

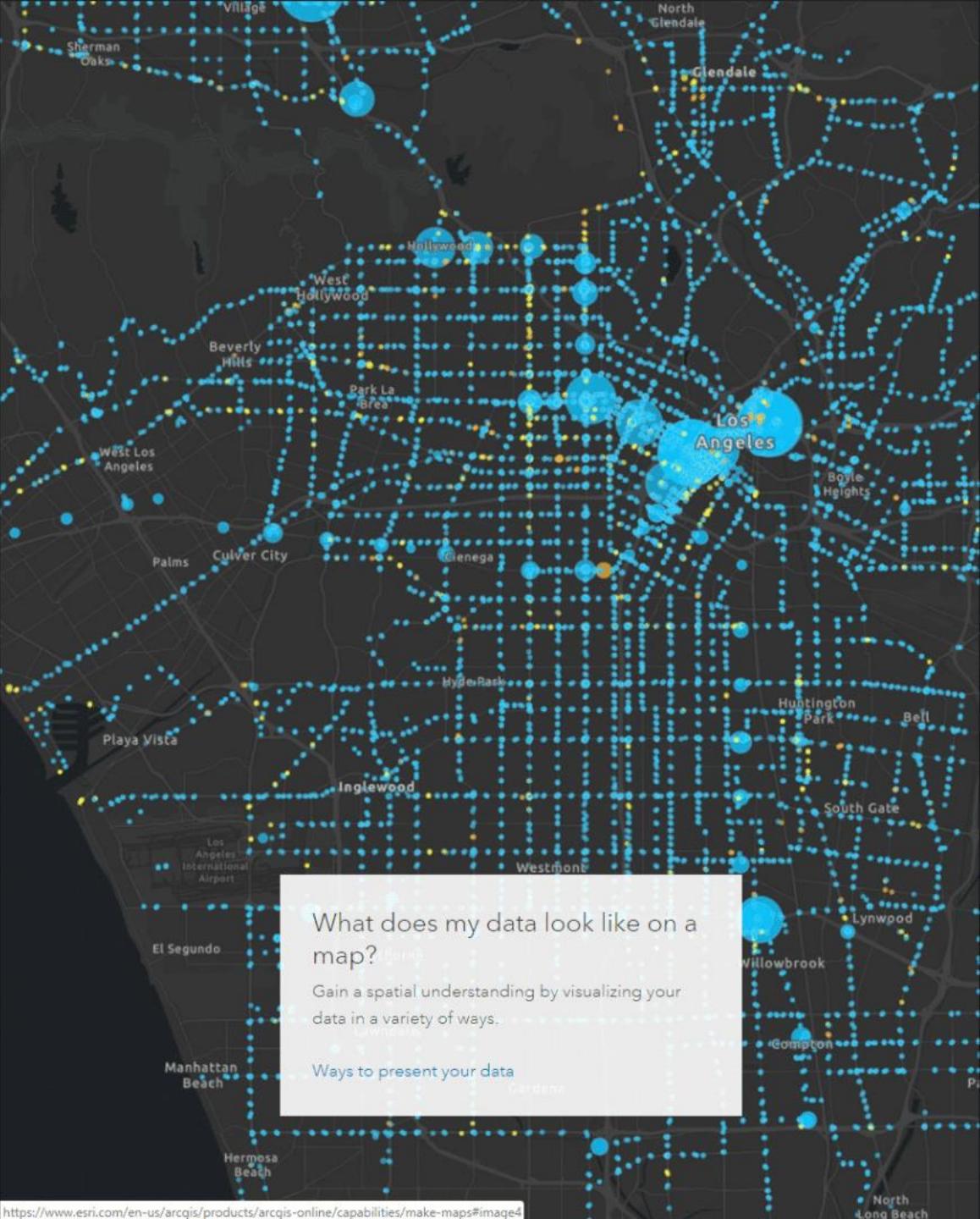


ArcGIS Online: Using Map Styles to Discover and Define Your Web Map's Purpose

Jeremy Bartley
 @mapdex



Jim Herries
 @jherries



Map Styles to Match Your Purpose

- Finding a Purpose

- Smart Mapping styles

- More signal, less noise

- Find a map's signal

- Data exploration

Smart Mapping

Explore your data

Smart mapping functionality will automatically analyze your data and make data-driven styling suggestions, meaning less guesswork for you. Just click on change style to quickly begin exploring your data.



