

# MnGeo Priority Projects and Initiatives

December 7, 2016

While there are many worthwhile geospatial projects and endeavors, MnGeo is focusing its efforts and its limited resources on a few projects in order to make meaningful progress. All of these projects are in collaboration with other organizations and are either underway or anticipated to be initiated in the coming months. In alphabetic order, MnGeo's priority projects are:

## DPS Crash Portal Project

Project Goal: A collaborative project between MnGeo and the Minnesota Department of Transportation (MnDOT) to provide the Minnesota Department of Public Safety (DPS) with web services and data to be used in their recently released crash system. This new system allows officers to map the locations of vehicle crashes and pull information from GIS data rather than having officers enter location information manually.

Project Status: Web services have been created and are currently being utilized by the MN Crash System. The system is also designed to work in a disconnected mode, so shapefiles have to be produced in a format so that the vendor can automate the updating for all the squads and keep in sync with the web services and map cache. The base map data is derived from the new MnDOT Linear Reference System (LRS) that was recently put into production. Processes are being created to automate the updating, verifying and validating of all the data coming into the DPS Crash data store. MnGeo will be automating the updating, verifying and validating of processes to export to shapefiles and update the basemap map cache to allow the officers to map crashes when not connected to the Internet.

Anticipated Completion and Milestones: The MN Crash application went live January 1, 2016 and is currently utilizing a draft version of the LRS data. MnGeo anticipates that the project will end in spring 2017 and then become an ongoing program to support the MN Crash system by providing quarterly updates to the services and disconnected shapefile data.

Project Funding: The project is currently being funded by DPS and MnDOT.

Project Issues, Concerns and Risks: Clear requirements to the specific needs of DPS and MnDOT have not been definitively defined. The MnDOT LRS data production release date has yet to be determined.

Project Contacts: James Bunning (MnGeo) and Norm Anderson (MnGeo)

## Drainage Record Modernization

Project Goal: Produce a GIS database template and accompanying data standards for Minnesota's public drainage system records. The database template will be available to interested parties statewide and its use will be required for drainage authorities to receive competitive drainage records modernization cost-share, when available. In addition, the Board of Water and Soil Resources (BWSR) publication, *Drainage Records Modernization Guidelines* will be updated to reflect the creation of the GIS template and standards.

Project Status: The contractor, Houston Engineering, Inc., has completed the template and updated the guidelines document. MnGeo has completed a pilot drainage records ArcGIS Online map viewer. The remaining work revolves around presenting information about the project at various state user conferences such as MAWD (Minnesota Association of Watershed Districts) and AMC (Association of Minnesota Counties).

Anticipated Completion and Milestones:

Project Milestone	Target Completion Date
Project Start	10/1/2014
Specify template objectives and requirements	1/29/2016

Template created by contractor	10/31/2016
Update <i>Drainage Records Modernization Guidelines</i> publication	9/30/2016
Disseminate information about template and guidelines	12/30/2016
Project Complete	12/30/2016

Project Funding: \$230,000

Project Issues, Concerns and Risks: A condition for use of the template by local drainage authorities is that they share a hydrographic subset of their data publicly on the Geospatial Commons. Some may be unwilling to agree to this.

Project Contacts: Greg Fetter (BWSR, Executive Sponsor), Tim Gillette (BWSR, Business Champion), Jim Krumrie (MnGeo, Project Manager), Brian Fischer (Houston Engineering Inc., Contractor), Al Kean (BWSR, State Consultant)

### **Geospatial Commons**

Operations: The long-range objective of the Commons is to be the best source for the widest variety of geospatial data, services, information, ideas and news in Minnesota. Now fully operational, it allows users to find, view and download data; publish metadata and data; and find and use web services and applications. Operations are headed by MnGeo and supported by MN.IT staff who serve Agriculture, DNR, MnGeo, and MPCA.

#### Status:

MnGeo and the support team are moving to implement operational improvements that:

1. Stabilize the system’s ability to respond to increased demand (completed)
2. Add capacity for new publishers and resources (completed)
3. Reduce excessive or unwanted duplication and replication to agency file servers (“GDRS nodes”) (completed)
4. Diversify available methods for publishers to provide resources (pending)

These improvements will take place over the remaining six months in the fiscal year, and are slated behind other projects in terms of timing and priority. During that time, the team continues to focus on governance issues and adding content from new and existing publishers.

