



Modernizing an Organizational GIS Data Repository across ArcGIS Platforms

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Agenda

Background and Context

Benefits and Risks of moving to web-based services

Scope and Purpose

Project Process & Workflow

Guidance to Agency Users

Project Impact

Lessons Learned

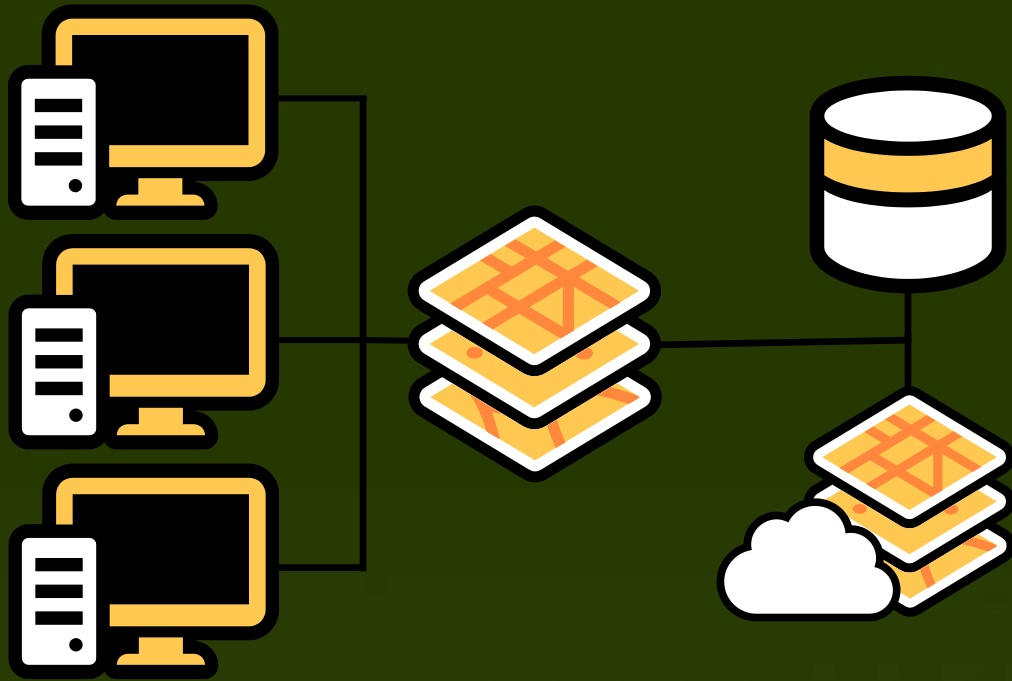
Next Steps

Evolution from Desktop to Web GIS



Traditional Data Management Approach

Types of GIS Data stored at TCEQ:



1. Agency Datasets (created within TCEQ)
2. Non-agency Datasets (not created within TCEQ)
3. Imagery & digital raster graphics (DRG)

Moving to Web-based Services

Benefits

- Real-time updates to data
- Most reliable/authoritative data available
- Less burden on GIS custodians to maintain external datasets
- Decrease server/database storage that is taken up by non-TCEQ datasets
- Available for use across online and desktop GIS

Risks

- Services get moved/removed
- External database or server issues can lead to data being unavailable
- Performance and drawing is dependent on other systems
- Workflows for GIS change

