



# Fundamentals of working with geographic data

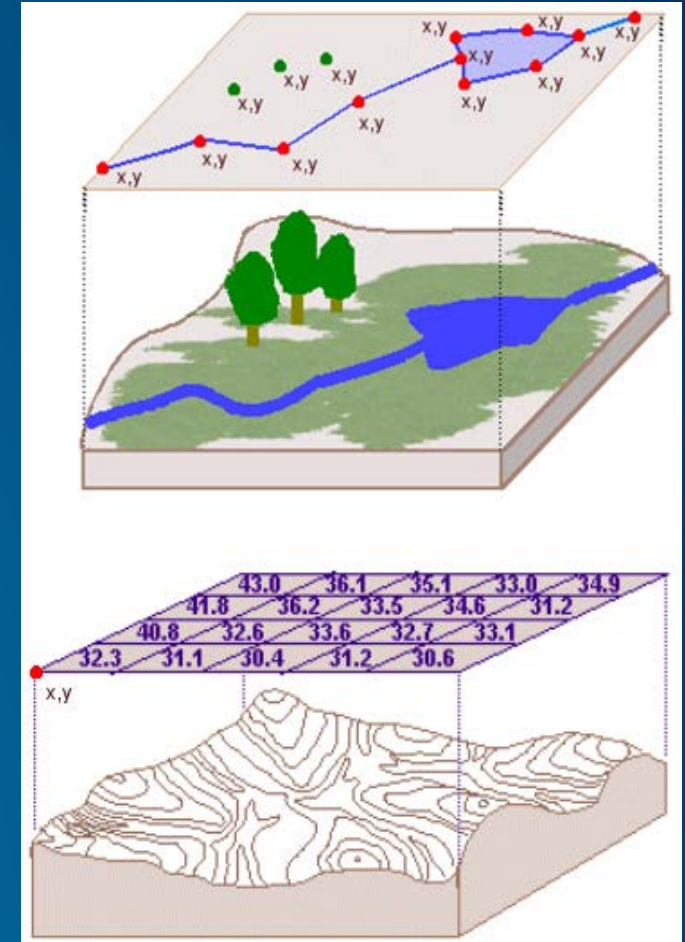
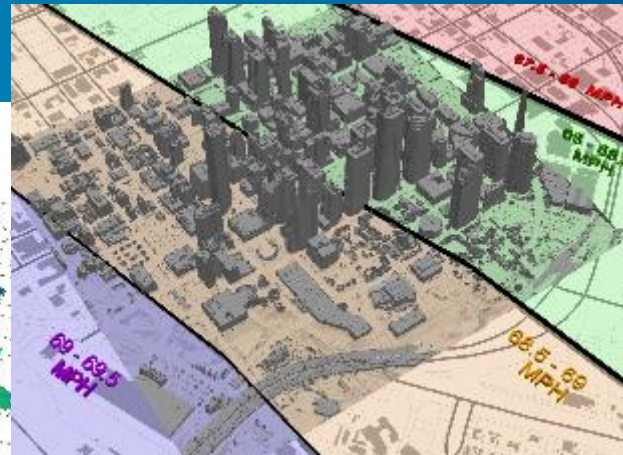
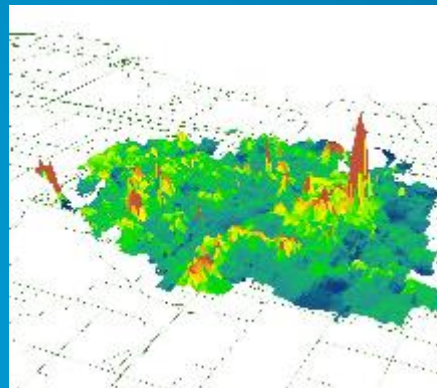
Miriam Schmidts

# Agenda

- **Geographic data – Maps**
- **Storing GIS Data on premise (“locally”)**
- **Publishing GIS Data as web layers or services**

# Geographic Data

- Information about geographic locations
  - Describes objects in relation to space
- Becomes **GIS data** when stored in a GIS compatible format
  - Visualized in GIS maps
- Represented as vector or raster
  - 2D and 3D
  - Geometry
  - Attributes
  - optionally Time