Understand your data

Once you've settled on a map style, you can gain an understanding of your data by trying different one-click visualizations. With smart mapping themes, you can visualize your data from high to low values, above and below a certain threshold, or particular ranges such as the extreme values.



Find meaning in your data

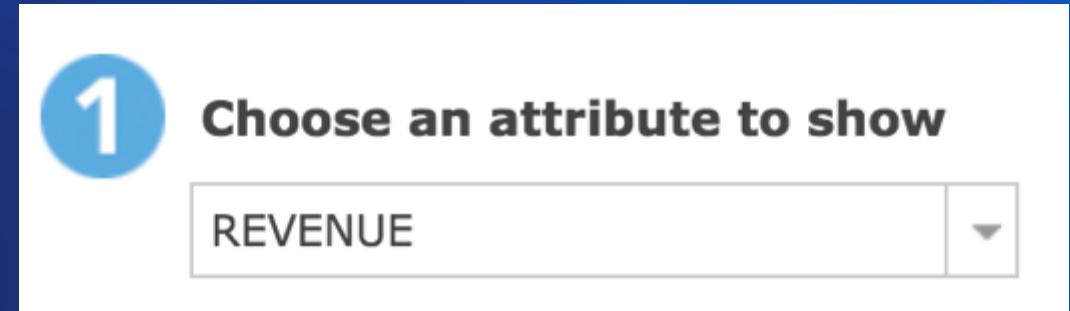
With smart mapping, your data, style, and visualization all come together to form the story you want to tell, in a beautiful, thematic map. You are able to discover meaning hidden within your data.



esri.com/smартmapping
Online and Enterprise

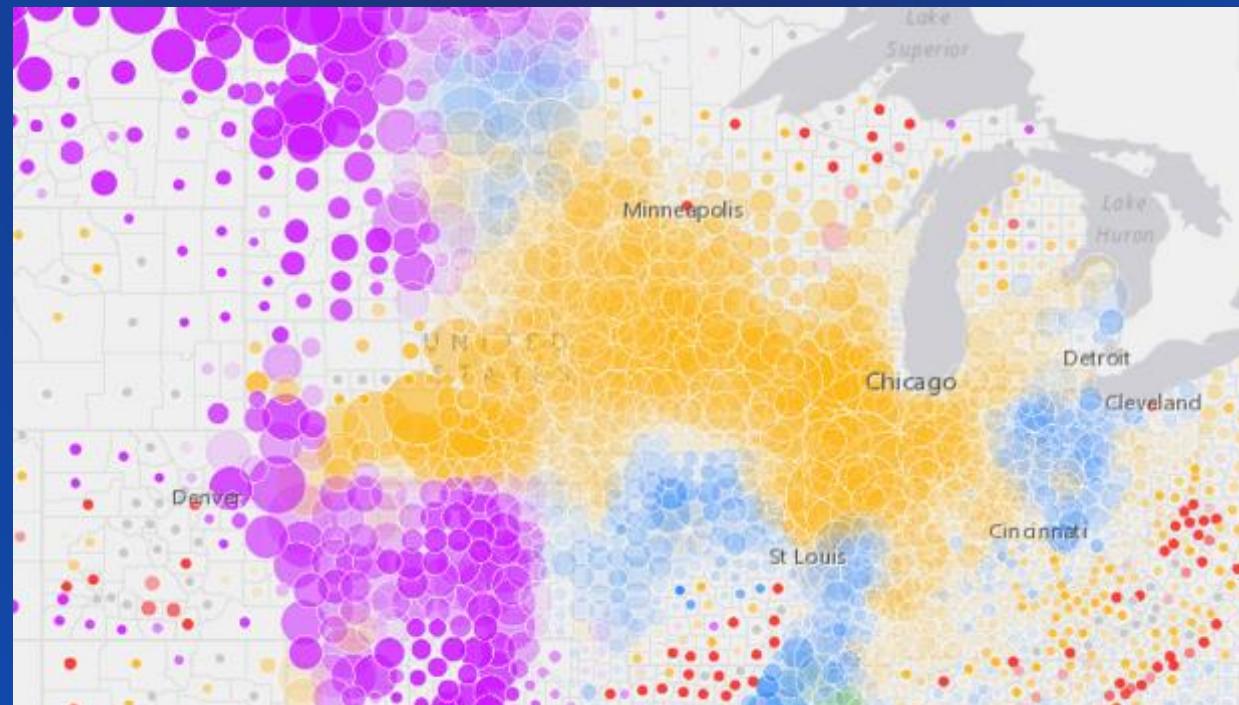
Smart mapping

- It should be easy to make visually stunning maps that tell the stories you want to tell
- Smart mapping analyzes your data and **suggests** the best ways to represent it
- Responsive, immediate feedback helps you **explore** your data, and **focus** on the story in your data and maps





