



ArcGIS Online: Exploring Your Data with Smart Mapping

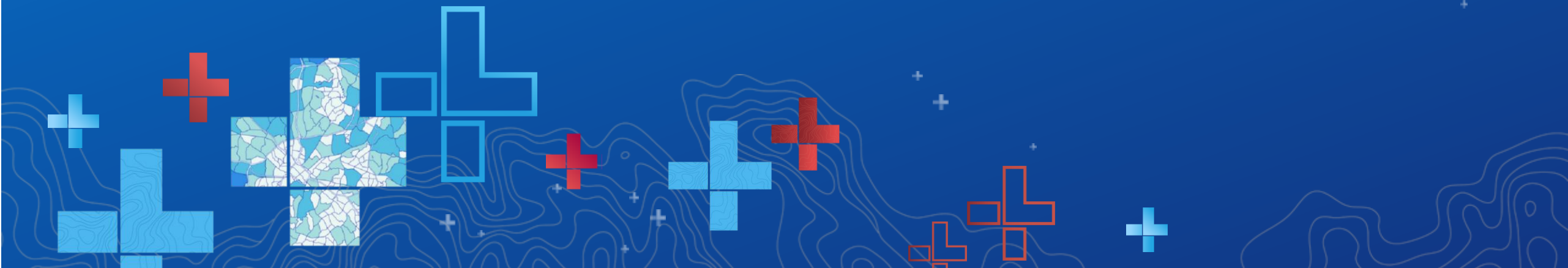
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Michael Blair, Geospatial Developer, Innovate! Inc.

Rebecca Barney, Cartographer, U.S. Census Bureau

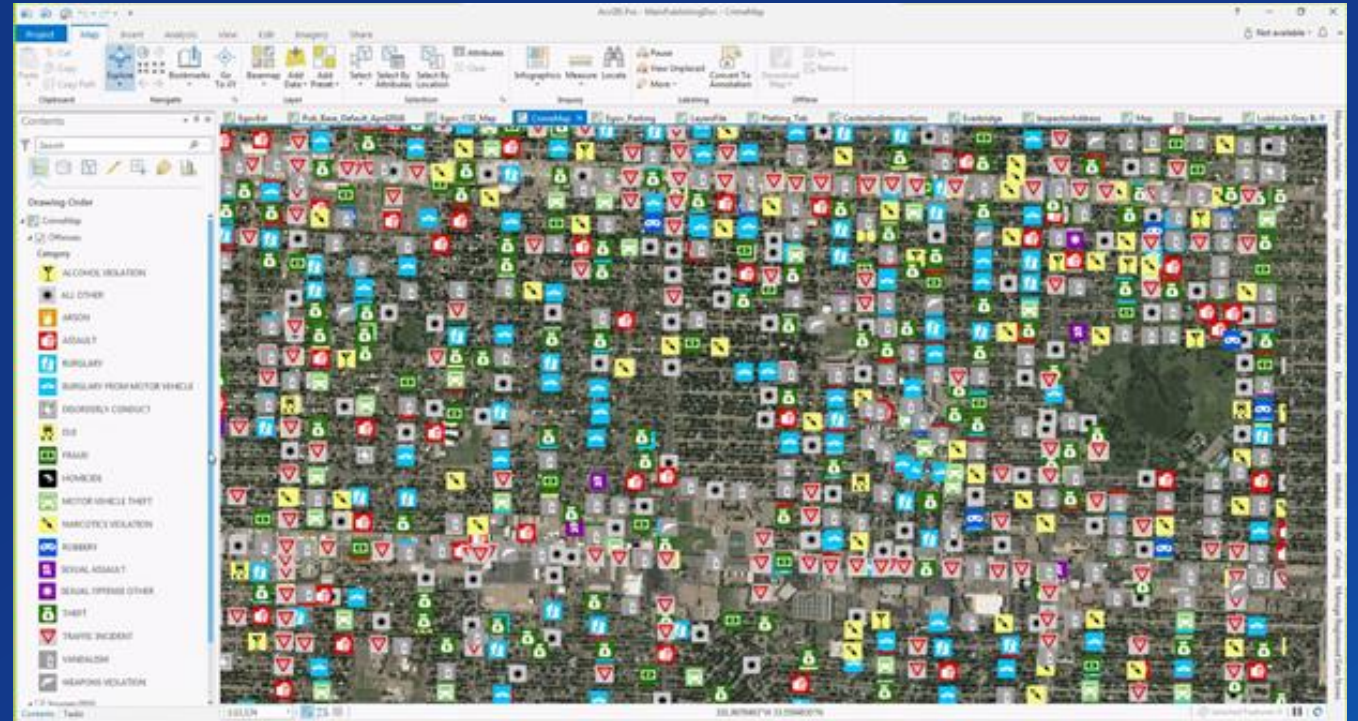
2020 ESRI FEDERAL GIS CONFERENCE | WASHINGTON, D.C.



Agenda

Exploring your Data with Smart Mapping

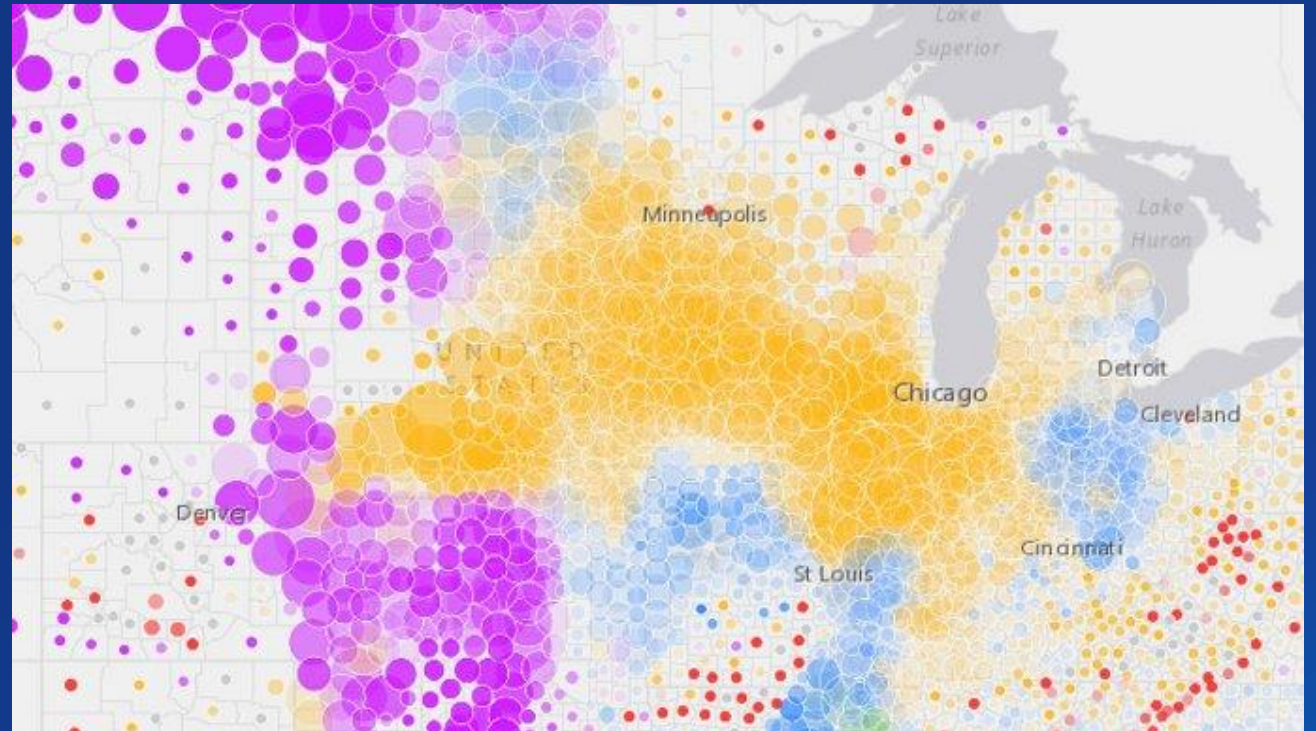
- Introductions
- What is Smart Mapping
- How to Smart Map
- Arcade
- Web AppBuilder
- Census ROAM App
- Questions



