
NDACo ANNUAL CONFERENCE
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YEARS
2025
OCTOBER 26-28

GIS Use Cases and Importance of Public Data

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True or False?

GIS was conceived because of the cholera outbreak in the 1850s

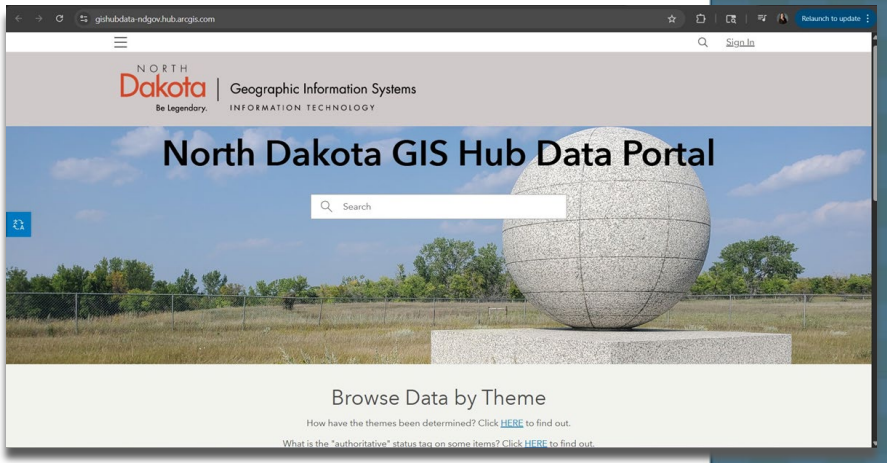
True or False?

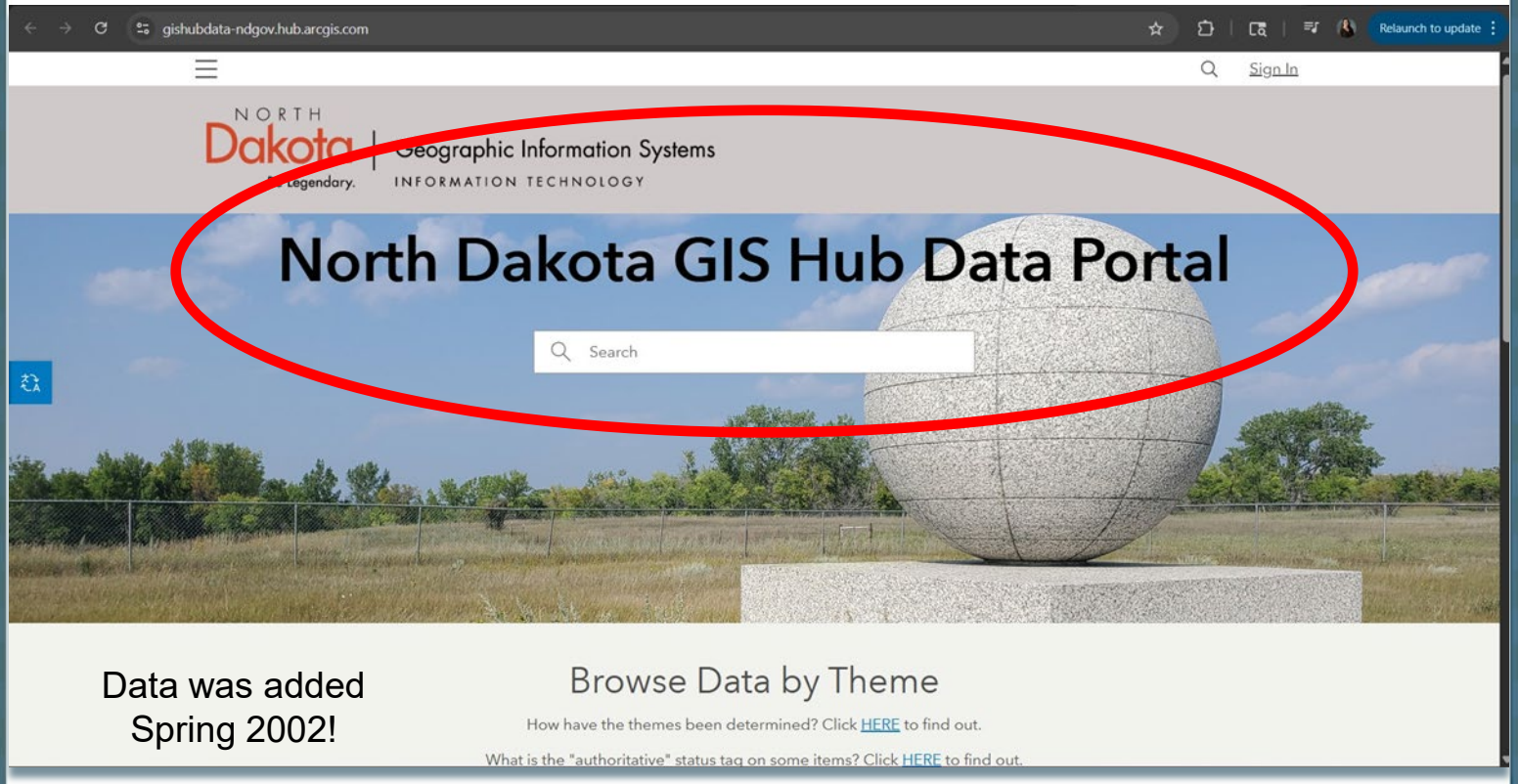
GIS was conceived because of the cholera outbreak in the 1850s