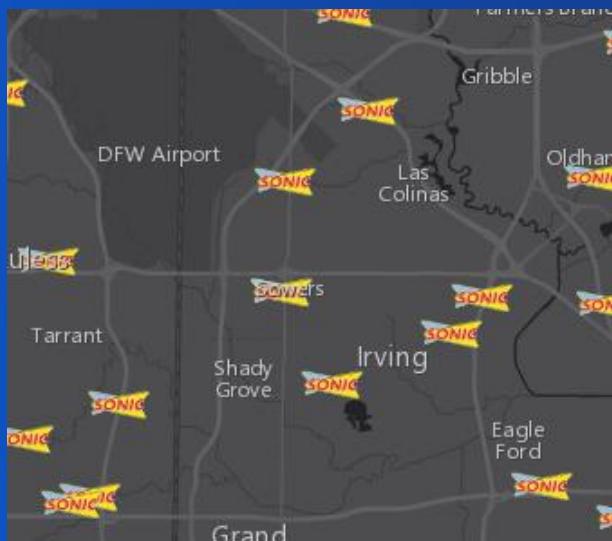
Map styles for:
where, what, when, how much, who



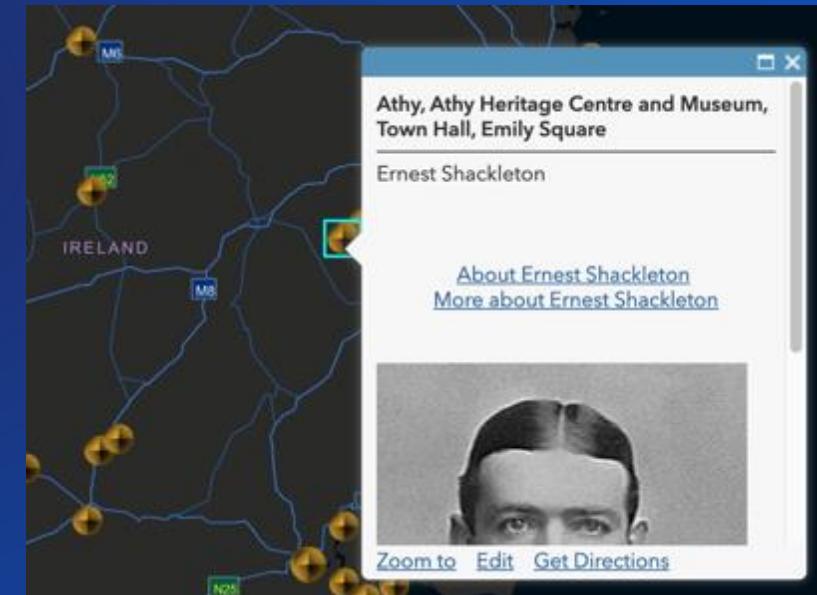
Map “where” – the location of features



Sonic restaurants

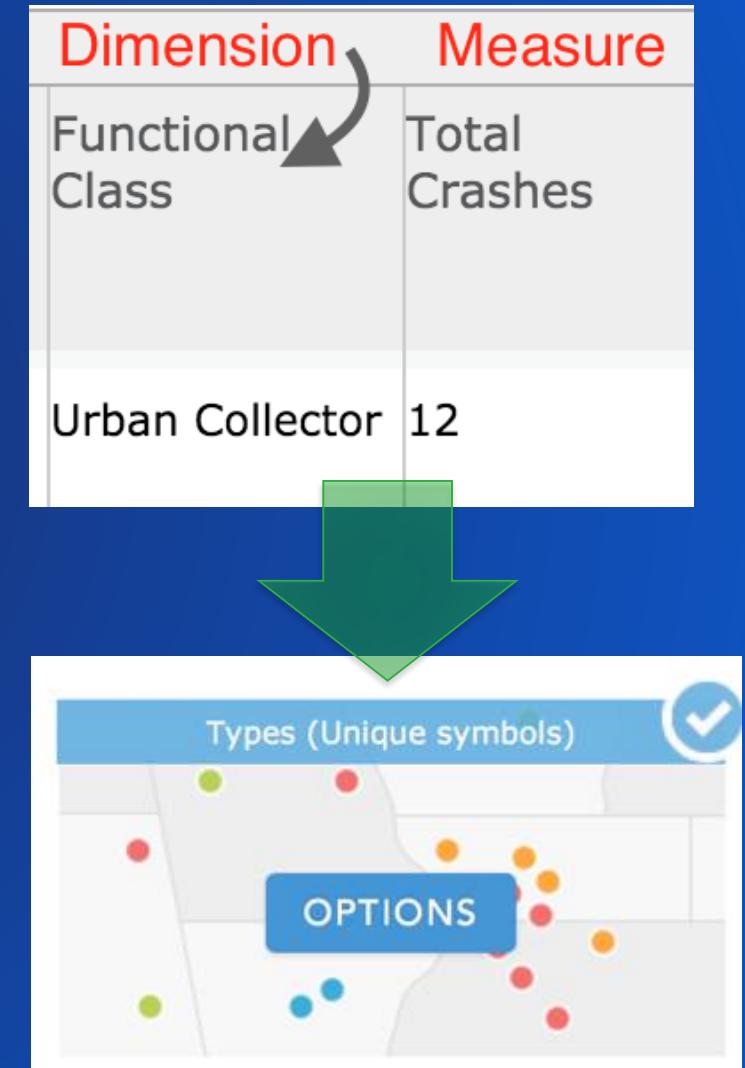


Visiting History in Ireland

