



Minnesota Geospatial
Information Office

Annual Report

| 2021-2022

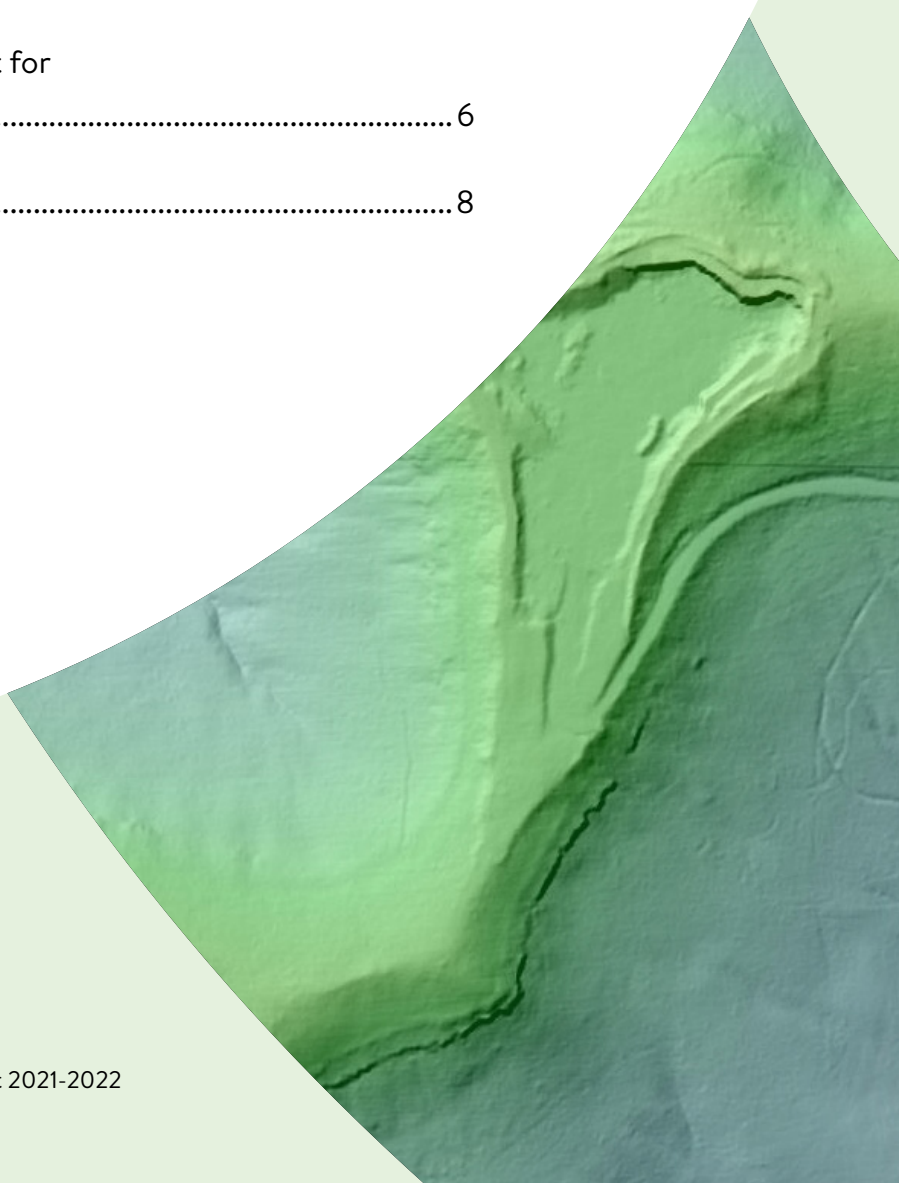


**MINNESOTA
IT SERVICES**

GEOSPATIAL INFORMATION OFFICE

Contents

About Minnesota’s Geospatial Information Office	1
2021-2022 by the numbers.....	1
Goals and Priorities	2
Improve Access to Statewide Foundational Spatial Data	2
Lead Coordination and Communication for Minnesota’s Spatial Community.....	4
Provide Outstanding Technical Support for Statewide Spatial Technologies	6
A Special Note	8



About Minnesota's Geospatial Information Office

The Minnesota Geospatial Information Office (MnGeo) is an office within Minnesota IT Services (MNIT), the state's Information Technology (IT) agency. MnGeo provides coordination, guidance, and leadership for the state's use of geographic information systems (GIS) and is led by the State of Minnesota's Chief Geospatial Information Officer, Alison Slaats.