Thirteen resources have been published since our last report, a new publisher implemented (Secretary of State), and another very close to implementation (Board of Animal Health). As of November 21, the count of published resources accessible through the Commons totals 590:

Organization	Resource Count
Natural Resources Department	157
Metropolitan Council	142
Geospatial Information Office	77
Dakota County	60
Agriculture Department	30
Minnesota Geological Survey	26
Pollution Control Agency	21
MetroGIS	17
Transportation Department	12
University of Minnesota, Twin Cities	8

Ramsey County	8
Health Department	5
Board of Water and Soil Resources (BWSR)	5
Waseca County	5
Itasca County	4
Education Department	3
Lake County	3
Rice County	3
Revenue Department	2
Minnesota Valley Transit Authority	1
Secretary of State	1
Minnesota Board of Animal Health	0

**Funding:** Agencies currently provide funding for the operations of the MN Geospatial Commons. Currently there are no dedicated funds for enhancements to the site, although a small amount of project funding has been provided this biennium for a series of small improvements. MnGeo is providing a quarter time Operations Manager, technical and administrative support. Staff members from several State agencies (most notably: DNR, Agriculture and MPCA) have committed to assisting with operational support. Other resources are expected to be made available by MN.IT Services as needed.

**Issues, Concerns and Risks:** Several issues that will likely require future input from leadership and advisory Councils/Committees have arisen, including a precise definition of *how* those decisions are made, and *when* leadership input is required. A draft governance model has been created and is expected to be shared soon. It addresses issues including, but not limited to:

- Scope of allowable data formats
- Stewards for federal agency datasets (customized for MN) and datasets that do not have an “obvious” steward
- Large data set replications to multiple GDRS nodes
  - Related: do we continue to store/serve/host “purely local” data, or do we aggregate first?

**Contact:** Mike Dolbow (Operations Manager)

**Master Contract for Aerial Imagery Program**

**Program Goal:** To provide a list of experienced pre-approved vendors from which State Agencies and Cooperative Purchasing Venture (CPV) member organizations can contract for medium-to-high resolution orthoimagery, planimetric mapping and LiDAR acquisition services in a streamlined process through individual custom work orders.

**Program Status:** Nine vendors were selected and a master contract for each was executed in January 2016. Master contracts are in force for two years – through January 15, 2018 – with three one-year extensions possible. A website, managed by the Minnesota Department of Administration, provides program details and forms: <http://www.mmd.admin.state.mn.us/AerialImagery/AerialImagery.htm>

**Anticipated Completion:** This master contract program is in force for two years – through January 15, 2018 – with an option to extend those contracts for three additional years. Any number of individual Work Orders are permitted during that time.

**Program Funding:** No dedicated funding has been identified for this master contract. Each organization creating specific Work Orders is expected to fund its own individual projects.

Program Issues, Concerns and Risks: Coordinating the contract efforts, while simultaneously informing potential beneficiaries of this project, requires more resources than the project currently has available.  
Program Contacts: Chris Cialek (MN.IT Services), Dan Ross (MnGeo)

Example Projects: In 2016, eight project work orders were issued. The Metropolitan Council issued the first work order in January. The Surdex Corporation was awarded the project to acquire Metro-wide 4-band, 30-cm, leaf-off imagery. Four Metro counties – Anoka, Carver, Dakota and Scott – executed additional contracts through the program to buy-up to 15-cm (6-inch) imagery. The Metropolitan Council project was completed in November. Data associated with it are now accessible through the Minnesota Geospatial Image Service: [http://www.mngeo.state.mn.us/chouse/wms/geo\\_image\\_server.html](http://www.mngeo.state.mn.us/chouse/wms/geo_image_server.html)

### **Next Generation 9-1-1**

Project Goal: NG9-1-1 implementation will depend on current and accurate GIS data. Geospatial data will be used for location validation, call routing and emergency response. With the Minnesota Department of Public Safety serving as the lead state agency for NG9-1-1, MnGeo will identify, inventory and collaborate with the public-safety answering points (PSAPs) and 9-1-1 entities to obtain, develop and distribute core geospatial data required to support the program. To succeed, this effort will require several critical, statewide data sets:

- Street centerlines, with address ranges (described below)
- Address points (described below)
- PSAP boundary polygon(s)
- Emergency response – law enforcement, fire and EMS boundary polygon(s)
- NG9-1-1 Data Maintenance boundary polygon(s) – GIS data authority for a given area

All GIS data will need to be validated with legacy E9-1-1 data.