What is Smart Mapping?

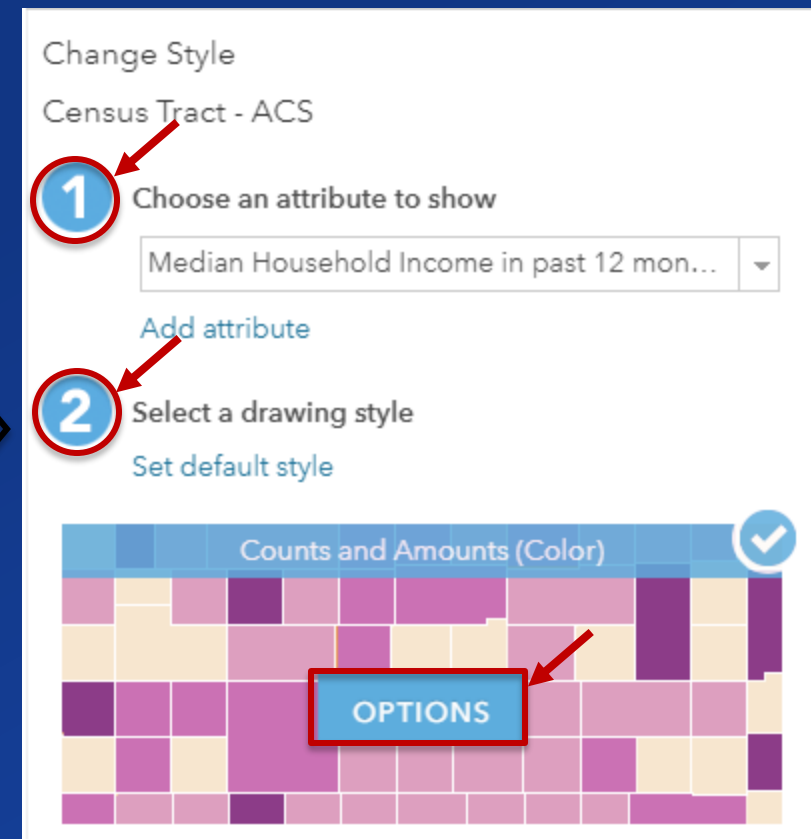
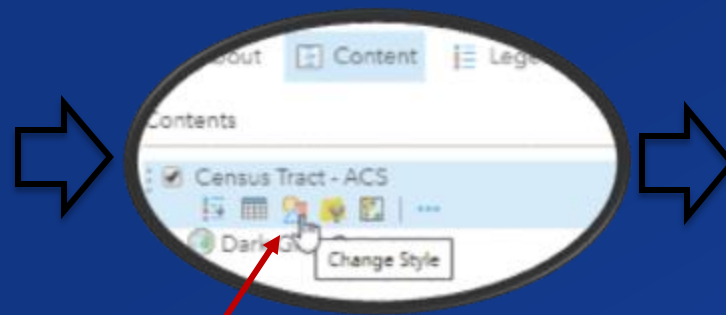
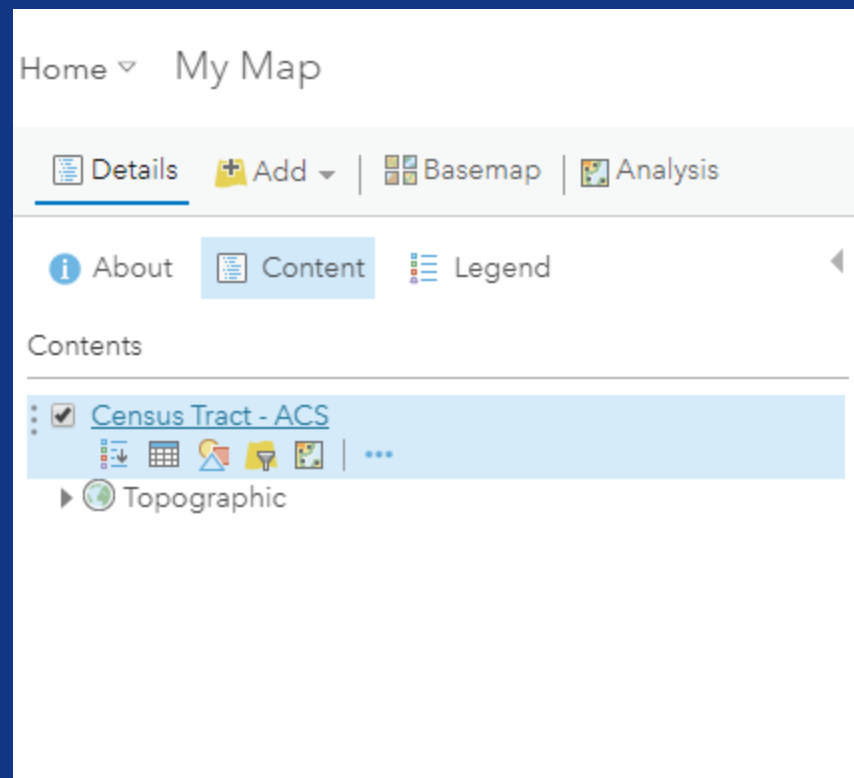
Mapping Made Easy

- **Cartographic First Principles**
 - Interconnected 'Smart' Defaults
 - Create Data-Driven Workflows
- **Explore your data**
- **Understand your data**
- **Find meaning in your data**
- **Uncover new insights**