# GIS maps, layers, and data

- A GIS *map* is a compilation of layers
- Each layer is a representation of GIS data
  - Layers reference GIS data
    - Stored on premise (“locally”)
    - Published as services (web layers)



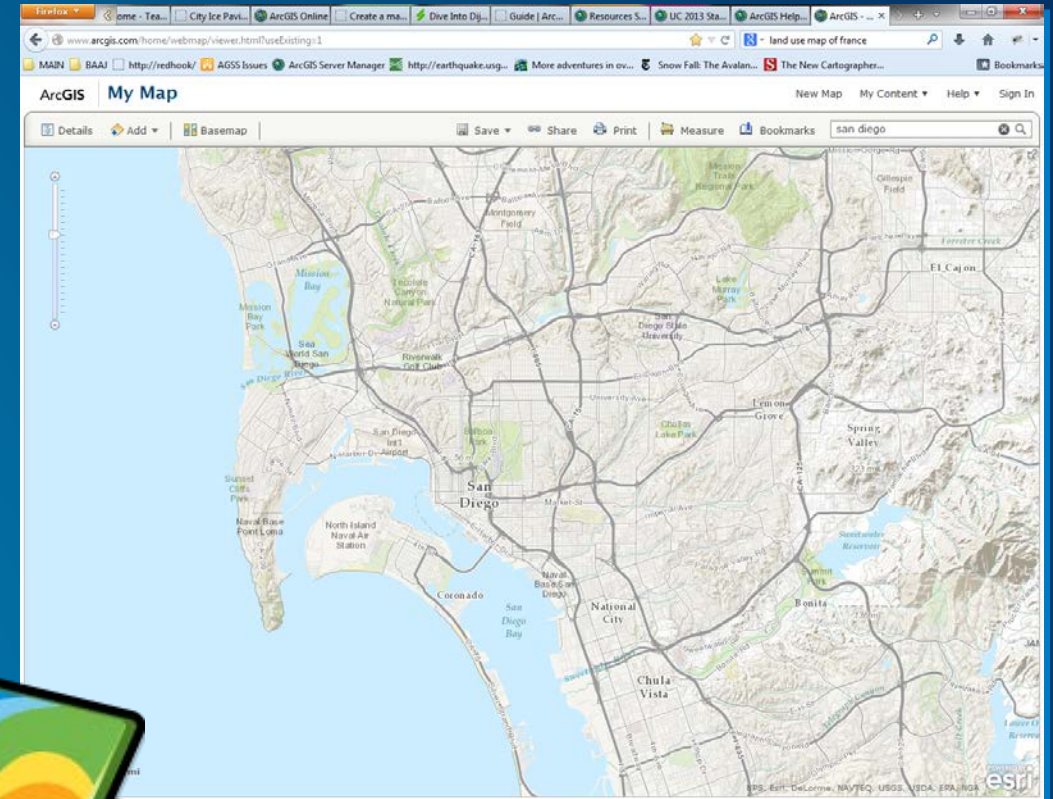
C:\Data\Base.gdb\Streets

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URL

<http://services.arcgis.com/arcgis/rest/services/Streets/FeatureServer>