TCEQ's Approach to Modern GIS Administration

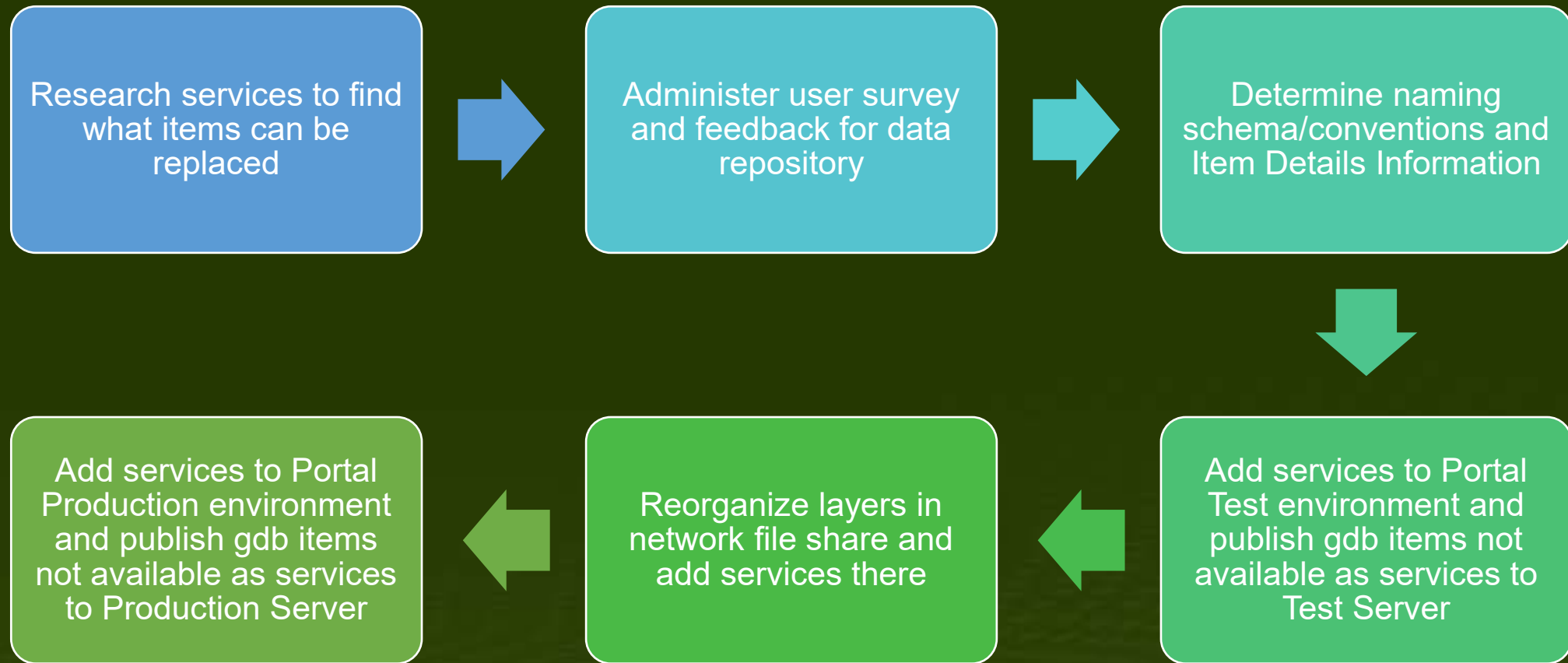
GIS Data Governance Framework

- Data owners vs. Custodians
 - Responsibility of agency offices and GIS Team for data creation and maintenance

Review GIS Data inventory and assess existing datasets

Non-TCEQ Datasets			
Organization	Dataset	Refresh Frequency	Refresh Date
USGS NHD Plus	Classified Waterlines	Semi-Annual	May/November 1st
USGS NHD Plus	Water Areas	Semi-Annual	May/November 1st
USGS NHD Plus	Water Points (includes Stations)	Semi-Annual	May/November 1st
USGS NHD Plus	Waterbodies	Semi-Annual	May/November 1st
USGS NHD Plus	Watersheds HUC 12, 10, 8	Semi-Annual	May/November 1st
Esri	Recreational Areas (golf courses,	Annual	January 1st
Texas Site Search	Industrial Building/Park	Annual	January 1st
TEA	Schools	Annual	September 1st
TPWD	State Parks	Annual	September 1st
TLC	State House Districts	Biennium	After Election Day
TLC	State Senate Districts	Biennium	After Election Day
TLC	US Congressional Districts (Texas	Biennium	After Election Day
TWDB	Groundwater Management Areas	As Needed	As Needed
TWDB	Major Aquifers	As Needed	As Needed
TWDB	Minor Aquifers	As Needed	As Needed
TWDB	Regional Water Planning Areas	As Needed	As Needed
TWDB	River Basins	As Needed	As Needed
TWDB	Waterwell Grids	As Needed	As Needed
USGS	Bathymetry	As Needed	As Needed
USGS	Coastal Elevation	As Needed	As Needed
USGS	Contours	As Needed	As Needed
USGS	Fault DGAT	As Needed	As Needed
USGS	Post Offices	As Needed	As Needed
USGS	Reference Grids	As Needed	As Needed
USGS	Rock Unit DGAT	As Needed	As Needed
USGS	Rock Units	As Needed	As Needed