Map Styles for: Where, What, When, How Much, Who

How to Smart Map in 3 Easy Steps



smart mapping provides drawing styles based on the type of attribute

Choose Attribute(s)

Step One

1 Choose an attribute to show

Percent of Households with No Internet Ac... ▼

Add attribute

smart mapping provides drawing styles
based on the type of attribute

1 Choose an attribute to show

Percent of Households with No Internet Ac... ▼

↻ Total households ▼ ✕

Add attribute

explore relationships between
two attributes

1 Choose an attribute to show

Households that have a Desktop or Laptop... ▼

Households that Have a Smartphone with ... ▼ ✕

Households that Have a Tablet or Other Po... ▼ ✕

Households that Have an Other Computer ... ▼ ✕

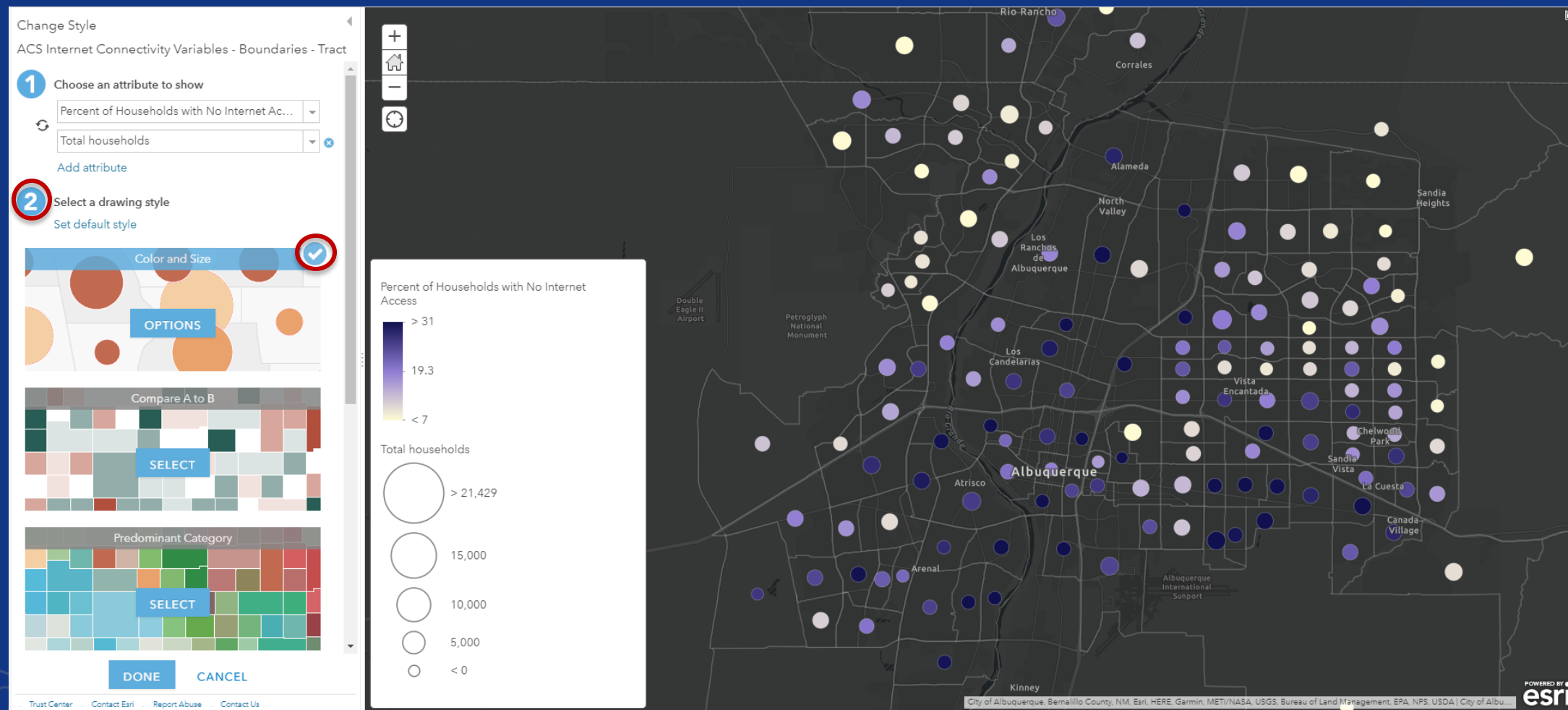
Households that Have No Computer ▼ ✕

Add attribute

choose up to nine related attributes
to compare their values

Select a Drawing Style

Step Two



different drawing styles can help you tell your story in the clearest way

Explore the Options

Step Three

Change Style

ACS Internet Connectivity Variables - Boundaries - Tract

1 Choose an attribute to show

Percent of Households with No Internet Access

Add attribute

2 Select a drawing style

Counts and Amounts (Color)

SELECT

Counts and Amounts (Size) ☒

OPTIONS

Location (Single symbol)

SELECT

Types (Unique symbols)

DONE CANCEL

Change Style

ACS Internet Connectivity Variables - Boundaries - Tract

Percent of Households with No Internet Access

Divided By: None

100

0

0

Symbols

Invert

Polygons

Zoom in

Size

☒ Adjust size range automatically

☐ Specify size range

Min 16 px Max 80 px

☐ Classify Data

☐ Draw features with no value.

☐ Rotate symbols (degrees)