# Storing GIS Data on premise (“locally”)

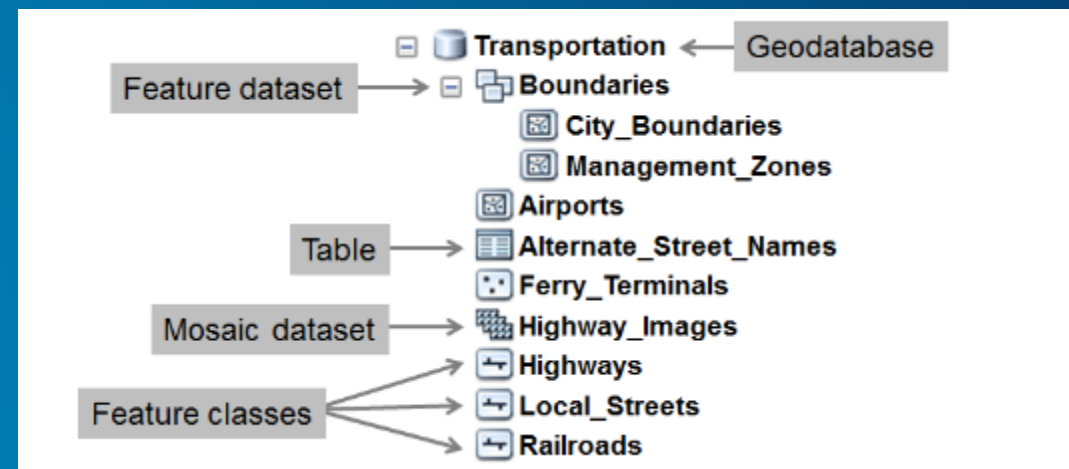
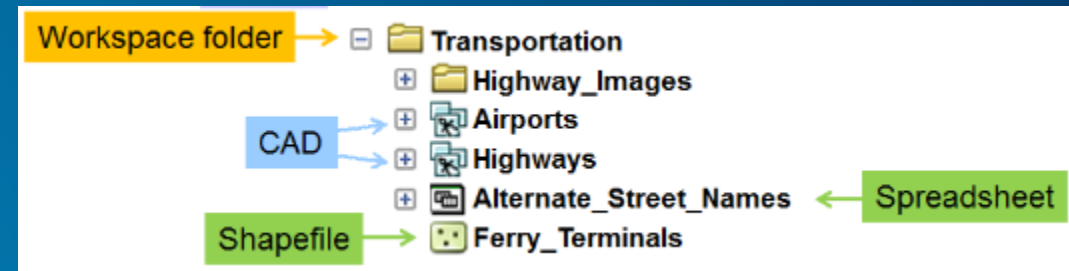
- File format

- Vector: e.g. Shapefiles (.shp)
- Tabular: e.g. Excel (.xlsx)
- Raster/Image: e.g. Geotiff (.tif)

- Geodatabase

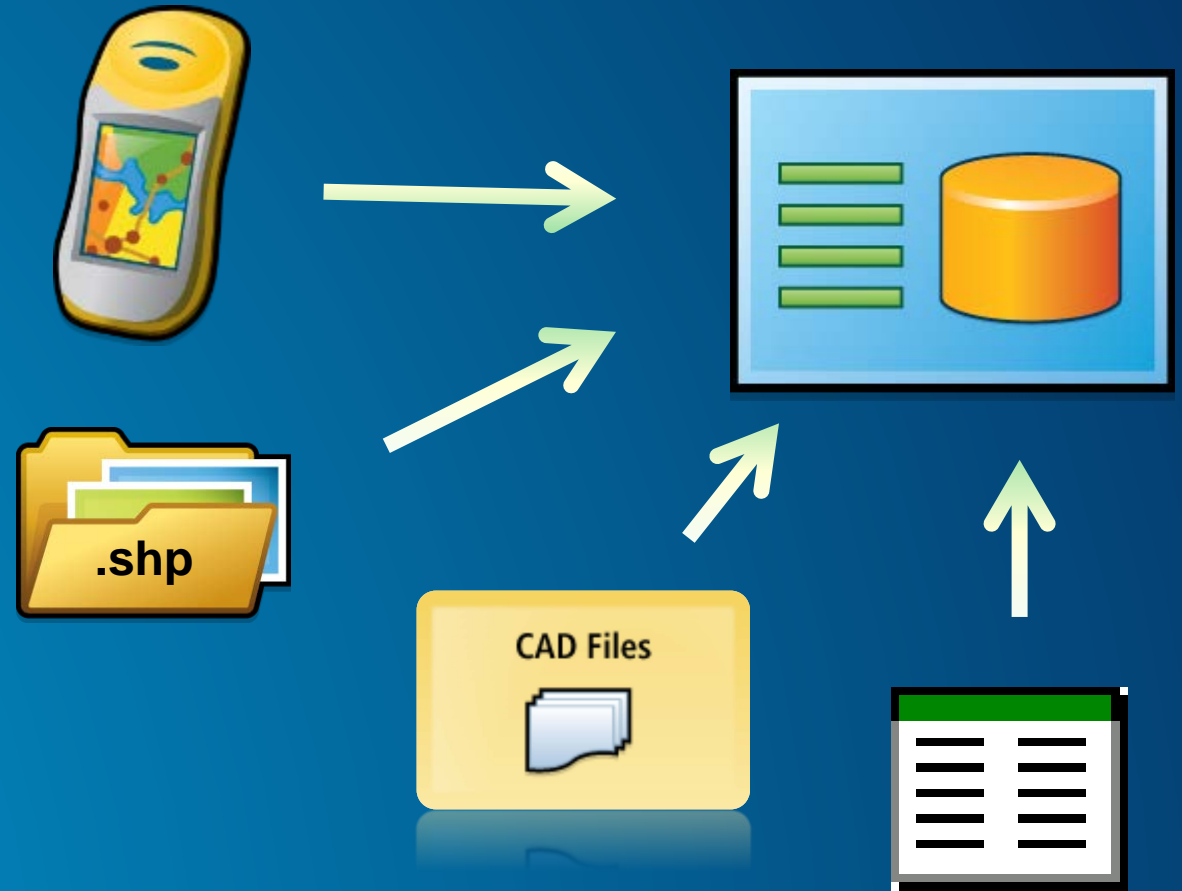
- Native storage format of ArcGIS
- “Smart” storage container for data
  - Data Validation, e.g. Domains, Topology
  - Advanced data modeling e.g. Networks, Parcel Fabrics
- Single and multi-user geodatabases