GIS is a collection of tools to create, manage, map, and analyze location data. Simply, it is a system of record, visualization and analysis, and engagement using location-based technology and techniques. These are then used to better inform decision-makers and improve outcomes around public safety, transportation planning, access to health services, preservation of resources, and more.

The MnGeo team supports state agency and geospatial community efforts ranging from a public geospatial data-sharing website to providing testing and vaccination maps for the state's COVID-19 response.

2021-2022 by the numbers



25

Number of geospatial applications supported and hosted (unique across 2021 and 2022)



1,000+

Total resources on the Geospatial Commons (56 added during 2021; 52 added in 2022)



188,067,165

Number of hits on the geospatial image server (99,682,919 in 2021; 88,384,246 in 2022)



22

Number of agencies and boards supported by MnGeo (unique across 2021 and 2022)

Goals and Priorities

As part of Minnesota IT Services, the Geospatial Information Office aligns its work with Governor Walz's One Minnesota goals and MNIT's Strategic Plan, seeking to create an innovative digital government that works for all. MnGeo produces or improves geospatial services and systems that benefit the statewide community.

MnGeo priorities, as defined in the office's strategic plan, include:

1

Improve access to statewide foundational spatial data.

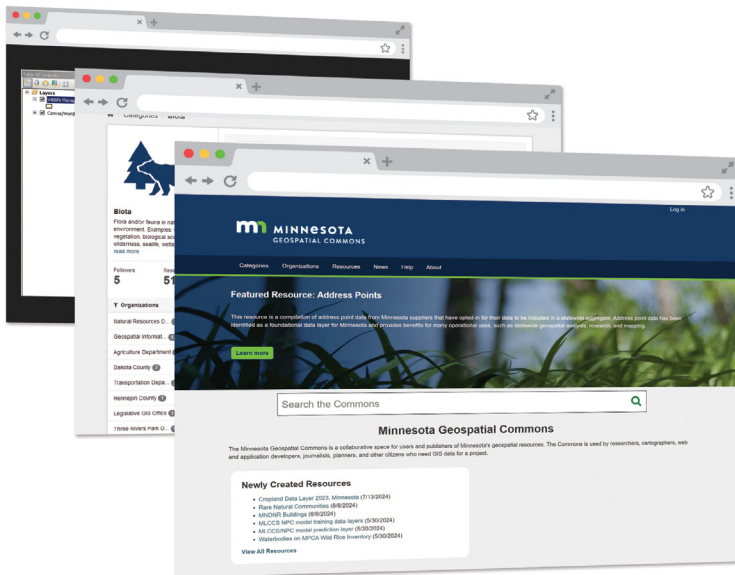
2

Lead coordination and communication for Minnesota's spatial community.

3

Provide outstanding technical support for statewide spatial technologies.

1 Improve Access to Statewide Foundational Spatial Data



Minnesota Geospatial Commons

MnGeo and a cross-agency team support the Minnesota Geospatial Commons, a website for users and publishers of Minnesota's geospatial resources. The Commons is used by researchers, cartographers, web and application developers, journalists, planners, and others who need GIS data for their projects. Currently the Commons has 45 publishers and includes over 1,000 geospatial resources, including downloadable data and online mapping applications. The 2021-2022 time period saw more than 100 new resources added and 2 additional Minnesota counties began publishing their data to the platform. The Geospatial Commons allows users of its resources to provide feedback such as identification of additional needs and suggestions for improvement.

Parcel data

Parcel data is identified as a foundational data layer for the state and has many operational uses in Minnesota. A few examples include managing forest fires, facilitating land exchanges, protecting the environment, and responding to emergencies. MnGeo continues to obtain parcel data from counties quarterly, convert the data to a common format, and aggregate it into a statewide dataset. The resulting data is shared with all state agencies and the University of Minnesota, thus reducing the number of individual data requests to counties from state agencies and boards.