#### Project Status:

- The fifth issue of the NG9-1-1 GIS project newsletter will be distributed in December to all project stakeholders. The newsletters are also available on the ECN website: <https://dps.mn.gov/divisions/ecn/programs/911/Pages/gis-information.aspx>
- MnGeo is collecting required NG9-1-1 GIS data from all regions in the state. The GIS data are being compared to corresponding 911 data (MSAG, ALI, ELT) to gain a better understanding of data readiness for each County and PSAP. The results are being compiled into Data Readiness profiles and reports, which are shared with each county and PSAP during the Data Preparation kickoffs. The goal is to have the entire state assessed by the end of calendar year 2016.
- MnGeo is meeting individually with each PSAP and their GIS agencies/vendors to discuss their Data Readiness profiles and the necessary work to prepare their GIS data for NG911. The initial Data Preparation kickoff meetings were conducted in the NE region, which began in August 2016. Kickoff meetings are currently being scheduled and conducted in the Central and SE regions. These kickoff meetings will continue to be conducted with over the next six months.
- The Data Preparation projects involve six phases of NG911 GIS data cleanup, including Community Name Validations, Street Name Validations, Address Validations, Geospatial Validations, Emergency Service Boundary Validations, and Edge Matching. The primary objectives of these Data Preparation projects are to improve and qualify the local GIS data for mission critical use in NG911.
- Development is underway for the MN NG9-1-1 GIS Standards, which will serve as a guide for preparing and maintaining GIS data for NG9-1-1 in Minnesota. The Standards Workgroup has been meeting weekly since the beginning of September 2015. The Standards WG has been tasked with recommending and developing standards needed to integrate locally collected and maintained GIS

data into statewide layers deemed critical for the Emergency Call Routing Function (ECRF) and Location Validation Function (LVF) of NG9-1-1. The MN PSAP and GIS stakeholders completed their second review of the DRAFT MN NG9-1-1 GIS Data Standards on November 4<sup>th</sup>. MnGeo has compiled all comments/questions and is working with the Standards WG to provide necessary responses and revisions to the standards. From there, MnGeo will revise the existing sections and add the boundary sections (PSAP, Fire, Law, EMS) in preparation for the third stakeholder review. The third review period is anticipated to take place in January/February 2017 and from there, MnGeo will seek formal stakeholder approval of the standards.

- Finally, the NG9-1-1 GIS data portal, repository, and workflow are currently being planned, designed, and placed into production. The workflow includes accepting GIS data uploads from local GIS sources and then standardizing, validating, and aggregating the local datasets into the statewide NG9-1-1 datasets. Other workflow tasks include generating and distributing condition/error reports, and provisioning the ECRF and LVF.

Anticipated Completion and Milestones: Although an official completion date has yet to be established, it is anticipated that geospatial data will need to be ready for NG9-1-1 deployment in 2018. Below is a list of current project tasks with estimated completion dates.

- **Outreach to PSAPs and GIS Sources** – ongoing
- **Project Scope and FY15 Work Plan** – completed March 2015
- **Regional Kickoff Meetings** – completed early June 2015
- **FY16 Work Plan** – completed late June 2015
- **PSAP Request for Information and Summary Report** – completed late August 2015
- **FY17 Work Plan** – completed late June 2016
- **MN NG9-1-1 GIS Standards** – complete and approve by early 2017
- **GIS Data Assessment and Data Readiness Profiles** – complete by late 2016
- **Spatial Information Function (SIF) and Extract Load Transform (ELT) Requirements and Workflow** – complete by late 2017

Project Funding: \$600K per year for 3 years

Project Issues, Concerns and Risks: Issues, concerns and risks are being identified and logged throughout the project.

Project Contacts: Dan Ross (Executive Sponsor), Adam Iten (Project Manager)

### **OSA Portal Project**

Project Goal: A year-long project to provide the Minnesota Office of the State Archaeologist (OSA) a branded web application that allows it to maintain a digital, secure, and up-to-date inventory of archaeological sites and associated forms. This system streamlines internal administrative tasks for OSA and also those of tiered external users in an effort to better preserve historical cultural resources across Minnesota. This project is made possible through an inter-agency agreement between MnDOT and MnGeo on behalf of OSA and in consultation with the Minnesota State Historic Preservation Office (SHPO).