- Can convert data formats



# Demo: Converting GIS Data formats







- Converting data formats
  - GPX to geodatabase
  - Shapefile to geodatabase
  - CAD to geodatabase
  - Excel to Table



# Sharing GIS Data as services

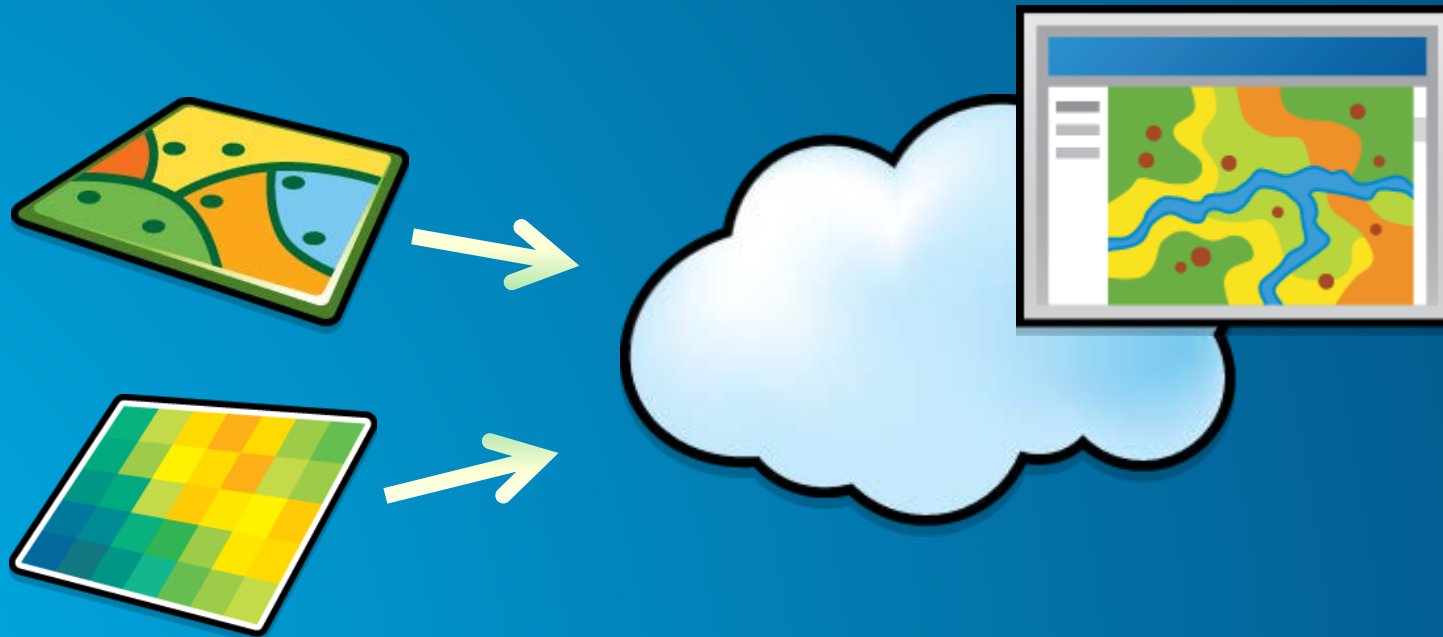
... also called publishing

- ArcGIS Online/Portal for ArcGIS or ArcGIS Server

GIS Resources		Service type	Supported in...
	Map document	Map	ArcGIS Online/Portal + ArcGIS Server
	Map document	Feature	ArcGIS Online/ Portal+ ArcGIS Server
	Raster or mosaic dataset	Image	ArcGIS Server ONLY
	Address locator	Geocoding	ArcGIS Server ONLY
	Geoprocessing model	Geoprocessing	ArcGIS Server ONLY
	Geodatabase or geodatabase connection	Geodata	ArcGIS Server ONLY

## Demo: Sharing GIS Data as services

- Publish a feature service to ArcGIS Online
