Introduction to Using Spatial Analysis in ArcGIS Online

Jay Fowler
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Agenda

- Introduction to ArcGIS Online Spatial Analysis
- ArcGIS Online Spatial Analysis Workflow
- Demos and Examples
- Wrap-up
- Q&A
ArcGIS
A complete web GIS platform

A system for managing and applying geographic information

Web GIS

Deployable on-premises, online, and hybrid

Open

Supporting individuals, organizations, and communities
Where does analysis fit in?
Where does analysis fit in?
- ArcGIS Desktop
Where does analysis fit in?

- ArcGIS Desktop
- ArcGIS Online/ArcGIS Enterprise
Where does analysis fit in?
- ArcGIS Desktop
- ArcGIS Online/ArcGIS Enterprise
- ArcGIS Maps for Office
Where does analysis fit in?

- ArcGIS Desktop
- ArcGIS Online/ArcGIS Enterprise
- ArcGIS Maps for Office
ArcGIS Online Analytics

- Integrate the analytics into ArcGIS online for your organization’s workflows
ArcGIS Online Analytics

- Integrate the analytics into ArcGIS online for your organization’s workflows
  - Discover new relationships, patterns, and trends
ArcGIS Online Analytics

- Integrate the analytics into ArcGIS online for your organization’s workflows
  - Discover new relationships, patterns, and trends
  - Answer questions in a more meaningful way
  - Glean new insight and information
What do you need?

- Identity
- Role w/ permissions*:
  - Create content
  - Publish hosted feature layers
  - Use spatial analysis
- Credits
Spatial Analysis Tools

- Summarize Data
- Find Locations
- Data Enrichment
- Analyze Patterns
- Use Proximity
- Manage Data
Summarize Data

- Calculate summary statistics for features and attributes

Los Angeles schools aggregated to 1KM hex bins (Esri Living Atlas Analysis Layer)
Find Locations

- Find features based on specific criteria

San Diego Clinics, .5 miles from a freeway (Esri Living Atlas layer)
Data Enrichment

- Explore the character of areas
- Add detailed demographic data and statistics to your analysis
Analyze Patterns

- Identify, quantify, and visualize spatial patterns in your data

Density of daytime robberies in Washington D.C.
Use Proximity

• What is near what?

- 5 minute drive-time from Denver hospitals
- 20 KM Buffer around active volcanoes
Manage Data

- Manage geographic data and combine data prior to performing analysis

Merged medical facilities layers in San Diego county
ArcGIS Online Analysis Workflow

Ask a question

- How many are in an area?
- Which sites meet my criteria?
- What is near what?
ArcGIS Online Analysis Workflow

- Ask a question
- Prepare Data

• Add data to your portal
ArcGIS Online Analysis Workflow

1. Ask a question
2. Prepare Data
3. Add to Map

Change Style
Travel from Denver Hospitals
(5 Minutes)

1. Choose an attribute to show
   - Show location only

2. Select a drawing style
   - Location (Single symbol)

Driving Time Areas Summary
- Name and Size: 0 - 5
- Travel Time Start (Minutes): 0.00
- Travel Time End (Minutes): 5.00
- Area (Square Kilometers): 23.01
- Facility ID

Zoom to Get Directions
DONE CANCEL
ArcGIS Online Analysis Workflow
ArcGIS Online Analysis Workflow

1. Ask a question
2. Prepare Data
3. Add to Map
4. Perform Analysis

- Summarize Data
  - Aggregate Points
  - Summarize Nearby
  - Summarize Within

**Summarize Within**

Finds areas (and portions of areas) that overlap between two layers and calculates statistics about the overlap. For example:

- Given a layer of watershed areas and a layer of land-use areas by land-use type, calculate total acreage of land-use type for each watershed.
- Given a layer of parcels in a county and a layer of city boundaries, summarize the average value of vacant parcels within each city.
ArcGIS Online Analysis Workflow

1. Ask a question
2. Prepare Data
3. Add to Map
4. Perform Analysis

- Summarize Within
  1. Choose an area layer to summarize other features within its boundaries
     - DC_MetroBoundary
  2. Choose a layer to summarize
     - HospitalsDC
  3. Add statistics from the layer to summarize
  4. Choose field to group by (optional)
  5. Result layer name
     - Summarize HospitalsDC within DC_Metro
     - Save result in Mich8024
ArcGIS Online Analysis Workflow

1. Ask a question
2. Prepare Data
3. Add to Map
4. Perform Analysis
5. Review Results
ArcGIS Online Analysis Workflow

1. Ask a question
2. Prepare Data
3. Add to Map
4. Perform Analysis
5. Review Results

The workflow can be revisited at any point.
ArcGIS Online Analysis Workflow

1. Ask a question
2. Prepare Data
3. Add to Map
4. Perform Analysis
5. Review Results
6. Share Results

Save Map

Title: Minimize travel cost and maximize demand served
Tags: Demo5, FedGIS
Summary: A web map to use for FedGIS Demos for ArcGIS Online
Save in folder: Mich8024