☒ Show in legend

Transparency

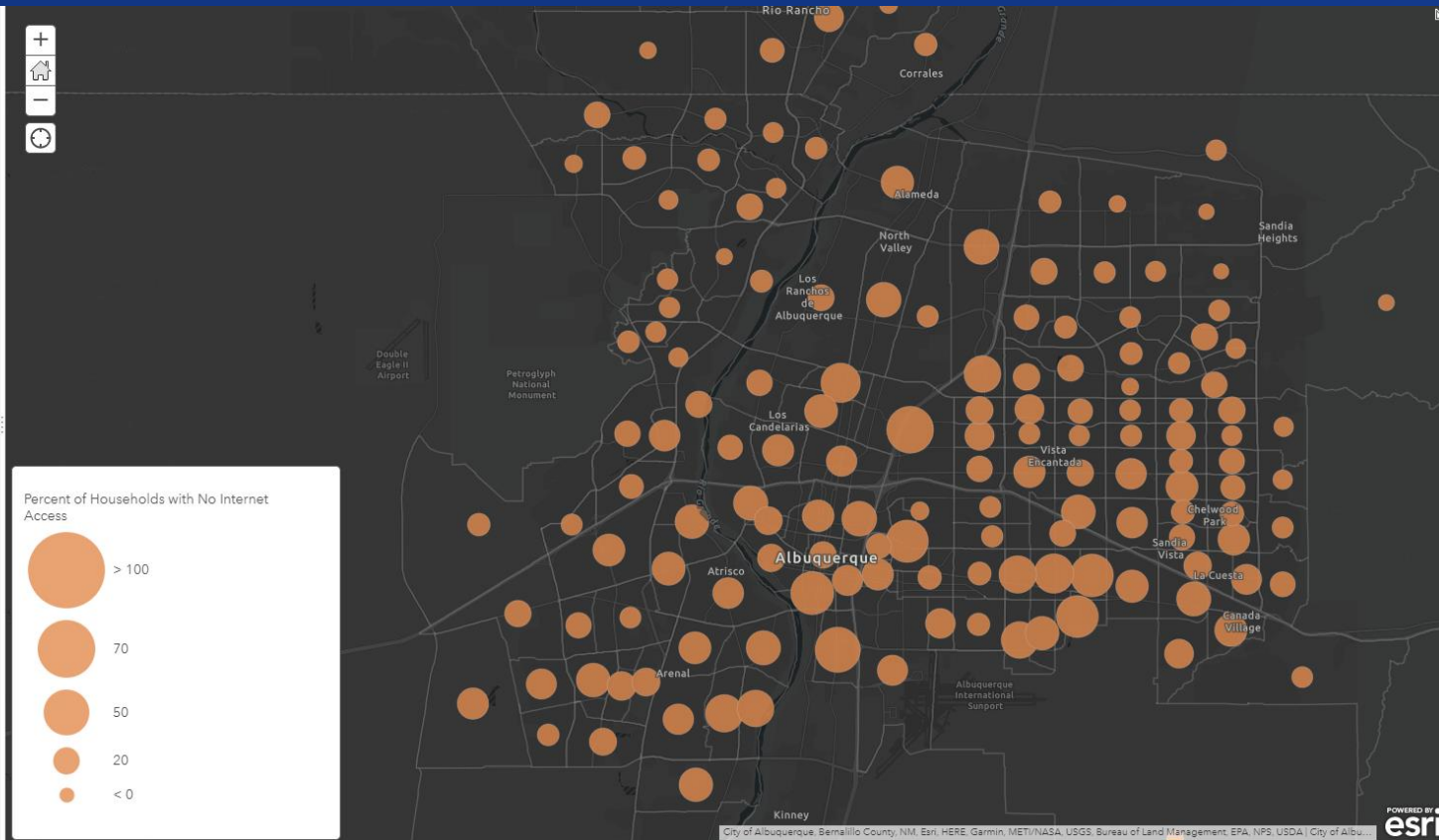
Overall

0% 50% 100%

Per feature

OK CANCEL

Trust Center Contact Esri Report Abuse Contact Us



explore your data and make additional cartographic changes

Smart Mapping Styles



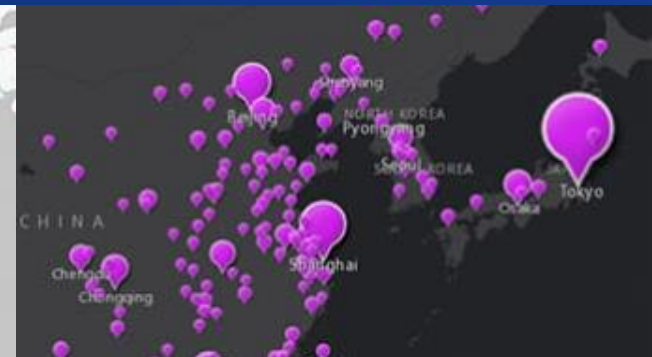
Heat Map



Clustering Map



Choropleth (Color) Map



Size Map



Bivariate (Color & Size) Map



Time Map

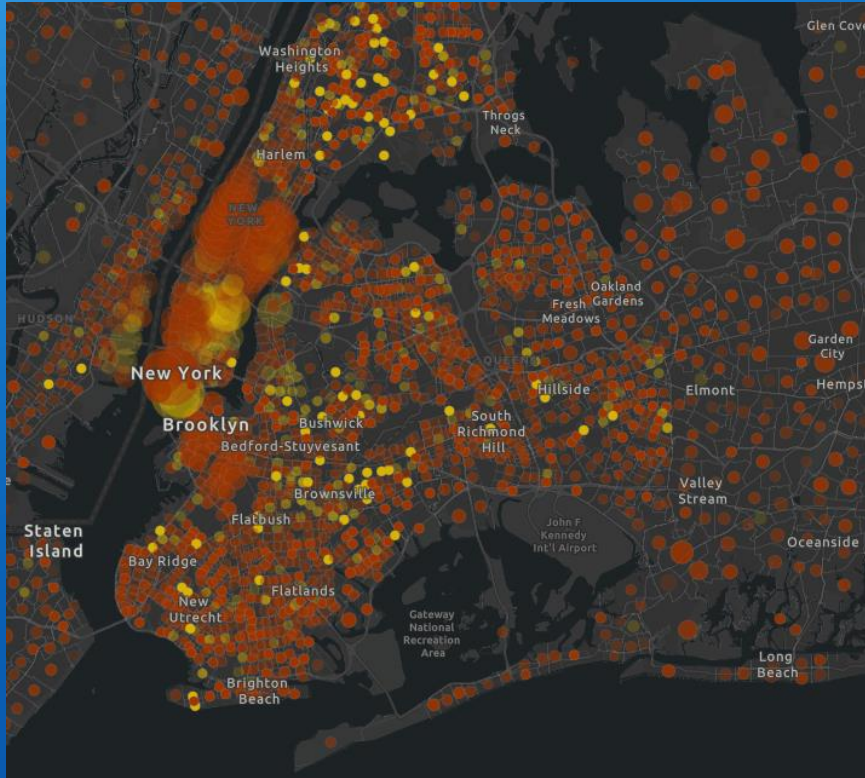


Point Map



Predominance Map





Smart Mapping Styles

Julia Bayer

Bivariate (Color and Size)