Implementation Strategy



User Survey

Sent to GIS Users to receive feedback on usability of GeoData

How frequently do you use feature layers from the GeoData repository when creating GIS data and maps?

☐ Always

☐ Often

☐ Sometimes

☐ Rarely

☐ Never

Do you currently have any access issues or limitations with obtaining GeoData?

Have you encountered any issues with the quality or accuracy of GeoData in the past?

Please rate the quality/accuracy of the GeoData that you use.

☐ ☐ ☐ ☐ ☐

Are there any GeoData layers or datasets that you currently lack but would be beneficial for your program area?

Do you have any additional feedback on how GeoData can be improved for your program area?

Please open each Geodata Category and select what layers you use or have used.

This will help us determine which data is important to you and which data will continue to be maintained by the ERGIS team.

Administrative

Air

Census

Select from the following options

☐ CENSUS_2020_Pop_Block

☐ Census_Block_Groups

☐ Census_Blocks

Elevation

Geology

Imagery

Land Cover

Oil/Gas

EPA (Other Enviro)

Parcels

Reference

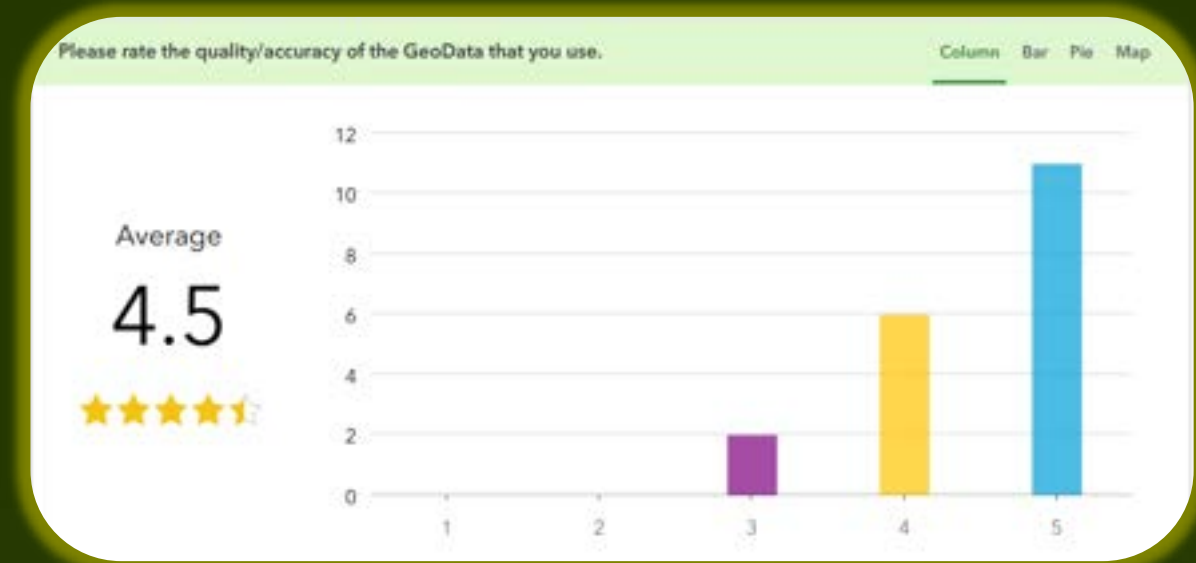


Survey Feedback

The current GeoData repository is frequented by many GIS power users, primarily as a resource for reference.