In 2021, MnGeo worked with the Geospatial Advisory Council's Parcels and Land Records Committee to prepare the first public version of the aggregated parcel data for counties that opt-in. The dataset was published January 2022 and initially included 24 of 87 counties, and with counties opting-in included 42 counties by the end of the year, representing over 75% of Minnesota's parcels. The public-sharing of this data expands its availability to all sectors, maximizing its utility as a tool for improved decision-making.

Additionally, MnGeo shares a [parcel resources web page](#) that provides easy links to the opt-in parcel dataset, and links to county parcel web maps and data sources.

Aerial imagery

MnGeo continues to provide a popular set of web map image services for the Minnesota geospatial community. The two image services (geospatial and composite) are widely used and can be loaded into web maps and desktop GIS software.

- Geospatial Image Service provides access to air photos, hillshades, and scanned topographic maps. The image service includes 65 imagery datasets that cover different regions of the state as well as the entire state.
- The Composite Image Service is a single layer image service that automatically switches to an appropriate set of air photos or satellite imagery depending on the scale and extent of the view.



The number of views of these two services was:

99,682,919 in 2021

88,384,246 in 2022



2

Lead Coordination and Communication for Minnesota’s Spatial Community

Geospatial resources for the public

As the state’s primary source of geospatial information in Minnesota, MnGeo invites open inquiries from the public via phone and email and publicizes this on their website. As such, the office regularly receives requests from the public for spatial information. While many of these requested resources can be found on the Geospatial Commons or MnGeo website, several others require hands-on assistance or directing inquirers to another state agency or external organization. Through collaboration with state agency and external partners, MnGeo maintains awareness of the current state of geospatial technology and data in Minnesota and connects information seekers to appropriate resources.

Regional coordination

MnGeo collaborates with regional geospatial groups whenever possible, including MetroGIS—a regional GIS initiative serving Minnesota’s Minneapolis-St Paul metropolitan area. MnGeo staff attend, participate, and present at regional GIS user group meetings and work to connect counties with one another regarding recurring questions such as addressing and open data.

MnGeo facilitates bimonthly meetings of the Arrowhead Regional Collaborative, a group made up of county, Tribal, state, and federal government agencies working to improve the accuracy and availability of GIS data in the northeast region of Minnesota. The collaborative is creating a common data model for the region’s Public Land Survey System section corners and is aligning parcel and administrative boundaries between the various government entities. This effort could serve as a model in other regions of the state.

Culture of collaboration

To further statewide collaboration, MnGeo publishes Minnesota GIS News, an e-newsletter that shares updates from MnGeo, Minnesota state agencies, and the Minnesota Geospatial Advisory Council. Over 2,000 subscribers receive regular updates on geospatial datasets, services, activities, and meetings.

The State Agency GIS Collaborative—a group of state agency and MnGeo staff—plans, promotes, and facilitates communication and collaboration for state employees interested in geospatial topics and technology. The collaborative provides education, networking opportunities, and technical resources. Through the Collaborative, MnGeo can better understand state agency needs and allocate resources and attention for priority efforts.

MnGeo also connects with other GIS organizations. Each year a representative from MnGeo serves on the board of the Minnesota GIS/LIS Consortium, a non-profit organization made-up of geospatial professionals from various sectors focused on developing and supporting the GIS/LIS community in Minnesota for the benefit of our people and contributors. MnGeo looks forward to coordinating with the newly reformed Minnesota County GIS Association to support shared goals, stay informed on activities, and best meet the needs of the geospatial community.



State and national committees

Minnesota Geospatial Advisory Council

The Geospatial Advisory Council (GAC) is the statewide coordinating body for the Minnesota geospatial community. It represents a cross-section of organizations that includes counties, cities, universities, businesses, nonprofit organizations, federal and state agencies, Tribal government, surveyors, and other stakeholder groups that benefit from geospatial technology. MnGeo facilitates the GAC with logistical support, web content, and collaboration sites for committee work. MnGeo programs are guided and complemented by work with the Geospatial Advisory Council.