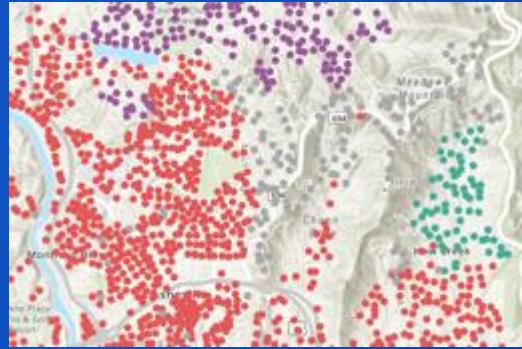


Map “what” – a dimension of features

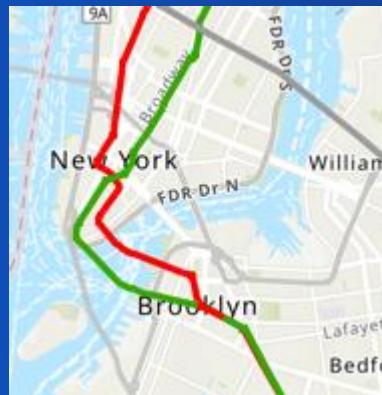
- Your attribute data contains dimensions and measures
- Common dimensions:
 - Type
 - Name
 - Class
 - District
 - Territory
 - Zone
 - Route
 - Level
 - Category