Primary concerns from users are the data being out of date and/or incomplete.


There are desires from users for easier access to layers not already include in GeoData.



Adding Items to Portal

NPS National Park Service Boundaries

Overview



Edit thumbnail

Add to Favorites

This service depicts National Park Service tract and boundary data that was created by the Land Resources Division. Web Map: <https://nps.maps.arcgis.com/apps/webappviewer/index.html?id=43bc9db4736140e88e661c67460936e6>

Edit

Feature layer by portal_admin

Item created: Aug 20, 2025 Item updated: Sep 2, 2025 View count: 5

Description

Edit

Information on this dataset: DataStore - Administrative Boundaries of National Park System Units - National Geospatial Data Asset (NGDA) NPS National Parks Dataset
Spatial Reference: WGS 1984 Web Mercator (auxiliary sphere)
Source data filtered by state (TX)

Service description: This service depicts National Park Service tract and boundary data that was created by the Land Resources Division. NPS Director's Order #25 states: "Land status maps will be prepared to identify the ownership of the lands within the authorized boundaries of the park unit. These maps, showing ownership and acreage, are the 'official record' of the acreage of Federal and non-federal lands within the park boundaries. While these maps are the official record of the lands and acreage within the unit's authorized boundaries, they are not of survey quality and not intended to be used for survey purposes." As such this data is intended for use as a tool for GIS analysis. It is in no way intended for engineering or legal purposes. The data accuracy is checked against best available sources which may be dated and vary by location. NPS assumes no liability for use of this data. The boundary polygons represent the current legislated boundary of a given NPS unit. NPS does not necessarily have full fee ownership or hold another interest (easement, right of way,

Note: NPS Service Areas include National Historic Sites, National Monuments, and not only designated "National Parks"

Categories

Edit

Administrative

Tags

Edit

geodata

Credits (Attribution)


Edit

National Park Service (Land Resources Division)

URL

View

<https://services1.arcgis.com/fBc8EJBxQRl>



Adding Items to Portal

The screenshot shows the GeoData portal interface. At the top, there are navigation tabs: Overview, Content, Members, and Settings. Below the tabs is a search bar labeled "Search group content". On the left, there are filters for "Group categories" and "Item type". The "Group categories" filter is expanded, showing a list of categories: Uncategorized, Administrative (31), Air (7), Census (3), Elevation (3), Geology (4), Imagery (14), Land Use (5), Oil_Gas (3), Other_Enviro (3), Parcels (2), and Reference (5). The "Item type" filter is also expanded, showing "Maps". The main content area displays a list of items. The first item is "USCB Census Blocks", which is a "Feature Layer" created on Jul 17, 2025. The second item is "USCB Census Combined Statistical Areas", which is a "Map Image Layer" created on Mar 19, 2025. Both items are listed with their creation and update dates and view counts.