Project Status: A secure, enterprise database environment is being prepared for the OSA's Archaeological Sites Database with content and design improvement recommendations being submitted by MnDOT's Cultural Resources Unit (CRU) and the Minnesota Historical Society's SHPO. The new database model has been designed and implemented, and migration from the old Access database is nearly complete. Functionality to interactively manage sites and propose new site entries is in place. A geospatial data entry

application has now been implemented, as well as complementary map services to be utilized for browsing and querying the database at a variety of levels based on user role. A public accessible view of the data is currently under development. Two project steering team usability sessions have been conducted, with final beta testing scheduled for December 1.

**Anticipated Completion and Milestones:** The interagency agreement under which this project is being governed calls for the project to be completed by December 14, 2016. An effort to modify the interagency agreement with a brief extension in the contract’s end date is currently underway to assure that ample time is available for all post-beta repairs and additions. This contract extension has no effect on project budget.

**Project Funding:** \$180,000 through a federal grant managed and administered through MnDOT.

**Project Issues, Concerns and Risks:** Confining requirements to the specific needs of OSA, SHPO and CRU while engaging other prospective stakeholders in a structured future development and expansion strategy.

**Project Contacts:** Michael Bergervoet (MNDOT/CRU), Christopher Cialek (MN.IT Services)

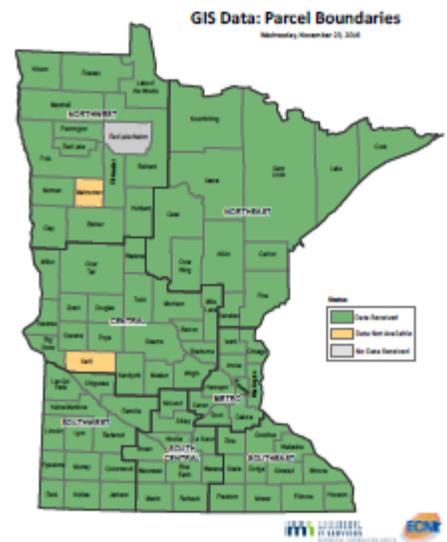
**Parcels, Street Centerline and Address Point Collection**

**Project Goal:** To collect, standardize and aggregate county parcel, street centerline and address point data into statewide datasets for use by NG9-1-1 as well as for other state agency purposes. MnGeo asks for parcel, centerline and address point data in a single request to counties.

**Project Status:**

**Parcels**

The [parcels project](#) has been underway for several years. While significant progress has been made (e.g., survey of all 87 counties, development of a Parcel Business Plan, generation of a proposed parcel attribute data exchange standard) there is much work yet to complete. MnGeo is well underway collecting data from local partners and has collected parcels for 85 counties to date (see [full-size map](#)). There is no data available for the Red Lake tribal nation.



MnGeo continues to work with the MN Department of Revenue to determine how the Parcels Project complements Revenue’s [PRISM \(Property Record Information System of Minnesota\) Project](#); however, based on timing and the need to move forward, the Parcels and Land Records Committee and the Standards Committee are proceeding with standards review for an updated version of the [DCDATS proposed standard](#) in the interim.

**Anticipated Completion and Milestones:**

Milestones	Anticipated Due Date
Collect all available data	December 2016
Standardize the three layers (in progress 59 counties so far)	February 2017
Aggregate the three layers into single regional or statewide datasets (in progress 59 counties so far)	June 2017

While we do not expect to be able to obtain complete statewide coverage, we do anticipate we will be able to obtain and aggregate many counties. It is hoped that complete statewide parcel, centerline and address point data layers will be available in 2 years.

Project Funding: There are no dedicated funds for this project.

Project Issues, Concerns, and Risks: Project success is dependent on counties developing and sharing both spatial and attribute data. Issues include: Some counties have been reluctant to share their data, data content and quality varies between counties (and in some cases within counties), no established standard for parcel, address or centerline data in MN currently exists (although we are working toward the [DCDATS standard](#)), and time/personnel needed to complete collection, standardization and aggregation processes.