Map “what” – a dimension of features

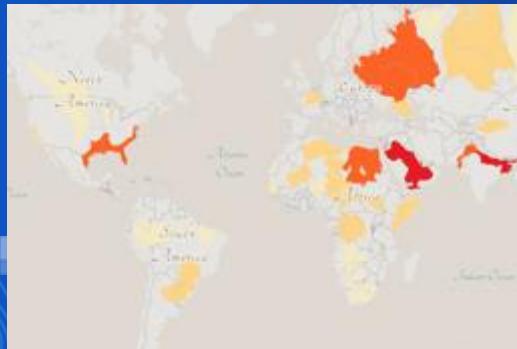


Fire Hydrants by water pressure zone



NYC Subways

Open data + smart mapping styles = gold

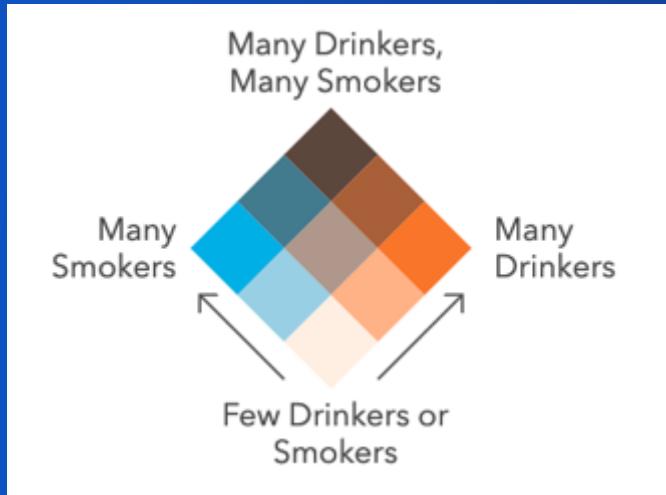


Aquifer Storage Threat Level

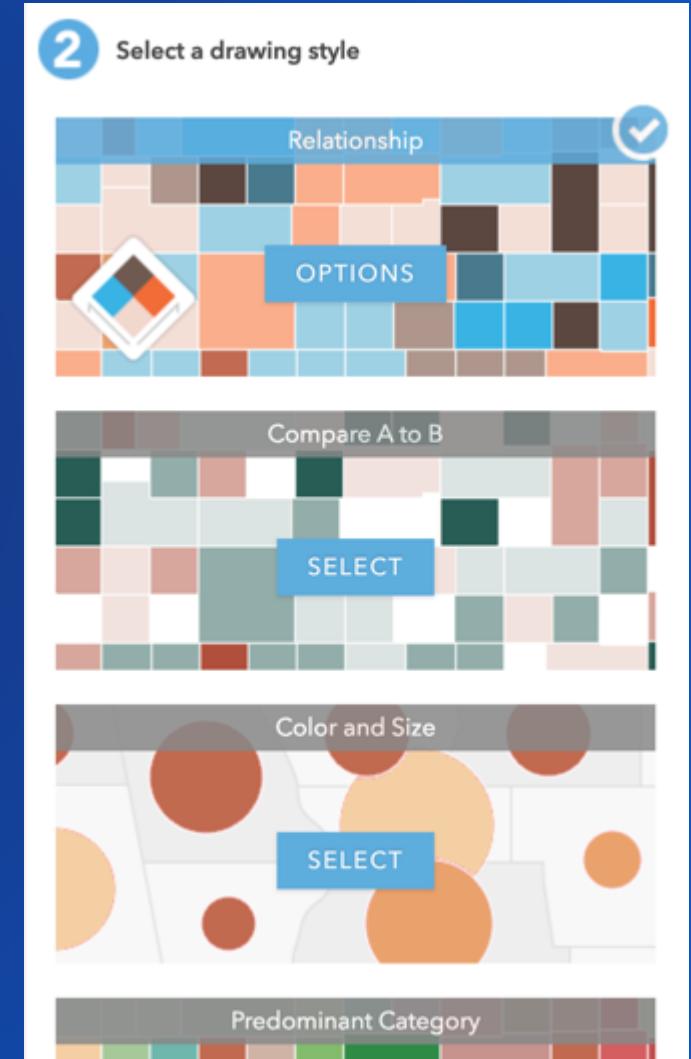


2017 Mid Year Priorities of State CIOs

Map “what” relationship exists between two attributes



Drinkers and Smokers

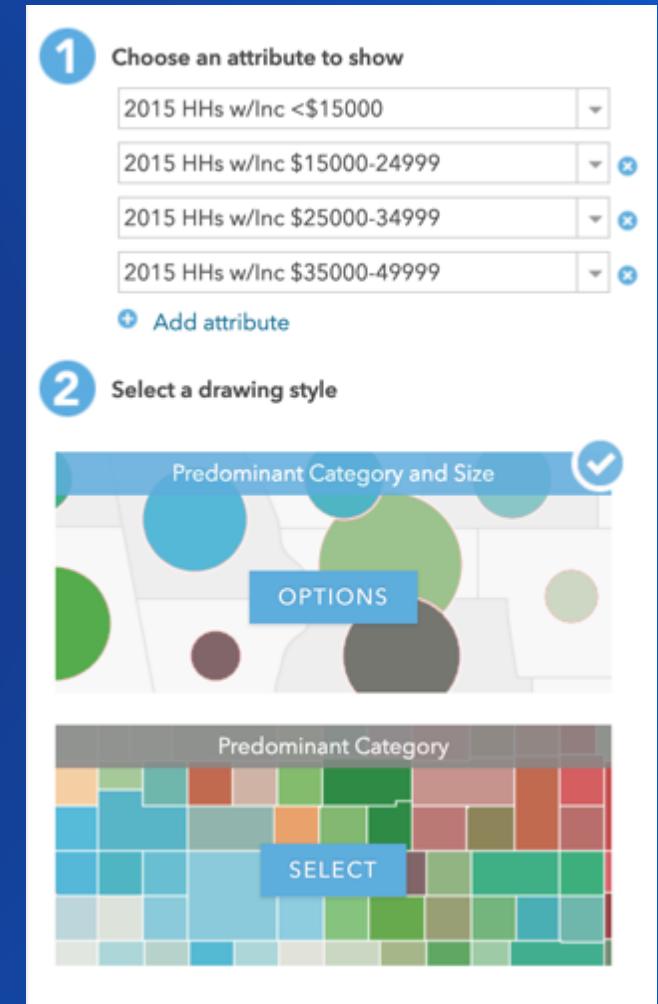
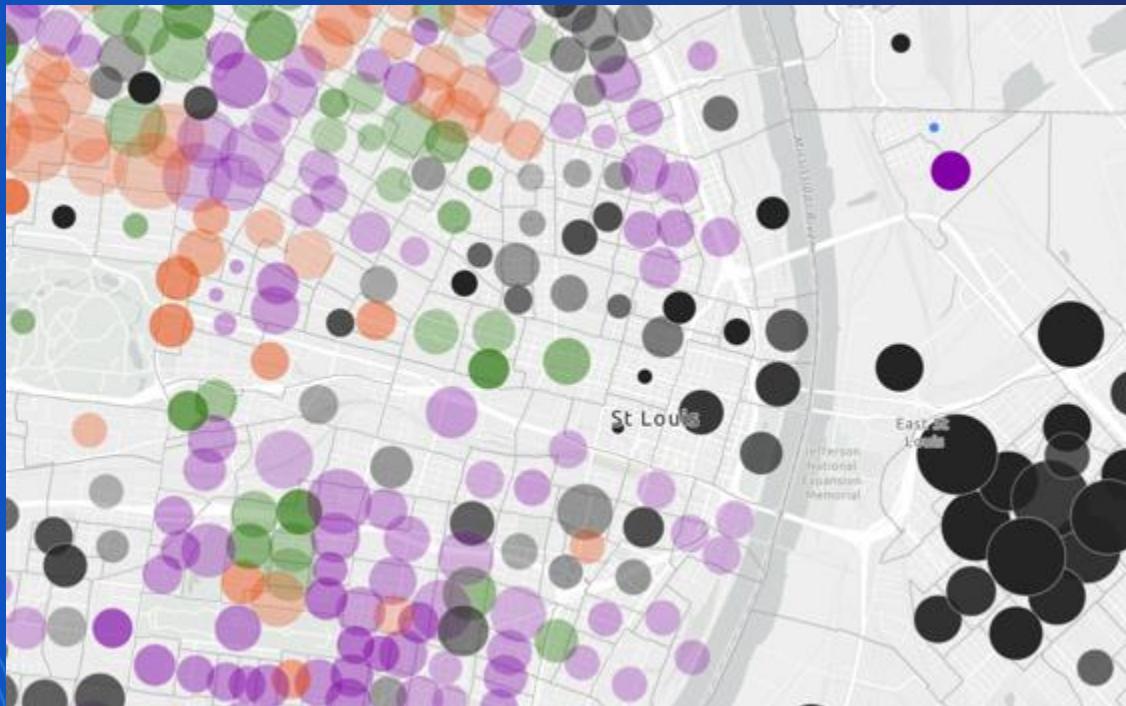


Map “what” is predominant among several attributes in your data



Predominant Income Groups

Type of Crime Most Predominant



Map “when” – a dimension of features

Show Time in Your Maps

What's New 11 June 2016 esri

Show Time in Your Maps

Many datasets contain a date or time field, but showing them in the map can be a challenge. ArcGIS Online has new map styles that allow you to visualize information found in date and time fields. These new time styles reveal patterns of new and old, and showcase the age of things on the map.

These smart mapping styles allow you to view overall patterns of time.

