Project Closeout Report

Submitted to Project Oversight on 08/03/2021

GENERAL INFORMATION

Project Name: Statewide Parcel Dataset

Agency Name: North Dakota Information Technology

Project Sponsor: Terry Traynor

Project Manager: Jacob Chaput

PROJECT DESCRIPTION

During the 2017 GIS Users Conference there was a “North Dakota Statewide Parcel Dataset Panel Discussion" during which the benefits to the State of North Dakota and its cities and counties were discussed. On the recommendation of the Game and Fish Department, North Dakota Information Technology submitted a request to build a statewide parcel dataset. The parcel data would be utilized by a land access system to be used by hunters and landowners (SB2315). The funding request was successful.
Nearly all North Dakota counties have parcel data in various formats and accessibility. The project will aggregate existing parcel data from counties that voluntarily provide that data. Parcel data will be developed for the few counties that do not have any. During the aggregation and development of the parcel data, maintenance workflows will be identified and refined. These workflows will be used after the project is complete to ensure continual maintenance of the statewide parcel dataset.

SCHEDULE AND COST METRICS

	Project Start Date	Baseline End Date	Baseline Budget	Funding Source	Actual Finish Date	Schedule Variance	Actual Cost	Cost Variance
Original Baseline	7/01/2019	8/11/2021	$589,985	General	6/22/2021	7% Ahead	$433,544	25% Under
Final Baseline		8/11/2021	$589,985	General	6/22/2021	7% Ahead	$433,544	25% Under

Notes:

Schedule

- Vendor (Applied Geographics) was able to complete ETL development ahead of schedule
- State team was able to review and approve the work quickly

Cost

- Only $19,688 was used of $100,000 Risk Allocation for scope changes
- $3259 was not used of $5000 software budget
- Project Management costs were $18,979.50 under budget
- Only 10% of deed research in Adams and Benson counties was completed, saving $37,617.07

MAJOR SCOPE CHANGES

1. ETLs for counties using Tyler Technologies as a vendor had to be reworked to a new schema that provides additional information that will benefit the Stateside Parcel Dataset
2. ETL enhancements were made to strengthen the Statewide Parcel Dataset
3. Subscription of MapGeo software was purchased to act as a Data Maintenance Communication Tool

OBJECTIVES

Business Objective	Measurement Description	Met/ Not Met	Measurement Outcome
This data needs to have complete coverage across the state. The locational need for this data can occur anywhere in the state.	At project completion, all 53 counties are contributing data to the statewide dataset.	Met	Statewide: All 53 counties are contributing to the statewide dataset.
There needs to be one layer for this data instead of 53 (one for each county). This will allow for processes to rely on standard naming conventions and content.	At project completion, all boundary geographies will be common to one table.	Met	Seamless: All boundary geographies are common to one table.
There needs to be a common set of field names and field values. This will allow users of this data and applications to set up queries and map display.	At project completion, a minimum domain of common fields values and common field names will exist across the entire data set.	Met	Standardized: Minimum domain of common fields values and common field names exist across the entire dataset .
This data needs to be updated on a set schedule. Updates can be scheduled on a county-by-county basis to reflect the differences in county population and property activity.	At project completion, each county will have a documented data update workflow process. At project completion a regular update cycle will exist for each county.	Met	Maintained: Regular data update cycle exists for each county. Each county has a documented data update workflow process.
The data will be available via download and web services. Although this dataset is developed primarily for the use of state agencies and their constituents, other levels of government and the private sector will use this data.	At project completion, data will be publicly available for download, and via streaming service from the GIS Hub.	Met	Publicly Accessible: Data will be made available in July 2021.

POST-IMPLEMENTATION REPORT

Post-Implementation Reports are to be performed after a project is completed. A “PIR” is a process that utilizes surveys and meetings to determine what happened in the project and identifies actions for improvement going forward. Typical PIR findings include, “What did we do well?” “What did we learn?” “What should we do differently next time?”

Lesson Learned, Success Story, Idea for Next Time, Etc.
What Went Right?
Everything. The secret sauce is a blend of AppGeo and Jake.
Everything ran smoothly and on time. Even with the minor setback of the issue we had with redacting names, the process went well.
Communication, both via Teams and Email, was handled very well.
The AppGeo team worked really well together - Nate, Russell, Rebecca, Myriam, and Sarah/the MapGeo support team. Nate was amazing and was able to learn on the project so many new things (FME Server, Esri dashboards, survey123 and hub, etc.). His technical prowess, professionalism and communication is top notch. Russell picked things up very quickly and smoothly under Nate’s wing. Rebecca and Myriam developed a routing protocol for QC and really got into a rhythm so they were able to keep the tasks moving on schedule.
The State team was so great to work with. Jake and Bob are really intelligent and easy to work with and have great personalities. They understand the technical side of things well and where they didn’t, they were able to pick them up quickly to keep project tasks moving right along or knew when to ask good questions. Jake is a super-efficient PM who was always on the ball and followed through on all promises. Everyone on the State’s project team was friendly, thoughtful, and participated as much as possible which was really appreciated. Bob did a great job wrangling the project team's review comments and getting their feedback to us on schedule and in an orderly fashion.
Using MapGeo as a review tool for the project went very well. It made it easy for the review team to look at draft data quickly without having to start up ArcGIS. Or if they weren’t a GIS super-user this was a tool that made them able to participate in the review process when they otherwise may not have. It also enabled us to easily share the ETL status as a visualization that was publicly available to anyone interested in the project progress.
The Department of Game and Fish was able to take advantage of the statewide parcel data in time for their launch of the new private property hunting application and therefore there has been immediate value provided back to the State before the project has even officially ended.
The Counties and vendors were really great to work with and all 53 counties ended up participating which is amazing. Two of the vendors took it upon themselves to develop a standard export of the tax roll data to support submission of the data in the state’s desired schema. And one of the vendors took it a bit further and automated the extract and upload of the data to the state on a scheduled basis for all the counties they work with.
The project went on, or ahead of, schedule most of the time to the point we were able to add some additional tasks (change orders) into the project without negatively impacting the overall schedule, which improved the final deliverables.