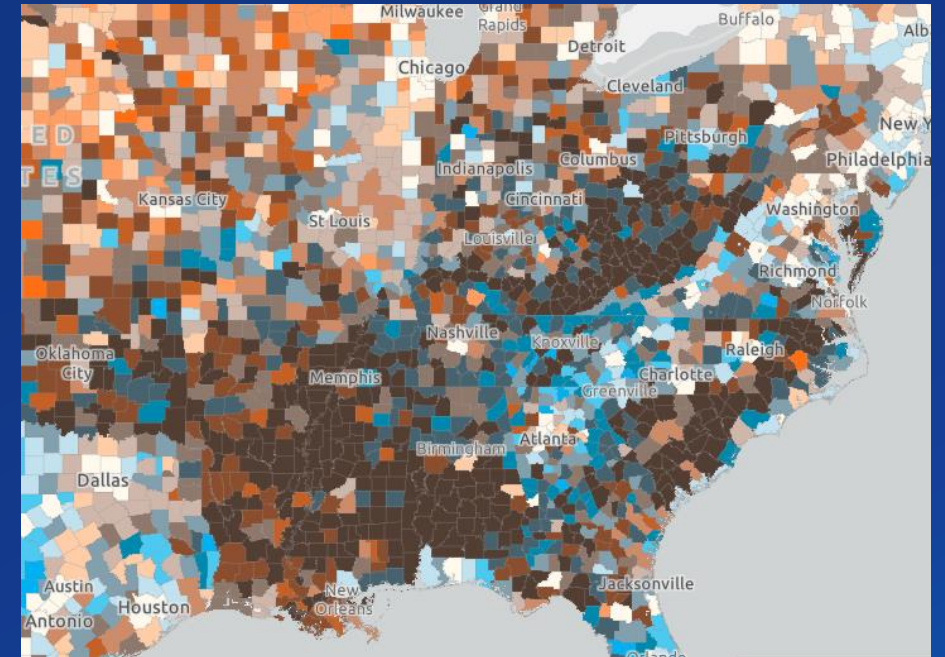
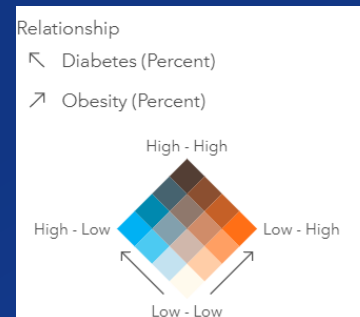
- Visualize the relationship between two attributed in a single map
- Helps us to answer where and how much?
- The first attribute will be shown with color and the second attribute will show us size



Dams in America: Bureau of Transportation Statistics

Relationships

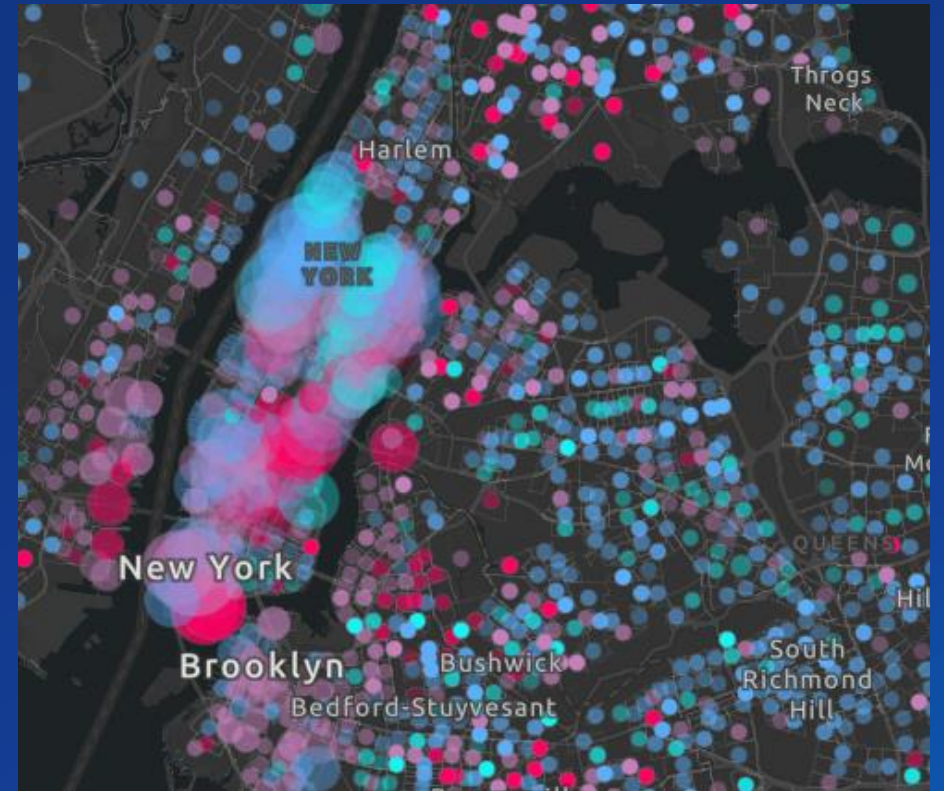
- Visualize relationships between two topics in a single map
- Two color schemes converge into one allowing us to explore which attributes may or may not be related



Centers for Disease Control and Prevention: Obesity and Diabetes

Predominance

- Visualize which category is the most prevalent
 - Up to five categories
- Can visualize questions related to how much and where



U.S. Census Bureau: Predominant age of householder in New York City, for households making \$200,000+ annually.

Predominant Age of Veterans [Edit](#)

Expression

Test

```
1 var vet18_34 = $feature["B21001_008E"] + $feature["B21001_026E"]
2 var vet35_54 = $feature["B21001_011E"] + $feature["B21001_029E"]
3 var vet55_64 = $feature["B21001_014E"] + $feature["B21001_032E"]
4 var vet65_74 = $feature["B21001_017E"] + $feature["B21001_035E"]
5 var vet75plus = $feature["B21001_020E"] + $feature["B21001_038E"]
6
7 var vets18_54 = vet18_34 + vet35_54
8 var vets55_74 = vet55_64 + vet65_74
9
10 // The fields from which to calculate predominance
11 // The expression will return the alias of the predominant field
12
13 var fields = [
14   { value: vets18_54, alias: "Veterans Age 18-54" },
15   { value: vets55_74, alias: "Veterans Age 55-74" },
16   { value: vet75plus, alias: "Veterans Age 75+" }
17 ];
18
19 // Returns the predominant category as the alias
20 // defined in the fields array. If there is a tie,
21 // then both names are concatenated and used to
22 // indicate the tie
23
24 function getPredominantCategory(fieldsArray){
25   var maxValue = -Infinity;
26   var maxCategory = "";
27   for(var k in fieldsArray){
28     if(fieldsArray[k].value > maxValue){
```

Arcade

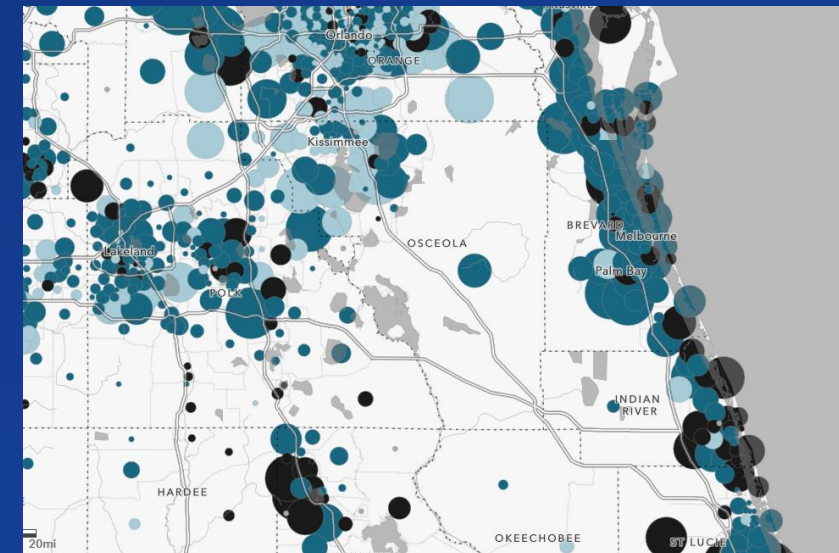
Julia Bayer and Patrick Ryan

Arcade Examples

- **USA Offshore Pipelines**
 - Bureau of Safety and Environmental Enforcement
- **Using Arcade to show pipeline status**