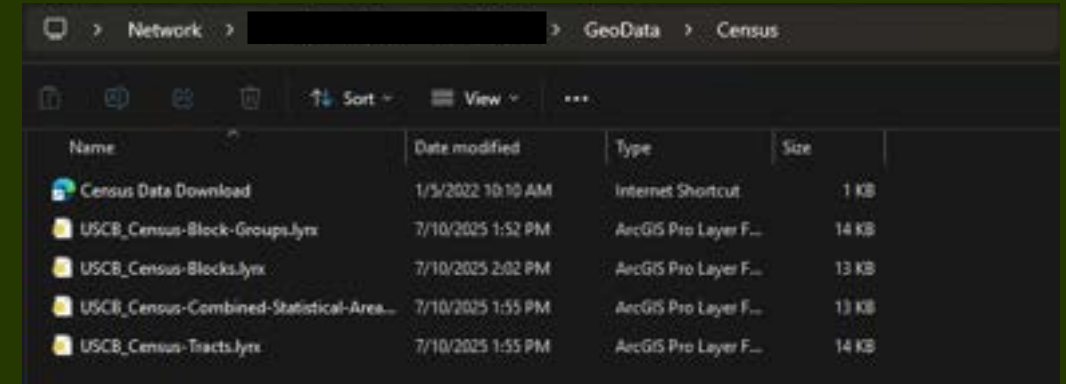
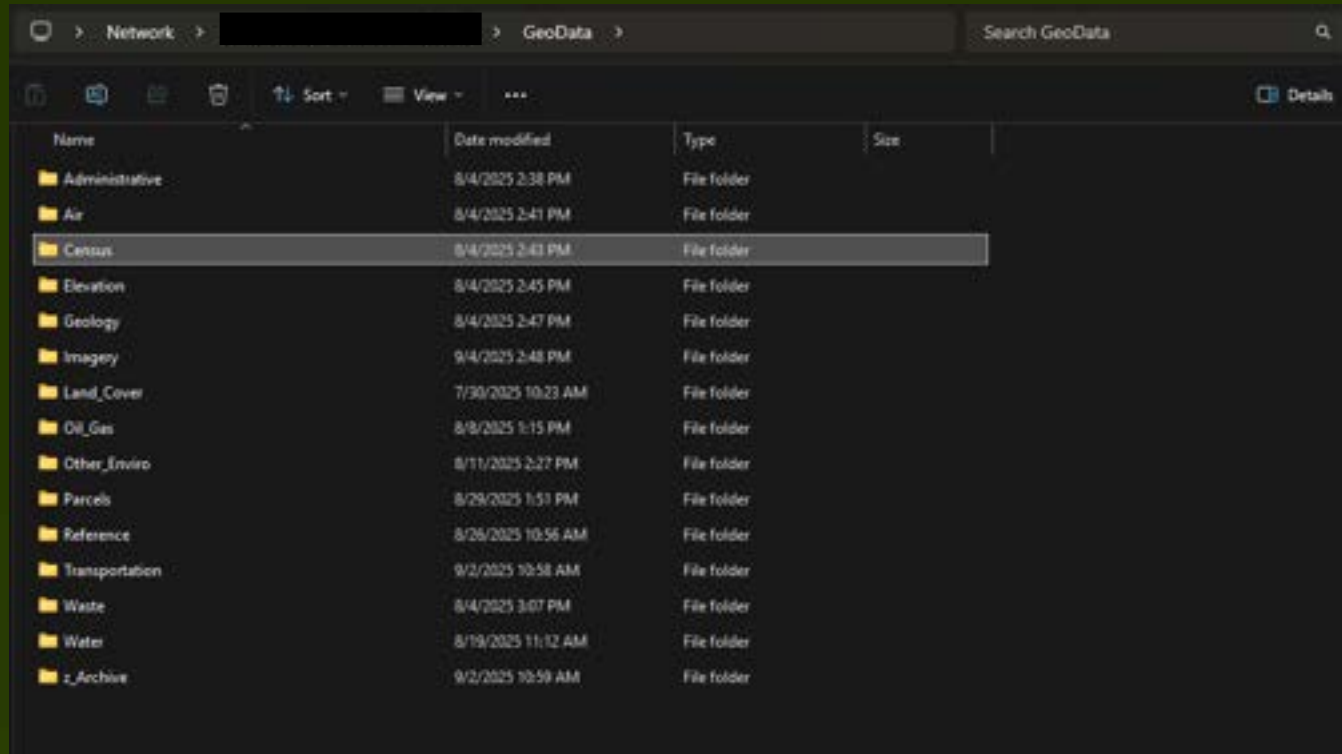
The screenshot shows the ArcGIS REST Services Directory for GeoData. The page title is "ArcGIS REST Services Directory". The breadcrumb navigation is "Home > services > GeoData". The folder is "GeoData" and the current version is "11.3". The services listed are:

- GeoData/ESRI_Recreational_Areas (MapServer)
- GeoData/TCEQ_2020_Inactive_Groundwater_Contamination_Cases (MapServer)
- GeoData/TCEQ_2021_Inactive_Groundwater_Contamination_Cases (MapServer)
- GeoData/TCEQ_2022_Inactive_Groundwater_Contamination_Cases (MapServer)
- GeoData/TCEQ_Air_Monitors (MapServer)
- GeoData/TCEQ_Air_Nonattainment_Areas (MapServer)
- GeoData/TCEQ_Air_Permits (MapServer)
- GeoData/TCEQ_Air_Pollutant_Watch_List_Areas (MapServer)
- GeoData/TCEQ_Brownfields_Polygons (MapServer)
- GeoData/TCEQ_Counties_3League (MapServer)
- GeoData/TCEQ_Counties (MapServer)
- GeoData/TCEQ_Dams_Lines (MapServer)
- GeoData/TCEQ_Dry_Cleaner_Polygons (MapServer)
- GeoData/TCEQ_Groundwater_Conservation_Districts (MapServer)
- GeoData/TCEQ_IHW_Corrective_Action_Program_Polygons (MapServer)
- GeoData/TCEQ_Injection_Wells (MapServer)
- GeoData/TCEQ_IOP_Polygons (MapServer)
- GeoData/TCEQ_LPST_Cleanups_Polygons (MapServer)
- GeoData/TCEQ_MSW_Landfill_Polygons (MapServer)
- GeoData/TCEQ_Priority_Groundwater_Management_Areas (MapServer)
- GeoData/TCEQ_Regional_Offices (MapServer)
- GeoData/TCEQ_Tier_II_LEPC (MapServer)
- GeoData/TCEQ_VCP_Polygons (MapServer)
- GeoData/TxDOT_Counties_Detailed_Coast (MapServer)
- GeoData/USGS_Gulf_of_Mexico (MapServer)
- GeoData/USGS_National_Map_Roads (MapServer)
- GeoData/USGS_Reference_Grid_1X2_Degree (MapServer)
- GeoData/ZP_Industrial_Parks (MapServer)

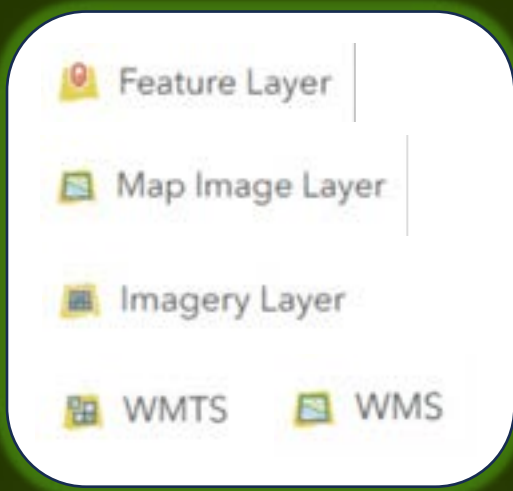
Supported Interfaces: REST SOAP Sitemap GeoSitemap