What could have gone better?	Lessons Learned
Define the very end of things to be done, e.g., data delivery to the public and factor that into the work schedule	Include items like the data delivery to the RFP so it is known to the project teams near the beginning and factor into the schedule.
Even though AppGeo was a good company to work with and produced what we wanted, I wish North Dakota's RFP process gave bonus points for companies based out of North Dakota or at least with a more local presence (MT, MN, SD, or upper mid-west). The local companies were ahead or at least competitive in the RFP proposals until the price factor came in and then it was a huge spread and advantage to the out-of-state company that has the resources for outsourcing.	Procurement laws regarding scoring can be reviewed to the team who is responsible for scoring.

There was significant back and forth on several of the deliverables that stretched the teams time and project budget.	Try to keep to the scoped one round of consensus feedback.
Vendors were not included in initial outreach communications and webinar invites.	Vendor participation in the project from the beginning will make future similar project work much more seamless and coordinated. For example, vendors can build standard data extracts for all of their client counties to help save time and money on the project (Tyler did this late in the project after we already inventoried the non-standardized data and built some ETLs).
Lots of communications flying around about many different topics, via email, chat, and meetings during the establish baseline status phase, which was hard to keep track of.	Eventually, we started to put any notes/actions related to individual counties into a contact tracking sheet, highlighting them in red if follow-up is needed. Need to define clearly up front whose responsibility it is to manage the communications.
A remote machine was needed for configuring the ETLs on the state's side and reviewing the ETL outputs. Initially all internet connection was blocked for Nate's user, which meant that connecting to FME Server, configuring the emailers built into the ETLs, and accessing source data feature services wasn't possible. Enabling this access caused delays. Additionally, using ArcPro was never possible since you need to log in to an esri account through the web to use it.	AppGeo should include in the initial access requirements for the State to ensure that the workstation used for working with the FME workspaces can be used to connect to FME Server to publish workspaces. The user must also have the appropriate permissions to do this. Ideally the remote machine would have web access fully enabled, but this didn't seem to be an option due to security concerns.
Redaction of sensitive data: this became a big issue mid-project because the State and counties haven't had to do this before so no procedures were in place to quickly perform the redactions or to know to perform them prior to submitting data to the State. The project team ended up having to work with the NDACo who worked with the Legislature to alter the century code language for clarification and then provide guidance to the counties.	Raise the sensitive data topic at the beginning of the project (in this case at the counties kickoff meeting) to let them know to redact sensitive data prior to submitting data.
FME geometry validation check includes a check for null geometry parts but it does not actually check for geometries with an area of 0. This wasn't noticed until work was underway on Batch 5. To fix this we had to go back and edit all previously delivered workspaces and add a new validation check specifically for it.	Keep this in mind at the onset of future projects and implement the check while the initial ETL buildout is occurring.
Towards s the end of the project, the State requested to move feature classes outside of feature datasets and rename things. They wanted to be more consistent w/ how things are handled in the Hub eGDB. Changing it mid-project required testing to determine level of effort (LOE), then the renaming, then updating workspaces and documentation. All of which is out of scope and extra work but may be too small to be worth a change order. Little things like this add up and take resources away from planned activities.	This should've been considered and determined by the State when we did the initial work of developing and reviewing the database schema.
There were a handful of requests from the State made for out-of-scope work and recommendations. For example, a state team member requested help with researching and identifying best practices for data publishing. This was out of scope, but Michele went ahead and did some work on this anyway to help out.	The State should have included in the RFP data publishing support and the other extra tasks or provided a mechanism in the contract to allow AppGeo to perform these types of support tasks without a change order, e.g., An As-needed Support task and budget that runs in parallel with the core project work.

A state team member provided feedback on a previously accepted deliverable - specifically the ETL workflow documentation.	Ensure all team members stick to the review and feedback timetable to avoid having to go back and revise accepted work later on.
The phase 2 counties were not strong participants in the project and did not provide any feedback on any of the deliverables.	Engage the county early (i.e., before the project even begins) and let them know that they need to be actively involved in the process to ensure that their data is high quality. Explain to them and their decision makers the benefits of doing this work. If the State ends up trying to do any future data enhancements and don't get the support and attention from the county, it will likely be a waste of time, as county input will be critical in the next phase. If there are specific things you need from the county, specifically in our case Benson County and subdivisions, reach out to them early, as once we were able to engage them with exactly what we needed, they were very helpful in getting us the document numbers for the subdivisions. For future projects, allocating resources responsible for providing outreach and communications with the counties.