Among the many accomplishments of the Geospatial Advisory Council during 2021 and 2022, a particularly important one was the successful funding partnership that resulted in new lidar data being acquired across much of Minnesota with more planned for 2023. The GAC 3DGeomatics Committee's Data Acquisition Workgroup worked tirelessly to promote and organize partnerships with many organizations to successfully apply for US Geological Survey (USGS) data acquisition funding. At the end of 2022, 59 unique Minnesota partners contributed or pledged \$7.5 million towards lidar data acquisition with USGS contributing over \$15 million to acquire new lidar over about 75% of Minnesota. MnGeo helps this effort by participating in the committee and leading the lidar funding application process and financial management.

During 2022, to maximize the benefits of MnGeo's parcel collection and normalization efforts, the GAC Parcel and Land Records Committee's Open Parcel Workgroup led the effort to reach out to counties about opting-in to share county parcel data publicly.



National States Geographic Information Council

MnGeo and Geospatial Advisory Council members participate in National States Geographic Information Council (NSGIC) activities, committees, and workgroups. Participation ensures that Minnesota is represented and provides input to national conversations about geospatial policy and initiatives. National initiatives that Minnesota has been involved in include Geo-Enabled Elections work, the Parcels and Land Records Working Group, and the Addresses and Transportation Committee.

National Emergency Number Association

As part of MnGeo's work with the Department of Public Safety Division of Emergency Communication Networks on the state's Next Generation 911 (NG911) GIS readiness program, MnGeo works closely with the National Emergency Number Association (NENA)—the standard-setting body for 911 in the United States and Canada. Several staff members serve on various NENA working groups and partake in national NENA conferences, enhancing the state's ability to support those seeking assistance with NG911 data preparation, while also keeping state government informed on changes coming to NG911 GIS data requirements. Conversely, alongside other Minnesota representatives at NENA (local government, private sector, etc.), MnGeo and its partners are ensuring that Minnesota has a voice in developing standards and best practices that work for Minnesota and the benefit of all.

3

Provide Outstanding Technical Support for Statewide Spatial Technologies

MnGeo supports MNIT’s mission by partnering with other state agencies to deliver secure, reliable technology solutions to improve the lives of all Minnesotans. In 2021 and 2022, MnGeo supported 22 agencies, boards, and councils with over 37 different efforts.

DEED Broadband Challenge

The Federal Communications Commission (FCC) is committed to ensuring that all residents have access to high-speed internet. For this reason, the FCC created a broadband dataset which shows geographic coverage for broadband service. This GIS dataset shows where the FCC believes there is broadband coverage. It also shows the speeds that the broadband vendors are offering to their customers.



Government entities and individuals are being asked to review this data and post “challenges” where they do not agree with the coverage. MnGeo is leveraging statewide address and parcel layers to help the Minnesota Department of Employment and Economic Development (DEED) review the FCC broadband data and post challenges.