- **What Age are US Veterans?**
 - American Community Survey
- **Using Arcade to show predominant age**



Use Arcade Expressions to Map Your Ideas

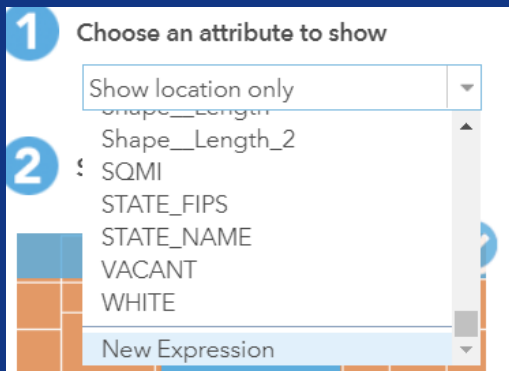
Quickly and Easily

- **Make maps from:**
 - Simple calculations
 - Functions
 - Data conversions
 - New representations of your data
- **Calculated on the fly**
- **Arcade Function Index**
 - Data
 - Date
 - Geometry
 - Logical
 - Mathematical
 - Text

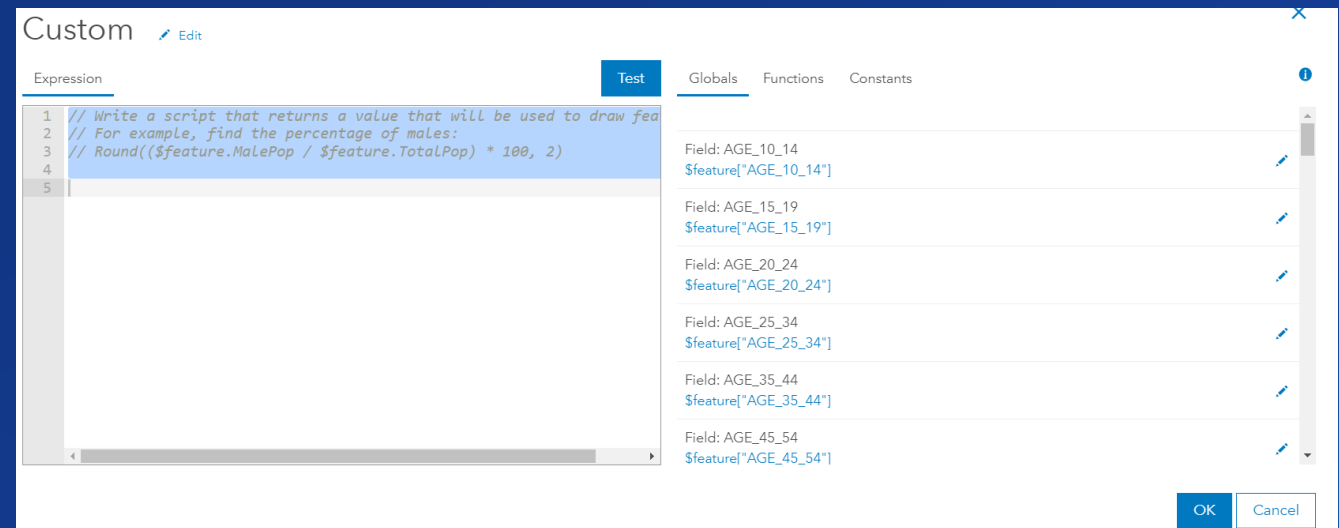


Get Started with Arcade

- Get started by choosing new expression at the bottom of the attribute drop down list

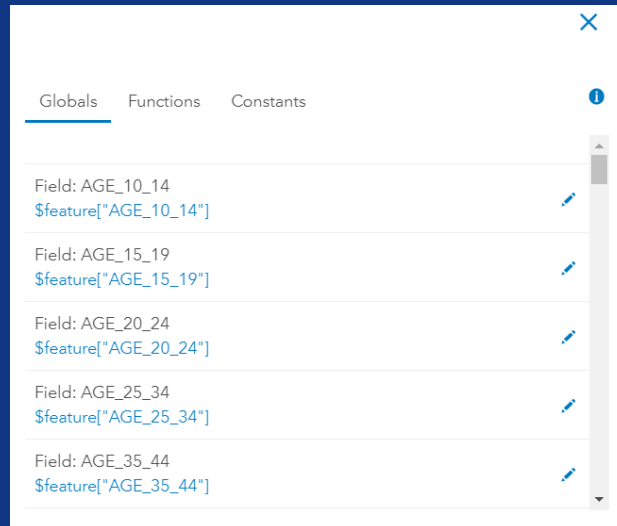


- From there the expression window will pop onto the screen and you can start scripting your custom expression

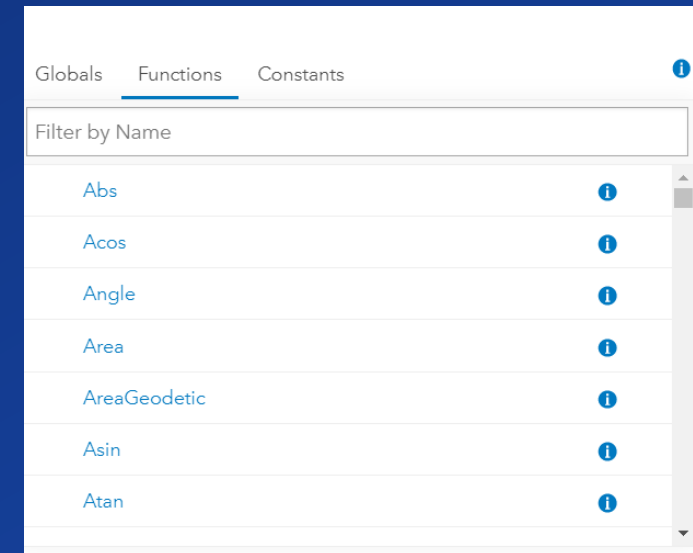


Get Started with Arcade

- The attributes from your data will appear under “Globals”. Click on the blue line for the text to appear in your expression



- The list of functions are listed under the “Functions” tab



Other Uses of Arcade

Transparency

Set transparency based on attribute values

Apply transparency to each feature based on the attribute values in a field or an expression.