- Publish an image service to ArcGIS Server
- Make a web map





# What else can we do with GIS data?



# Summary

- **Map layers reference data sources**
  - “Local” datasets
  - Web layers (services)
- **ArcGIS supports a variety of data storage formats**
  - Geodatabase: native ArcGIS data format (smart container)
  - Conversion tools to convert formats into one another
- **Publish map and feature services to ArcGIS Online or ArcGIS for Server**
- **Other types of service: Image, Geocoding, Geoprocessing and Geodata**

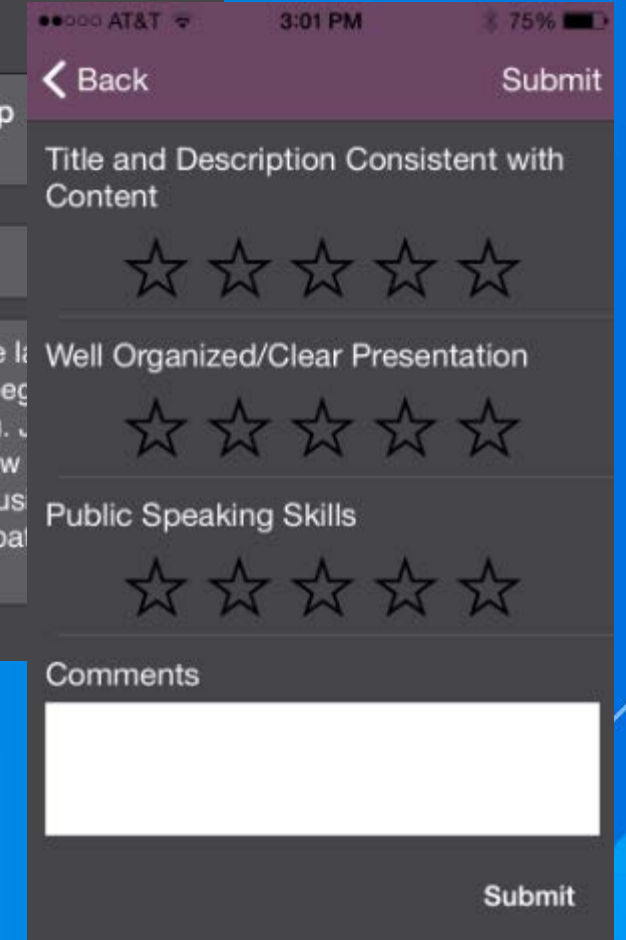
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## Paper – pick up and put in drop box

- Some paper surveys available for those without devices





**Thank you!**



Understanding our world.