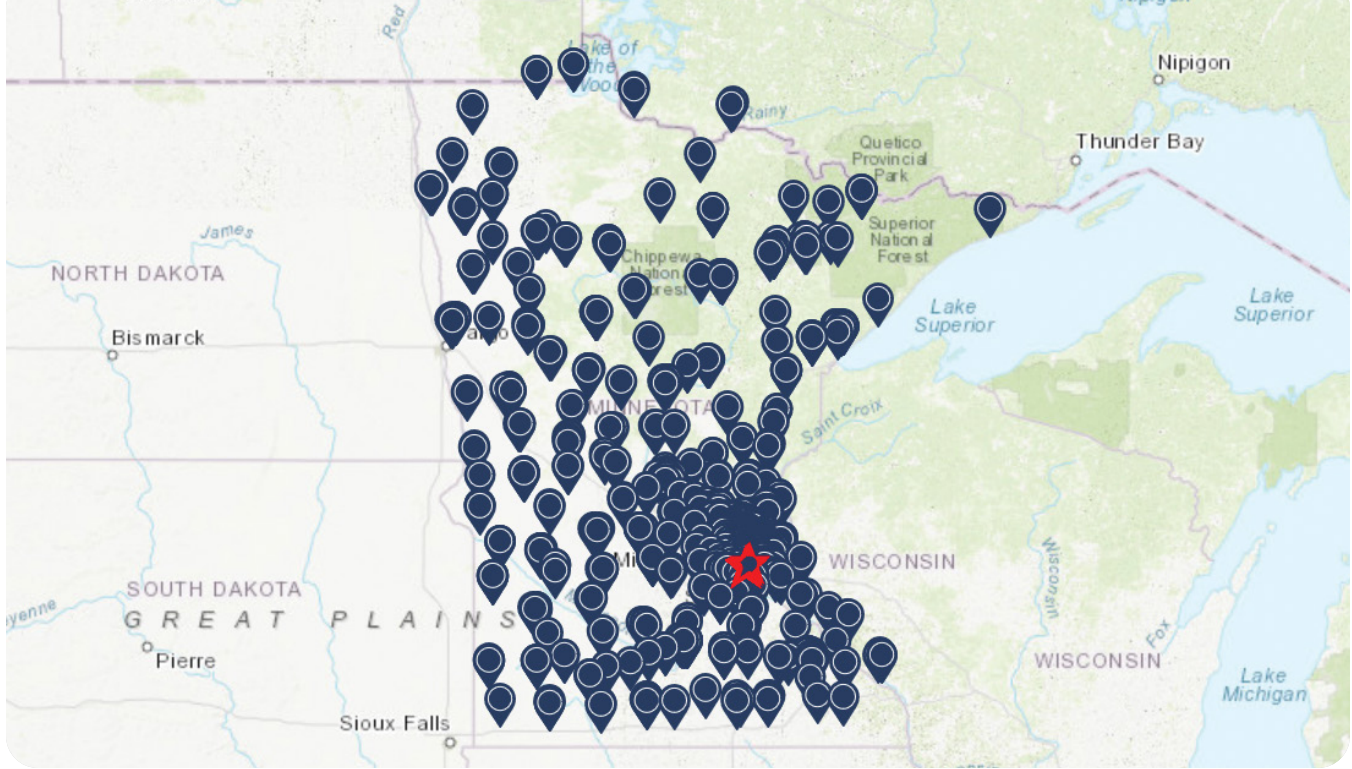
MnGeo is also using building footprints from the Federal Emergency Management Agency (FEMA) and Microsoft’s Bing Maps to compare actual structures to the FCC data. Other pertinent GIS layers such as land use are used to help determine those areas that are likely to have broadband—such as large building complexes—and those that are unlikely to have broadband, such as large tracts of trees or open land.

DPS-ECN Next Generation 911 GIS Data Validation and Aggregation Portal

Since 2015, MnGeo has supported the Department of Public Safety Division of Emergency Communication Networks (DPS-ECN) to prepare for the state’s transition from the current 911 system to an internet-based system referred to as Next Generation 911 (NG911). This new system uses GIS technology to route 911 calls to the appropriate call centers, requiring public safety grade GIS data that meets national 911 standards. To help NG911 GIS data providers, such as county GIS staff, meet these high demands, MnGeo developed and ran GIS data validations and alerted data providers about any lapses in compliance with national and statewide standards and guidelines.

In 2021 and 2022, MnGeo worked with a vendor contracted by DPS-ECN to move this process to an online platform, putting the validation tools directly into the hands of the data providers and increasing the speed with which providers can get results and improve their data. Additional validations were also developed, expanding the suite of tools. With over 150 users across Minnesota, the portal reached over 5,000 submissions just one year after launch.

The tools that have resulted from this collaboration have proven so valuable that the vendor has extended these services to other clients using this platform for NG911 GIS data preparation. Consequently, MnGeo’s work has not only served to improve the public safety of Minnesota but has now also extended to several other states across the country.



MDH COVID-19 testing and vaccine locator maps

At the beginning of the COVID-19 pandemic, Minnesotans needed an efficient way to find testing and, a short time later, vaccines. By winter 2020, the Minnesota Governor’s Office requested the development of a web application with a simple, interactive map to ensure the public could find nearby testing sites and plan their trip to the testing location. The Metropolitan Council (Met Council) had already been maintaining a map of testing locations that was limited to the metro area; a statewide system with more automation was needed.