TRUE

Which project was launched first?

ND Parcel Program or the ND GIS Hub





Data was added Spring 2002!

Source: https://www.esri.com/news/arcuser/0403/ndhub1of2.html#:~:text=Since%20the%20early%201990s%2C%20North,modifications%20to%20the%20original%20data.

Which North Dakota town is ACCURATELY the Geographic Center of North America?

Center, ND or Rugby, ND?

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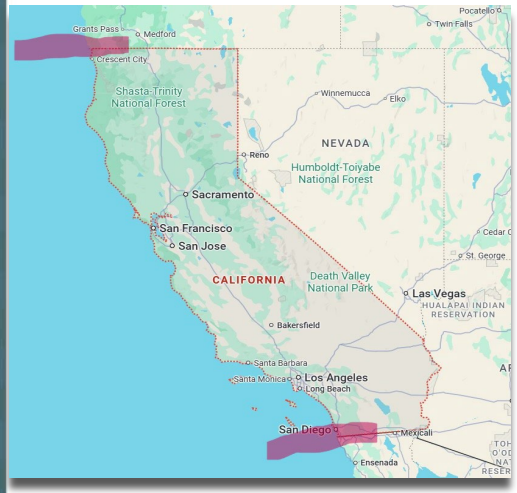
Center, ND or Rugby, ND?

IT DEPENDS!

Not really, updated calculation methods point to Center, ND! (2016)

True or False?

The California Pacific Coast has more shoreline than Lake Sakakawea



True or False?

The California Pacific Coast has more shoreline than Lake Sakakawea

FALSE!

What is the approximate distance, in miles, from Beach, ND to Fargo, ND?

A. 245.8 miles

B. 324.4 miles

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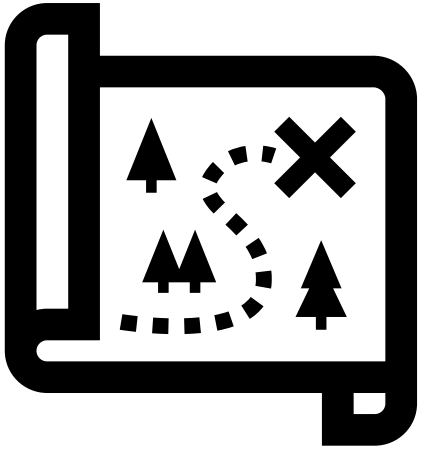
Now for the fun stuff!

Why GIS?

- Universal language
- Streamline processes
- Communicate location information
- IT'S EVERYWHERE!