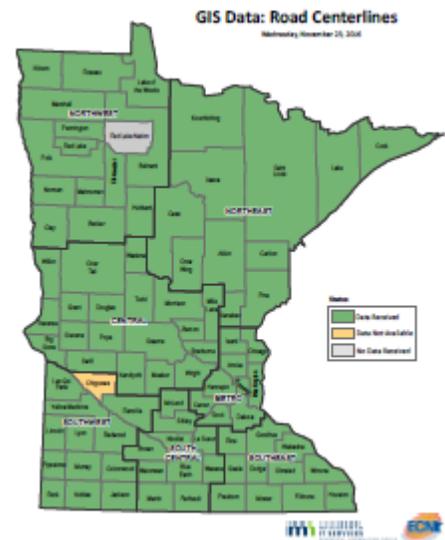
**While the data will be available to government agencies, many counties have asked the state not to share parcels obtained for their counties. With that approach it is likely we will never achieve a statewide shared parcel layer.**

Project Contact: Dan Ross (Executive Sponsor)

### Road Centerlines

Project Goal: Create an authoritative, multi-purpose, public-domain centerline spatial dataset representing the entire state of Minnesota that can be relied upon to accurately represent (to the best extent possible) the actual roadway assets of the state. This data layer is to be collaboratively built and maintained to reduce cost, eliminate redundant efforts, facilitate better data capture, provide inter-agency reporting and address a variety of needs from roadway data consumers.

Project Status: The MnDOT LRS tools were put into production internally earlier in 2016. MnDOT has been working to update the data that was frozen during the project. MnGeo is working with MnDOT and has defined data workflows that provide data updates from both non-state road authorities and state agencies to a single repository where the data will be standardized and aggregated. The project team is currently working on implementing a database model within MnGeo that will meet the needs of NG9-1-1 that can be shared with non-state participants; 86 counties have provided data so far (see [full-size map](#)). The statewide team has agreed to use the data model created from the NG 9-1-1 effort for centerlines which used the Metro Region Centerline Collaborative work as a starting point. MnGeo will be responsible for bringing data together from MnDOT and from other state and non-state road authorities.



Anticipated Completion and Milestones: The draft of the standard is being vetted by stakeholders and should be available by February 2017. A secure repository, data model and database has been set up within MnGeo and the metro counties are currently submitting their centerlines. The goal is to have the two pilot areas (Metro and NE regions) submitting data for validation and aggregation by the end of 2016.

Project Funding: DPS and MnGeo are covering staff time and infrastructure to build out the repository, data model, and work flow as the data and system will be used for NG9-1-1.

Project Issues, Concerns and Risks: The project is heavily dependent on requirements, tools, standards and timelines being provided for the NG9-1-1 project.

Project Contacts: Dan Ross (Executive Sponsor), Adam Iten (Project Manager)

## Address Point Collection

**Project Goal:** Create an authoritative, multi-purpose, public-domain address point dataset representing the entire state of Minnesota that can be relied upon to accurately represent (to the best extent possible) the actual location of addresses in Minnesota. This data layer is to be collaboratively built and maintained to reduce cost, eliminate redundant efforts, facilitate better data capture, provide inter-agency reporting and address a variety of needs from address data consumers.

**Project Status:** MnGeo is working with PSAP (Public Safety Answering Points) and local authorities to define data standards that will be used to build out a standard statewide dataset. In August, the NG9-1-1 draft standard was compared to the Metro Address Standard. The two teams have come together to create a crosswalk between the two. Some form of address point data has been obtained from 77 counties (see [full-size map](#)). Many, however, show gaps in the data where cities are located. MnGeo will continue to work with local partners in the coming months to fill in those gaps.

**Anticipated Completion and Milestones:** The first draft of the standard and data model are available for review by stakeholders. The data flow and repository to support moving data from partners into the NG9-1-1 repository have been put in place and the two pilot areas should be submitting address data by the end of 2016.

**Project Funding:** DPS and MnGeo are covering staff time and infrastructure to build out the repository, data model, and work flow as the data and system will be used for NG9-1-1.

**Project Issues, Concerns and Risks:** The project is heavily dependent on requirements, tools, standards and timelines being provided for the NG9-1-1 project.

**Project Contacts:** Dan Ross (Executive Sponsor), Adam Iten (Project Manager)