Several cross-functional teams (Met Council, Minnesota Department of Health, Minnesota Management and Budget, and several groups at MNIT, including the Enterprise Web Team and MnGeo) and the Minnesota COVID response communications team came together in early December 2020 to build the Minnesota COVID-19 Testing Locations and Vaccine Finder Web Mapping Applications. The team built a web-based form for healthcare providers to add, modify, and remove their own vaccination and testing locations from the maps. Staff at the Minnesota Department of Health (MDH) would review the changes, then approve them for automated incorporation into the database.

To display the data, two similar mobile-friendly websites were developed, one for testing and one for vaccines, where the public could conveniently search for sites offering the services they needed. Availability of services data was provided both in the map and in information cards below the map, to make the website accessible to those using assistive technology and to provide an additional option for users. Low- or no-barrier sites run by MDH, county, or local public health organizations were given special symbols and designations, allowing them to be easily highlighted and promote access to these life-saving resources. Users could search for sites with specific accessibility accommodations including devices, translation, and transportation.

The testing site launched on December 28, 2020, and the vaccine site soon followed on February 2, 2021. The vaccine map service had its busiest day in late March 2021, serving almost 2.5 million requests without any reports of degraded response times.

The Minnesota COVID-19 Testing Locations and Vaccine Finder Web Mapping Applications were key pieces of Minnesota’s pandemic response. In fall 2022, the projects were awarded a Governor’s Geospatial Certificate.

SHPO Minnesota Statewide Historic Inventory Project (MnSHIP)

The State Historic Preservation Office (SHPO) and its partners, including the Minnesota Department of Transportation (MnDOT), need access to accurate, complete, and up-to-date historic inventory records to understand the effects of planned development projects on above-ground historic properties. Currently, SHPO combines an access database, with emails, phone calls, and share-files to get these records to its partners, without a way to geospatially interact with these historical locations.

SHPO and MnDOT are now partnering with MnGeo to build a web-based application and database to modernize this workflow and support spatial awareness of these data. A key component of this solution will be a geospatial platform (such as a web-based map) that SHPO and invested parties can use to interact with the data by searching, viewing, adding, and updating historic properties. This will reduce the need to physically visit, call, or email SHPO for access. This platform will provide a single point of truth for users on a web browser that can be accessed from anywhere. This enhanced approach to data management and exploration will give SHPO staff and collaborators faster and more comprehensive access to historical information and the capability to research historic properties in a geospatial context.

EMSRB Ambulance Service Area Boundaries

The State of Minnesota's Emergency Medical Services Regulatory Board (EMSRB) licenses ambulance services in Minnesota and is the authoritative source for ambulance service area boundaries. However, these boundaries were previously text descriptions that were not easy to map.

MnGeo converted the text-based service area descriptions to a GIS data layer which was then carefully reviewed with EMSRB staff to ensure that the boundaries were as accurate as possible. MnGeo then created a web map to share this information with the public. The map includes spatial representation of the service areas for each agency and links to the associated EMSRB text-based descriptions. A user can click on the map to see an ambulance service's name, license number, and service level, along with the region and county. Users can also print a simple map. The web map makes it easy to see highlighted areas of agency overlap and areas with no assigned agency. Future enhancements will include advanced filtering options.

This new resource is helping EMSRB and its partners visualize ambulance service areas, opening opportunity for optimizing existing emergency medical service operations.

A Special Note

Dan Ross was the director of MnGeo and the Minnesota Chief Geospatial Information Officer (GIO) from April 2012 to January 2022. During his time at MnGeo, Dan initiated many projects that benefited the wider geospatial community and improved geospatial collaboration between state agencies.

Alison Slaats became MnGeo's new director and GIO in May 2022. Alison comes to MnGeo with over 25 years of experience working in the Minnesota GIS community, including 10 years working for MNIT. Alison believes that GIS empowers data-driven decision-making and this is the main reason she joined the geospatial field. Her top priorities include strengthening MnGeo's relationships with partners and solidifying processes for sharing statewide foundational spatial datasets as defined by the Minnesota Geospatial Advisory Council.



**MINNESOTA
IT SERVICES**

GEOSPATIAL INFORMATION OFFICE



mngeo.state.mn.us

This annual report is available in alternative formats to individuals with disabilities by emailing ADA.MNIT@state.mn.us or calling 651-556-0519 or 651-201-1118.