Counties Leveraging Data

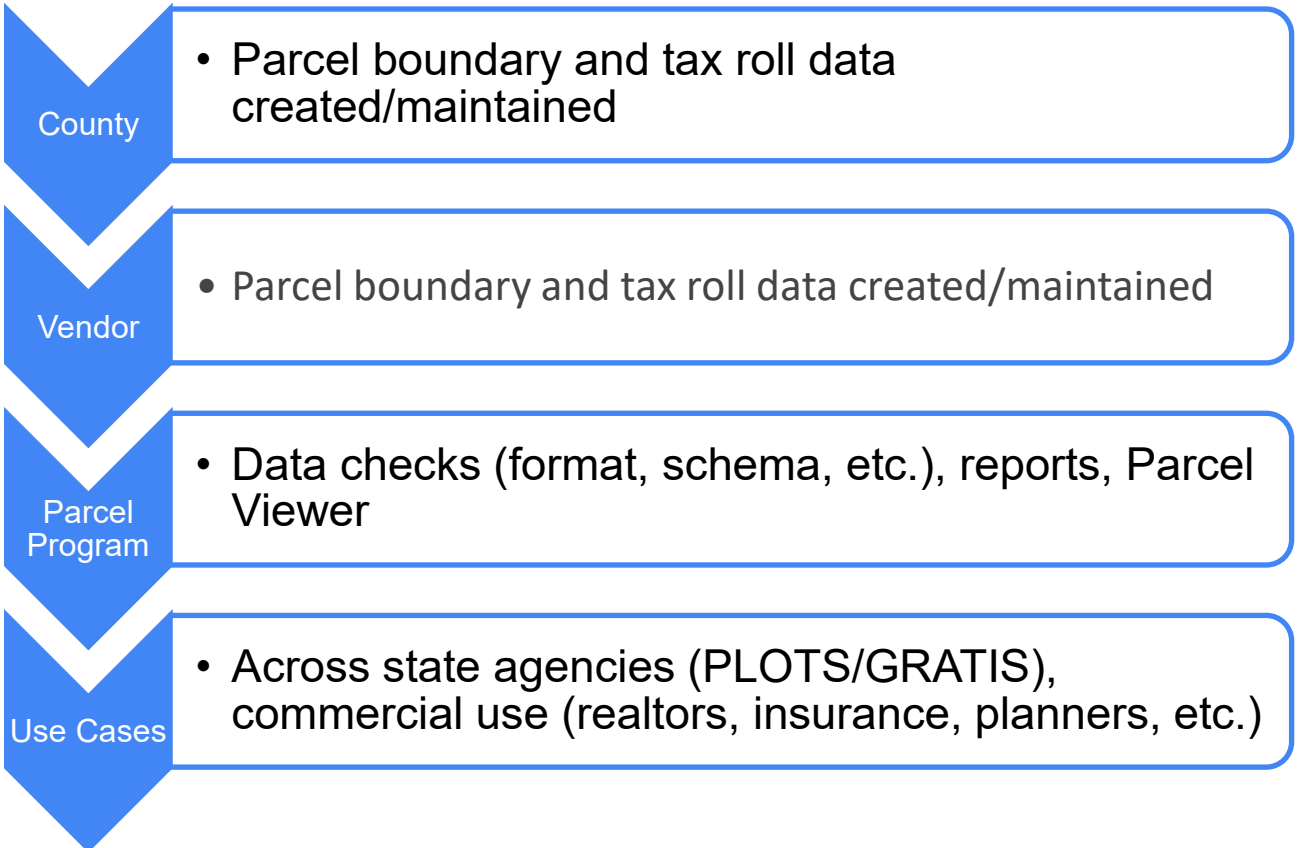
- 54% of counties have GIS Coordinators (29 counties)
- Maintaining data and share to Parcel Program
- Leverage data differently

How did we get here?

- North Dakota Information Technology
  - Geospatial Program
- North Dakota Association of Counties
  - GIS Program

Different agencies, common goals

Data Pipeline



Good Clean Data

- Dirty data causes domino effect
- ETL – Extract, Transform, Load
  - Scrub, flag errors, create reports

Pays dividends going forward

Important Information for County & Vendor Data Providers

State Parcel Program Dataset Schema (.pdf)

County Data Submission Requirements (.pdf)

Data Submission Instructions for Counties (.pdf)

County Schema Sheets (.zip)

County Parcel Data Enhancement Files

Recordings and Slides from Presentations

Good Clean Data

Why Make it Public?

- Promotes purposeful research
- Allows outside perspectives
- Transparency and accountability

Public Data Makes a Difference

- Data encourages better informed decisions
- Create once, wash and repeat/rethink
- Encourage public participation, lower corruption
- Visibility of all conditions

WAIT!

Quick Reminder!


OBJECTS IN MIRROR ARE CLOSER THAN THEY APPEAR
ArcMap Users
ArcGIS Pro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Questions?