Field:

None

Shape__Area

Shape__Area_2

Shape__Length

Shape__Length_2

SQMI

VACANT

WHITE

New Expression

Labels

☒ Label Features

Text:

NAME

Font:

SQMI

Shape__Leng

Shape__Area

Shape__Length

Shape__Area_2

Shape__Length_2

Custom (Expression)

Visibl

World

Room

Symbol Rotation

☒ Rotate symbols (degrees)

AGE_10_14

Shape__Area

Shape__Area_2

Shape__Length

Shape__Length_2

SQMI

VACANT

WHITE

New Expression

Pop-Ups

Pop-up Contents

Display:

A custom attribute display

CONFIGURE

[Configure Attributes](#)

Attribute Expressions

Adding expressions allows you to create new information from existing fields for use in pop-ups.

ADD

State {expression/expr0}

Features Intersected {expression/expr1}

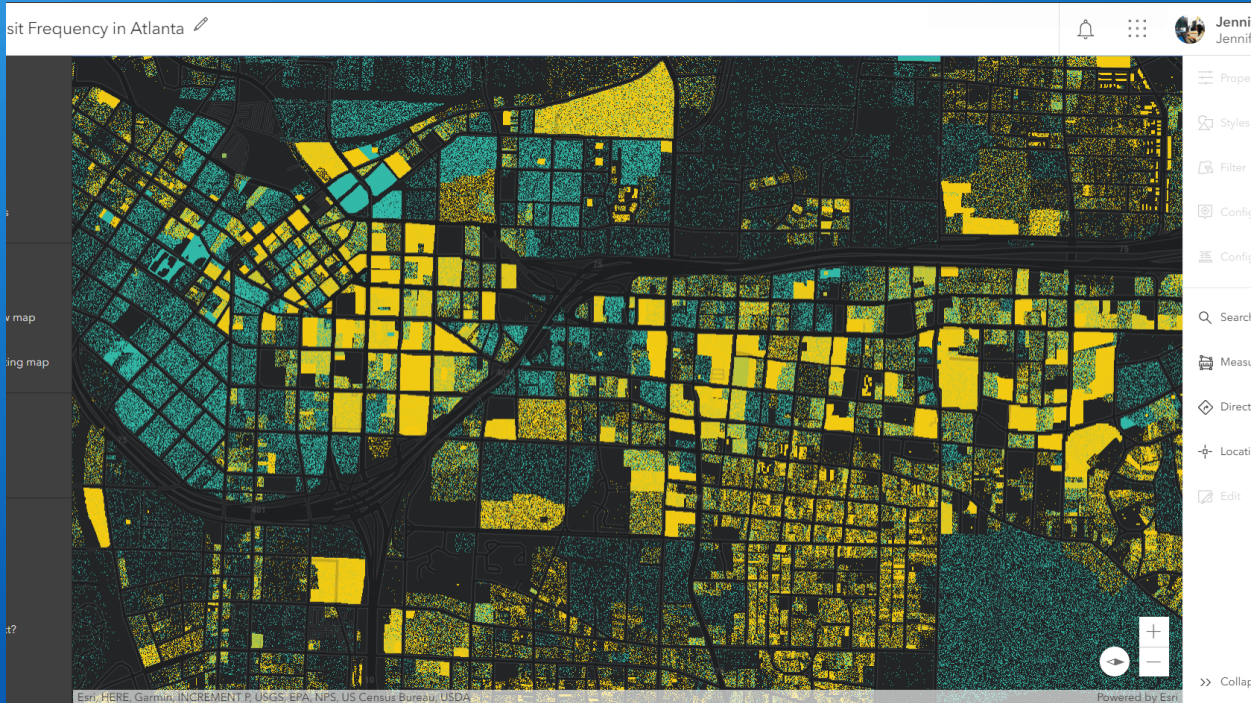
Maintenance Responsibility {expression/expr2}

