Working with Stakeholders to Update and Align Boundary Data in Minnesota

Project Summary

Overview

MnGeo is leading an effort to define a stakeholder-supported process with the intent to update and align Minnesota's statewide geospatial boundary datasets, informed by authoritative data. These statewide datasets include the foundational Public Land Survey System (PLSS) boundaries and other data layers, many with boundaries concurrent with the PLSS. Aside from the City, Township and Unorganized Territory (CTU) dataset maintained by MnDOT, no state entity has the responsibility to develop or maintain statewide boundary data. Consequently, existing data layers were developed at different times, by different agencies, for different purposes, and with differences in resolution, and accuracy. As a result, other government and tribal entities are developing improved data to more accurately represent an area of interest or project. MnGeo recognizes an opportunity to partner with authoritative data producers on a process to continuously acquire and integrate more current, accurate and authoritative data into the body of statewide boundary layers.

History

The original PLSS layer for Minnesota was developed in the late 60's from section corners digitized from USGS 1:24,000 quadrangle maps. In the early 90's, MN DNR updated the PLSS with a grant from the LCCMR. This effort incorporated more accurate section corners collected by state agencies and local governments using the best GPS technology available at the time. The accuracy of those corner locations are recorded to vary from .5 to 80 feet. No statewide update has been completed since.

PLSS sections and subdivisions are the foundational units of land ownership and serve as the building blocks of other boundary information, land ownership and land management units, often with coincident boundaries. These include a variety of jurisdictional boundary areas from large units like counties or natural resource areas like parks and forests, to small individual units like parcels. However, due to a variety of factors, many of those boundaries vary in accuracy and are rarely represented as coincident in statewide GIS datasets in use today.

The Need for Greater Accuracy

Most public and municipal services rely on accurate boundaries to be delivered effectively. From school districts to ambulance districts, accurate boundaries are required to define where those services need to be provided and by whom. Likewise, land ownership and taxation is predicated on accurate boundary information. In order for a landowner to be confident of his or her holdings, correct and accurate boundary data is essential. Likewise, good data is required for taxation purposes. Inconsistent and incorrect boundaries lead to service gaps and land disputes on a variety of levels.

Scope

MnGeo will lead an effort to identify stakeholders, authoritative data stewards, and resources required to develop, document and evaluate a process for updating, aligning and maintaining statewide geospatial boundary data layers. While the PLSS is considered the primary dataset to be improved, related datasets will be considered as well, such as county boundaries and CTU's. In addition, methods for resolving conflicts and inconsistencies will also be considered.

Goals

The following initial goals have been identified, which are subject to modification as informed by stakeholders:

- Identify what boundary data can and should be updated and aligned to produce better statewide boundary layers for MN
- Identify the best authoritative sources for geospatial boundary data in MN (current and future)
- Identify and bring stakeholders of authoritative boundary data together to define a best practices guideline for updating and aligning coincident boundary data for MN
- Explore tools that might assist in the process of updating and aligning boundary data (some research has already begun)
- Provide a proof of concept to test the guideline
    - Document issues encountered, recommendations, and or solutions for resolving issues
    - Update the guideline as needed based on the results of the proof of concept
- Define and document responsibilities and resources for maintaining statewide boundary data
- Produce implementation plan and next steps for moving forward.

Challenges

The following represent known and suspected challenges this project will need to consider.

- **Data:** Understanding the "landscape" of what "better" data exists to inform this effort, the format of those data and methods to access them consistently over time.
- **Processes:** Defining a stakeholder-supported technical process to integrate and adjust statewide data
- **Uniformity:** Not all areas of the state have a county surveyor nor has existing data been created in a consistent fashion or format. Therefore, updates processes will need to be flexible enough to accommodate these factors and allow for incremental updates, of both time and location.
- **Conflicts:** There will be areas where acquired data may not agree. A process to resolve differences will need to be developed and adopted by stakeholders.
- **Maintenance:** As opposed to a one-time event, this effort will need to accommodate ongoing updates. A data steward willing to commit to continued management of this process and affected datasets will need to be identified.

Deliverables

This project seeks to deliver a conceptual business plan that documents priorities, stakeholders, data needs, data sources, potential standards and technical processes to integrate accurate authoritative data into statewide boundary datasets.

Beyond Scope

While this project seeks to identify the appropriate stakeholders, priorities and potential methodologies to develop more accurate statewide boundary data for Minnesota it will not result in:

- Finalized, updated datasets
- Automated processes and scripts, or tools in place to support the effort moving forward.