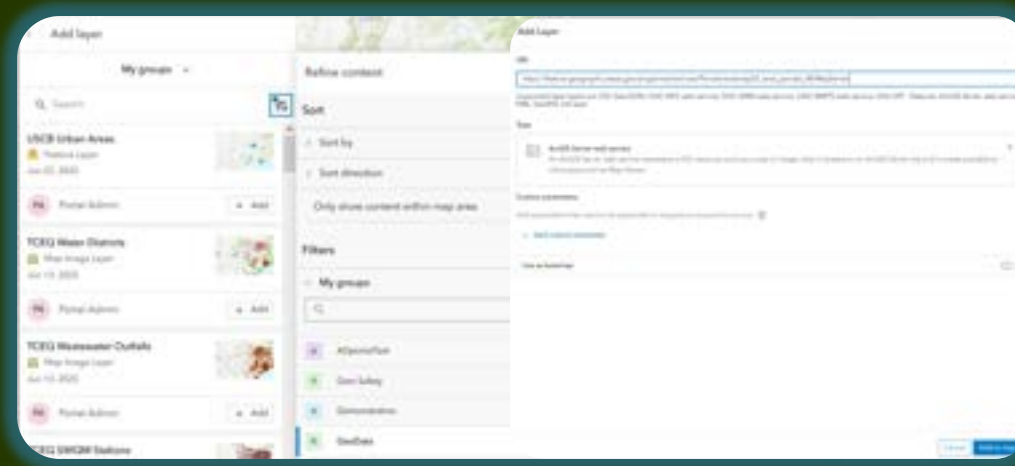
Reorganizing Network File Drive



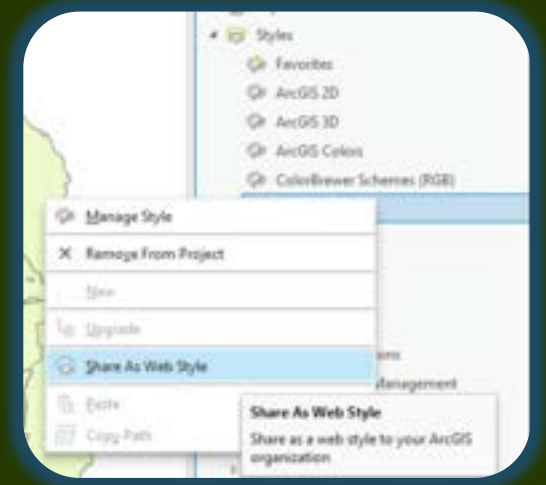
Guidance for new GeoData



Understanding different layers and their constraints



Adding items vs. adding layers from a REST Service



Creating and applying custom symbology across platforms



Results and Impact



Improved data availability
across platforms



Efficiency improvements



In some cases, improved data
rendering – in others, less so



Lessons Learned



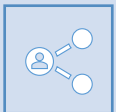
This isn't a one size fits all solution – some maintenance is still required



Changes in data can impact maps and applications that are using those services

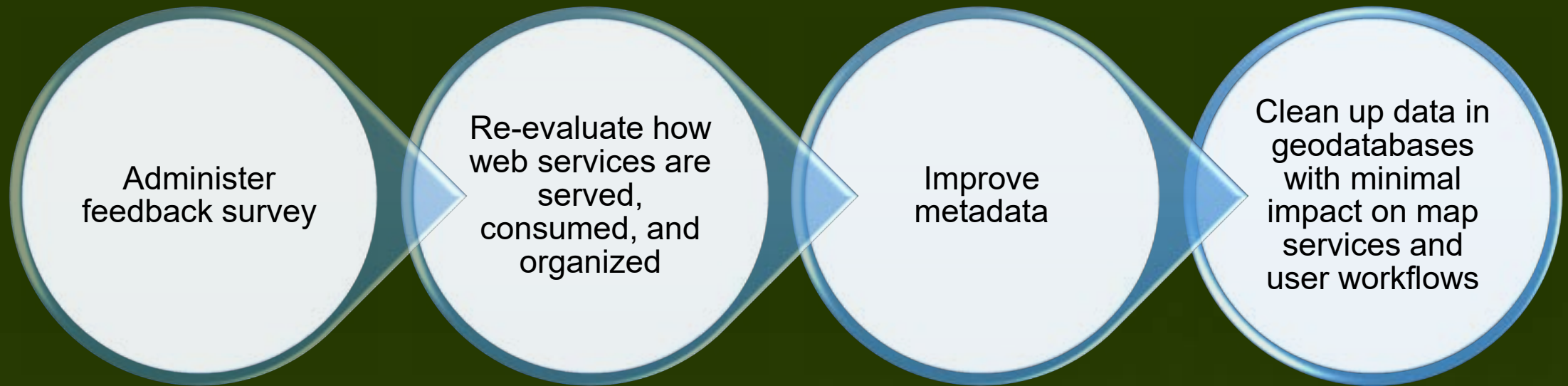


It's important to start small



Cross-agency collaboration and getting feedback is vital to understanding users' needs

Next Steps



THANK YOU!

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