Create a New Web App

What do you want to do?
- Select a configurable app
- Build a Story Map
- Collect/Edit Data
- Compare Map Layers
- Explore/Synchronize Data
- Map Social Media
- Provide Local Information
- Route/Det Directions
- Showcase a Map

Options:
- Basic Viewer
- Compare Analysis
- Crowdsource Puzzling
- Edit
- Elevation Profile
Parcel Inspection Assignments
Demo Review

Add Current Data

Parcels
Permit Inspection Zones
Permit Request Table
Demo Review

Add Current Data

Perform analysis

Parcels
Permit Inspection Zones
Permit Request Table

Join Features

Parcels with Inspection Requests
Demo Review

Add Current Data

Perform analysis

Perform analysis

Parcels Permit Inspection Zones Permit Request Table

Join Features

Join Features

Parcels with Inspection Requests

Zone Assignments for Inspections
Average Gas Price in La County
Demo Review

Add Current Data

LA Gas Stations
LA Zip Codes
Demo Review

Add Current Data → LA Gas Stations
LA Gas Stations
LA Zip Codes

Perform analysis → Dissolve Boundaries
Dissolve Boundaries → LA County Boundary
Demo Review

1. Add Current Data → LA Gas Stations, LA Zip Codes
2. Perform analysis → Dissolve Boundaries → LA County Boundary
3. Perform analysis → Summarize Within → Avg Gas Price LA County
Demo Review

1. Add Current Data
   - LA Gas Stations
   - LA Zip Codes

2. Perform analysis
   - Dissolve Boundaries
   - LA County Boundary

3. Perform analysis
   - Summarize Within
   - Avg Gas Price LA County

4. Review Results
   - View Pop-up
Site Selection - New Hospitals in San Francisco
Demo Review

Add current data

Existing Hospitals
Potential Hospitals
Patients
Demo Review

- Add current data
- Perform analysis
- Existing Hospitals
  Potential Hospitals
  Patients
- Choose best facilities
Demo Review

Add current data

Existing Hospitals
Potential Hospitals
Patients

Perform analysis

Choose best facilities

• Maximize coverage
• Choose from potential locations
• Choose 3 new locations
Demo Review

Add current data

Perform analysis

• Maximize coverage
• Choose from potential locations
• Choose 3 new locations

Review Results

Existing Hospitals
Potential Hospitals
Patients

Choose best facilities
Analyze LA County School Performance
Share results with a web app
Demo Review

Add data

Public schools w/ API scores
Demo Review

Add data → Public schools w/ API scores → Perform analysis → 1KM Hex Bins → Aggregate Points → Neighborhoods w/ higher or lower API
Demo Review

Add data → Public schools w/ API scores

Perform analysis → 1KM Hex Bins

Perform analysis → Aggregate Points

Create Hotspots → Neighborhoods w/ higher or lower API

Statistically-significant Hotspots and Coldspots
Demo Review

1. **Add data**
   - Public schools w/ API scores

2. **Perform analysis**
   - 1KM Hex Bins
   - Aggregate Points
   - Create Hotspots
   - Calculate Density

3. **Perform analysis**
   - Crime Incidents
   - Neighborhoods w/ higher or lower API
   - Statistically-significant Hotspots and Coldspots
   - Crime Density
Demo Review

Add data → Public schools w/ API scores

Perform analysis → 1KM Hex Bins → Aggregate Points → Neighborhoods w/ higher or lower API
Perform analysis → Create Hotspots → Statistically-significant Hotspots and Coldspots
Perform analysis → Crime Incidents → Calculate Density → Crime Density
Perform analysis → Enrich Layer → Median Income
Demo Review

- Add data
  - Public schools w/ API scores
- Perform analysis
  - 1KM Hex Bins
  - Aggregate Points
- Perform analysis
  - Crime Incidents
  - Create Hotspots
  - Calculate Density
- Perform analysis
  - Enrich Layer
  - Neighborhoods w/ higher or lower API
  - Statistically-significant Hotspots and Coldspots
  - Crime Density
  - Median Income
Demo Review

Add data → Public schools w/ API scores → Aggregate Points

Perform analysis → 1KM Hex Bins

Perform analysis → Create Hotspots

Perform analysis → Crime Incidents

Perform analysis → Calculate Density

Perform analysis → Enrich Layer

Review Results → Share Web Map

Create Web Application → Comparative Analysis

Share Web Map → Create Web Application

Create Hotspots → Neighborhoods w/ higher or lower API

Statistically-significant Hotspots and Coldspots

Crime Density

Median Income
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Select the session you attended

Scroll down to find the survey

Complete Answers and Select “Submit”