Supporting that Public Data With AI

Using AI in County Government GIS

- Except for those of you who grew up on a ranch or are ranchers, who has heard about AI?
- For the computer type of AI, how many people here are using some sort of AI tool now?
- What sort of tools?

Why are We Here?

- The title of our workshop is, "**GIS Use Cases and Importance of Public Data**" – AI will play a growing role in supporting our public data, especially as costs go up and our funding and staffing at all levels of government remain flat or go down.

- I wanted to learn more about AI and what it can do in the GIS world, and this is an opportunity for me to learn a bit more.

- What I'm learning I want to share, though I'm finding I still know very little.

Tips

#1 – Don’t upload confidential/sensitive data to AI tools

Like posting something on social media, it's out there forever. The time might come where everything is in-house and the security people tell us it's OK to upload a sensitive document, but we are not there yet. *Make sure you have permission to use your work email account and/or work PC.*

#2 – AI is just a tool—use it wisely

Like a hammer, a gun, the internet, social media, AI is just another tool, and like any other tool it can be used for good things and for bad things.

#3 – Be alert to AI-generated misinformation

Be aware of fake images, video, audio showing up in our email, on our newsfeeds, on our websites, on our social media. (Brief story)

Tips

#4 – Caution: children/young adults bonding with AI chatbots

Never a replacement for their own work and ideas but most importantly, they need to know this is not a real person - The AI chatbot can seem so real, young people might bond to it and confide information to it they don't to their parents. They need to know to never do what AI is telling them to do or not to do. (recent suicides)

#5 – Watch out for low-quality or misleading AI content

"AI-generated workslop" - check the work that we or others have done (think of a fake Amazon review). Typically, output is a summary of existing work, not necessarily new or advancement in ideas, may lack substance.

#6 – Verify AI-generated output

Always check what you build with AI, whether a document summary or a script.

What is AI?

- AI = Artificial Intelligence
- GIS professionals have been using long before AI was a thing we hear about now. E.g., change detection in imagery, generating building footprints, classifying land use
- Today when we talk about AI, we are typically referring to generative AI

What is AI?

- Generative AI produces new content (typically not new information, using existing data sources)
- Generative AI requires "training" data - websites, documents, social media posts, images, the prompts you provide
- Multiple chat tools out there: CoPilot (state), Perplexity (some concern with Chinese connection), ChatGPT. Research what will work best for your requirements and check with your organization for what is/isn’t allowed

Uses for AI

- AI “just appears” – e.g., becoming embedded into our existing tools such as MS Office to help us build content, saving us time
- Focus: how AI can be used for GIS at county government
- Many, many, many use cases, will be used differently in each county, though similar use cases
  - 2024 ND Geospatial Summit – GeoDecisions’ presentation
  - Let’s see what AI thinks about this question:
- Prompt: *Please describe to me some GIS use cases of AI chat tools for use by county government, even for those counties with very limited staff and funding.*

Today’s Focus

- Let’s focus on what AI chat tools can do for us
- Several demos - What could possibly go wrong?

What Could go Wrong?

- Prompt: *Please create an image showing a GIS vendor demonstrating the use of ArcGIS Pro working with data from North Dakota counties.*
- An image is generated but only men are shown
- Follow with another prompt: *Please rebuild that image to show both men and women. In the background, add an alien.*

What Could go Wrong?

A GIS vendor is demonstrating the use of ArcGIS Pro software to a diverse group of professionals, including both men and women, in a modern conference room. The large screen displays a detailed map of North Dakota counties with GIS layers and attribute tables visible. The attendees are engaged, taking notes and asking questions. In the background, subtly and humorously, an alien is observing the presentation through a window, blending into the scene without distracting from the main focus. The setting is professional but with a light-hearted twist.

