zeb Thomas - MNIT / Minnesota Department of Natural Resources

Outreach Subgroup:

- Andra Mathews - Minnesota Department of Transportation
- Ryan Mattke - University of Minnesota Libraries (Subgroup Lead)
- Nancy Rader - MNIT / MnGeo

Resource People (consulted as needed):

- Jon Hoekenga - Met Council
- Randy Knippel - Dakota County
- Brent Lund - MNIT / MnGeo
- Jesse Reinhardt - Hennepin County

Estimated time commitment for participants is two to five hours per month (one hour per month for group meeting, one hour per month for group meeting preparation, and up to three hours per month to accomplish the work of the group). Some participants will be needed to work on specific one-time tasks that may be more time consuming.

Resources: N/A

Committee/workgroup needs: None at this time

Dependencies and interrelationships:

- Coordination with the Minnesota State Archives

Risks:

Risks include:

- Lack of interest or enthusiasm from data producers
- Technical requirements for archiving data
- Issues identifying funding

Risk mitigation will include:

- Outreach and communication about the goals of the workgroup
- Planning and collaboration with regards to technology
- Collaboration and communication in seeking funding

Additional Comments: None at this time

Date approved by the Geospatial Advisory Council:

Agenda Item 10. GAC Priority Projects and Initiatives

Rank	Project or Initiative Name	Status	Priority Owner	Champ
1	All public geospatial data in MN to be free and open to everyone	Active	Nick Meyer?	Many
2	Statewide publicly available parcel data	Active	Alison Slaats	Kotz
3	Updated and aligned boundary data from authoritative sources	Active	Preston Dowell	Ross
4	Statewide publicly available road centerline data	Active	MnGeo	Ross
5	Statewide publicly available address points data	Active	MnGeo	Ross
6	A project team to develop geospatial data sharing methodologies to support the state's underground utilities community	Active	Steve Swazee	Cederberg
7	Establish a workflow for developing, sharing and maintaining statewide, publicly available, authoritative geospatial data for primary critical infrastructure themes	Active	Stacey Stark	Swazee
8	New lidar data acquisition across Minnesota for use in developing new derived products guided by committee developed standards	Active	Gerry Sjerven	Ross
9	Improvements to the MnGeo Image Service, such as Web Mercator support, tiling, and complementary options such as "composite of latest leaf off imagery", and downloading options	Active	Alison Slaats	Ross
10	The implementation of an archive for Minnesota geospatial data	Active	Ryan Mattke	many
11	Development of a culvert data standard for data sharing across the geospatial and infrastructure asset management communities and to support development of a future statewide culvert inventory	Active	Rick Moore	Lord
12	Maps, procedures, templates and other materials to help all levels of government implement the U.S. National Grid	Active	Randy Knippel	Knippel
13	Accurate hydro-DEMs (hDEM) that serve modern flood modeling and hydro-terrain analysis tools, and the development of more accurate watercourses and watersheds	Active	Sean Vaughn	Many
14	Remonumentation of all section corners in the state	Active	Pat Veraguth	Ross
15	A trails data standard	Active	Sandra Yassin	
16	Outreach and education to show success stories for geospatial technology	Active		
17	A Geospatial Commons advisory group to provide advice, guidance and strategic direction for the Commons from the broad perspective of the MN geospatial data stakeholder community			

18	A forum (committee, workgroup, etc.) for MN geospatial professionals to discuss and share best practices, standards, lessons learned, etc. for implementing and supporting the geospatial components of NG9-1-1			
19	Statewide and regional (e.g. Twin Cities metro) publicly available basemap services			
20	A parks data standard			
21	A project team to develop a long-term, statewide strategy for optical, lidar, radar, aerial and satellite imagery			
22	Dynamical Downscaled Climate Information (high resolution climate projection data)			
23	Best practices based on Criminal Justice Information Services (CJIS)/Bureau of Criminal Apprehension (BCA) guidance for connecting law enforcement data to GIS systems for analysis and sharing			
24	Statewide, publicly available, authoritative geospatial data for businesses with state-required licenses, permits or registrations			
25	Best practices/guidelines for sharing snow emergency parking restrictions between cities			
26	An inventory and assessment of Minnesota's geospatial data assets			
27	Summary data by region for property crimes in an accessible GIS format			
28	Data standard for street parking restrictions			