Owner {expression/expr3}

Deck Condition Rating {expression/expr4}

Superstructure Condition Rating {expression/expr5}

Substructure Condition Rating {expression/expr6}

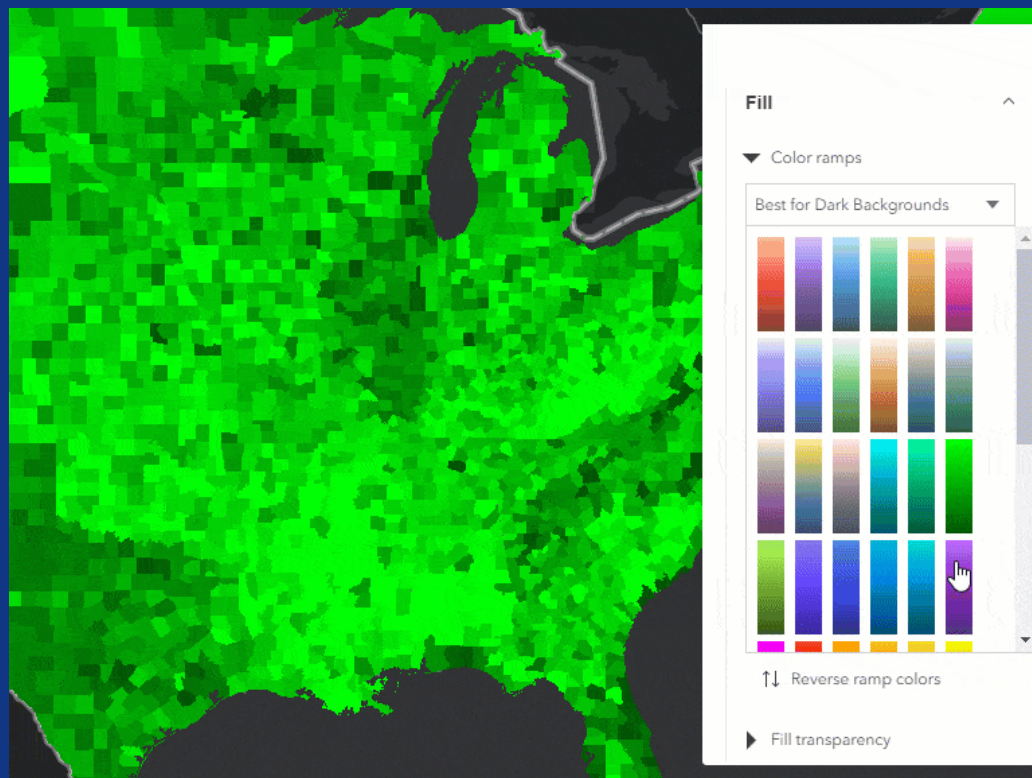


Map Viewer Beta

Patrick Ryan

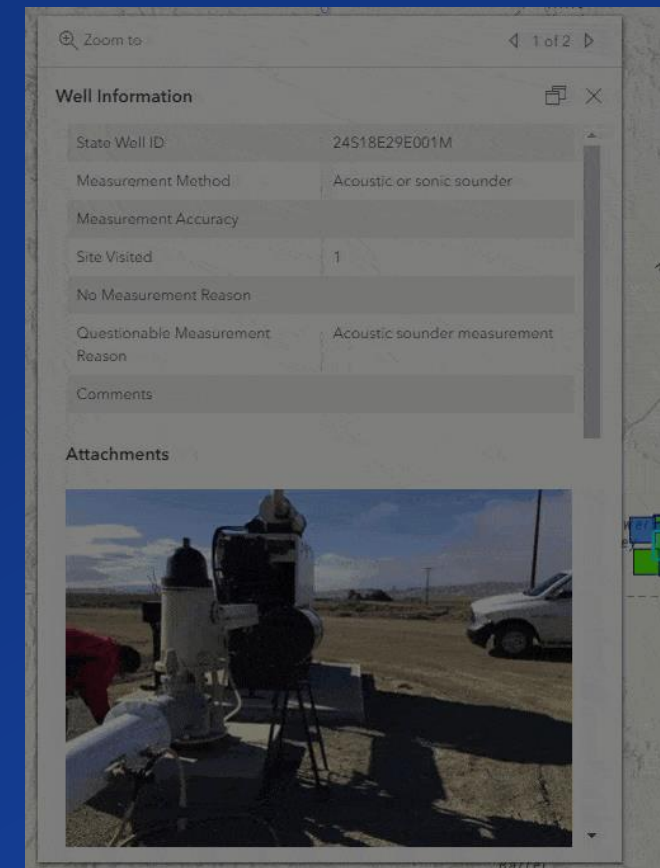
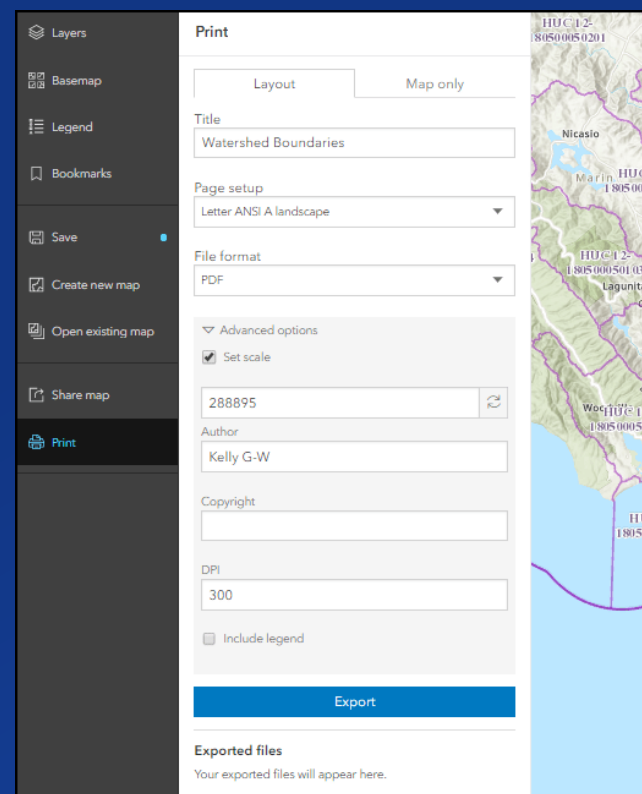
Map Viewer Beta

Next generation map making tool for ArcGIS Online and ArcGIS Enterprise



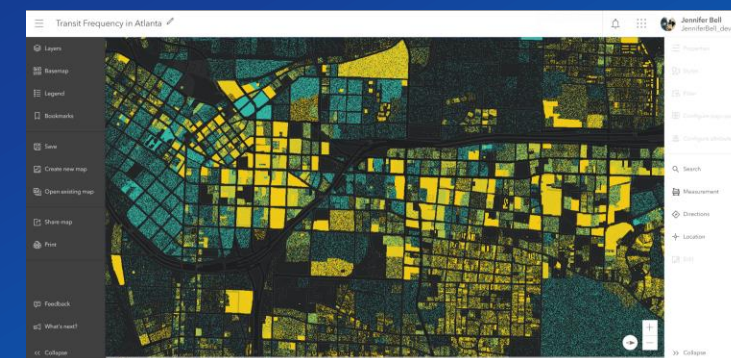
Fast, flexible and immediate

More printing layouts



Compelling pop-ups

New look and layout



Map Viewer Beta Road Map

Now (Dec. 2019) Map Viewer Beta

- Updated User Interface and App Flow
- Feature Layer Authoring Support
- Pop-Up Authoring (multiple elements, Arcade and attachments visible)
- Clustering Support
- Smart Mapping (most styles)
- Fast, Client Side visualization
- Editing
- Layer Re-ordering
- More printing layouts
- Bookmarks
- Filtering
- Directions
- Search
- Measurement
- Legend
- URL Parameters
- Recent Maps

Soon (first half of 2020) General Availability

- Full Layer Authoring Support
- Table Support (in Map)
- Label Authoring
- Smart Mapping (all styles)
- Time Animation
- Sketch Layer (Map Notes)
- Charts
- Arcade Authoring (visualizations and Labels)
- Group Layers
- Support on Mobile devices
- Switch between projections with basemaps
- Localized in 31+ languages
- Editing and Adding attachments
- Create Apps from Map Viewer

Future (second half of 2020 and beyond) Long Term Roadmap

- Analysis
- Imagery Layer Authoring
- Vector Symbol Support
- Custom Symbol Galleries
- Relative Time filters
- Adding Related Records

ArcGIS Security Update – HTTPS Only



- **Esri is committed to ensuring your content is secure**
 - TLS 1.2 implemented in 2019
 - HTTPS Only / HSTS to be enforced *September 15, 2020*
- **What does this mean for you?**
 - After 9/15/20 all HTTP requests to ArcGIS Online will be redirected to HTTPS
 - Clients limited to HTTP only will fail (for example scheduled clear-text Python script calls)
 - HTTP only ArcGIS Enterprise deployments may have issues accessing ArcGIS Online services
- **What do you need to do?**
 - Validate your ArcGIS Online org utilizes HTTPS only immediately
 - Launch AGO Security Advisor tool to check your org settings @ [Trust.ArcGIS.com](https://trust.arcgis.com)
 - If HTTP enabled, use tool to discover HTTP references and change to HTTPS
 - Enforce HTTPS only for your orgs ASAP and validate clients/scripts can use HTTPS
 - Keep an eye out for additional announcements and support guidance pages



esri

THE
SCIENCE
OF
WHERE