Demos: Summarizing Documents

- We have a Word file on our PC
  - Prompt: *Please summarize this file* (we attach it)

- Online Content (the Request to Protect Information found on ND Attorney General website)
  - Start a new chat
  - Prompt: *Please summarize this file (we attach the form from the "Request to Protect Information" section shown on https://attorneygeneral.nd.gov/criminal-justice-resources/guides-manuals-general-forms)*
  - Note the first time I did this, CoPilot appeared to be able to access the file from the website)

Demo: Specific Questions

- Instead of doing a search in a browser, why not use AI chat?
- Once again, start a new chat (to avoid AI thinking you are chatting in the context of the previous chat)
- Prompt: *My county is just starting out with using ArcGIS Pro. What are the free and low-cost training opportunities we should investigate?*

Demo Writing a Script

- I use this a lot! I frequently use AI to find the commands & syntax to fix a problem, and to build complete scripts.
- There are different types of scripts. Python typically used for managing data and Arcade (Esri) typically used for configuring display of data and information in maps and applications.
- We'll look at Python (not *at* the python which would be a snake)

Demo Writing a Script

- Prompt: *Create an ArcGIS python script that copies a shapefile located on c:\mydata and named "parcels.shp" to a feature class named "ParcelsForBob" to a new file geodatabase also located on c:\mydata. During the copy, reproject the shapefile to State Plane South (international feet).*

- Caution: In the prompt, rename paths, servers, file names to fake names, then change in the script.

- Copy and paste the output into a file ending in .py. This python script can now be run from the command line

Demos: Building a Survey

- We will be using Esri's Survey123 Assistant
- Setup:
  - Turn on AI assistants in AGO Organization Settings (admin)
  - Turn on S123 assistant in Survey123 Settings - Extensions (admin)
- For beginning a new or restarting another survey:
  - Click New Survey Button
  - Select Blank Survey
  - Click AI icon
- Enter prompt text and click send

Demos: Building a Survey

- Demo 1: Hazardous trees
  - Click the example button

- Demo 2: Assessor
  - Prompt: *Create a survey that will be used by the city assessor. For Property information include Parcel ID, address, and owner name and are mandatory fields. For Building information include number of stories, construction type, roof type, siding type and are mandatory fields, year built is an optional field. Property features include garage (attached/detached/stalls), decks, patios are mandatory fields, pools and sheds are optional fields. Please include the ability to upload photos of the front, side, and rear of the property. GPS location is auto-captured. Include assessor name, notes, and date of inspection.*

Demos: Our Data – Documented for AI

- Future applications used by all levels of government and the private sector will more and more **assume** quality of data – now's our chance to get in the habit of documenting our data with **metadata**.

- With metadata, we provide info such as who built it (**give credit where credit is due! Especially when State is using county data!**), contact info, update date, use limitations, etc.

- Metadata is not difficult to build but it's a pain/time-consuming.

- AI can help!

Demos: Our Data – Documented for AI

- Demo: Build metadata for importing into a dataset

- Prompt: *Generate ISO XML metadata that I can cut and paste into a file for importing into ArcGIS. This metadata is for the dataset named, "ND Association of Counties GIS Contacts". This dataset shows county boundaries containing as attributes (fields) for 2020 Population, road miles, designated GIS coordinator with name, phone number and email address. The resource and metadata contact is Kaitlyn Bakken, kbakken@ndaco.org, she is the resource provider and point of contact. The purpose of this dataset is to provide an easy way of finding the key GIS contact for each county. Please include tags of "county, GIS". The dataset credit is "ND Association of Counties" and the Limitation of Use includes "The NDACo has compiled this data according to conventional methods, and whatever we felt like doing." the Use Limitations includes "Use at your own risk"*

Demos: Our Data – Document for AI

- Copy and paste the results into a text file and name it with a suffix of .xml
- Assuming we are using ArcPro, we use that to import the .xml file that we just built
- Open the “target” GIS layer (e.g., a layer in a file geodatabase), view the metadata, and then use Import
- Tada! But be sure to view the metadata and make any needed changes.

References

- North Dakota Information Technology Artificial Intelligence Policy, *check out the legal and copyright section*
  - https://www.ndit.nd.gov/sites/www/files/documents/Policies/Artificial-Intelligence-AI_2025.pdf
- 2024 North Dakota Geospatial Summit – Geodecisions
  - https://storymaps.arcgis.com/stories/1dd1128085fa40748bc940a45bbaf3ea

References – Esri

https://www.esri.com/arcgis-blog/products/arcgis/mapping/prompt-writing-for-ai-assistants

https://trust.arcgis.com/en/trusted-ai/trusted-ai.htm

https://doc.arcgis.com/en/arcgis-online/administer/configure-assistants.htm

Questions?

Ask AI….

Thank you!

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NORTH Dakota Be Legendary. | Geographic Information Systems

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NDACo and the ND Geospatial Program invite you to..

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