For example, this map shows streets in Minneapolis based on when their condition was last inspected. White streets have been inspected more recently, while dark purple streets were inspected at an earlier date. You can immediately see a pattern of areas which might be due for another inspection.

To show time in your map, simply select the date/time attribute within your data:

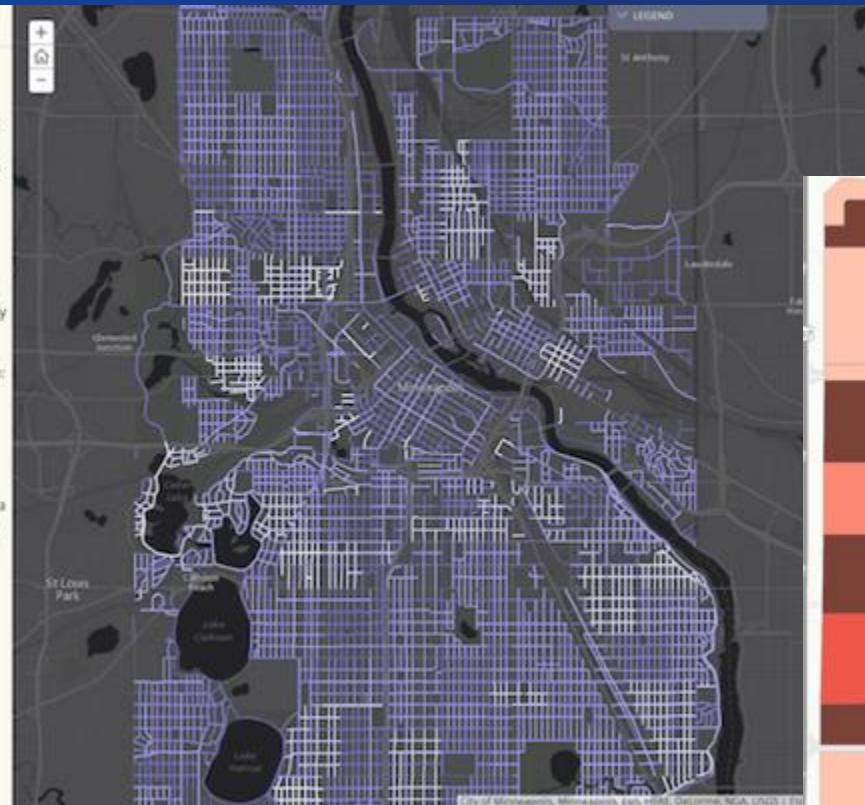
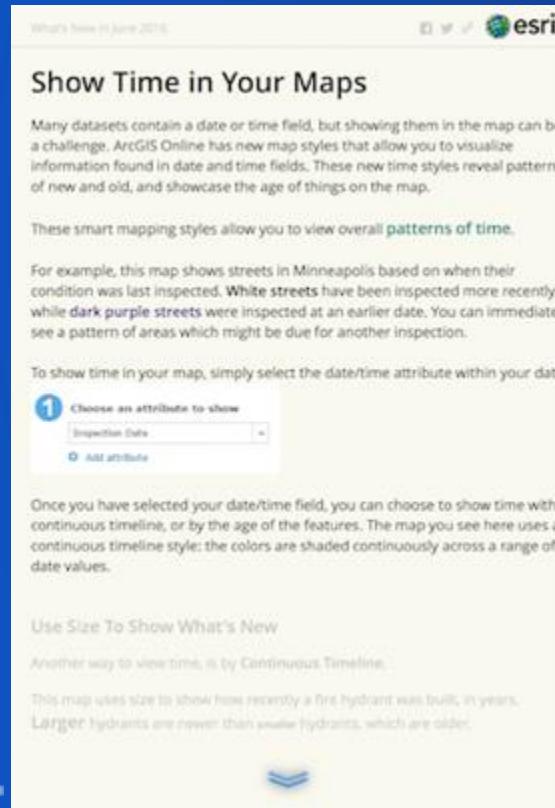
1 Choose an attribute to show
Inspection Date
Add attribute

Once you have selected your date/time field, you can choose to show time with a continuous timeline, or by the age of the features. The map you see here uses a continuous timeline style: the colors are shaded continuously across a range of date values.

Use Size To Show What's New

Another way to view time is by Continuous Timeline.

This map uses size to show how recently a fire hydrant was built, in years. Larger hydrants are newer than smaller hydrants, which are older.

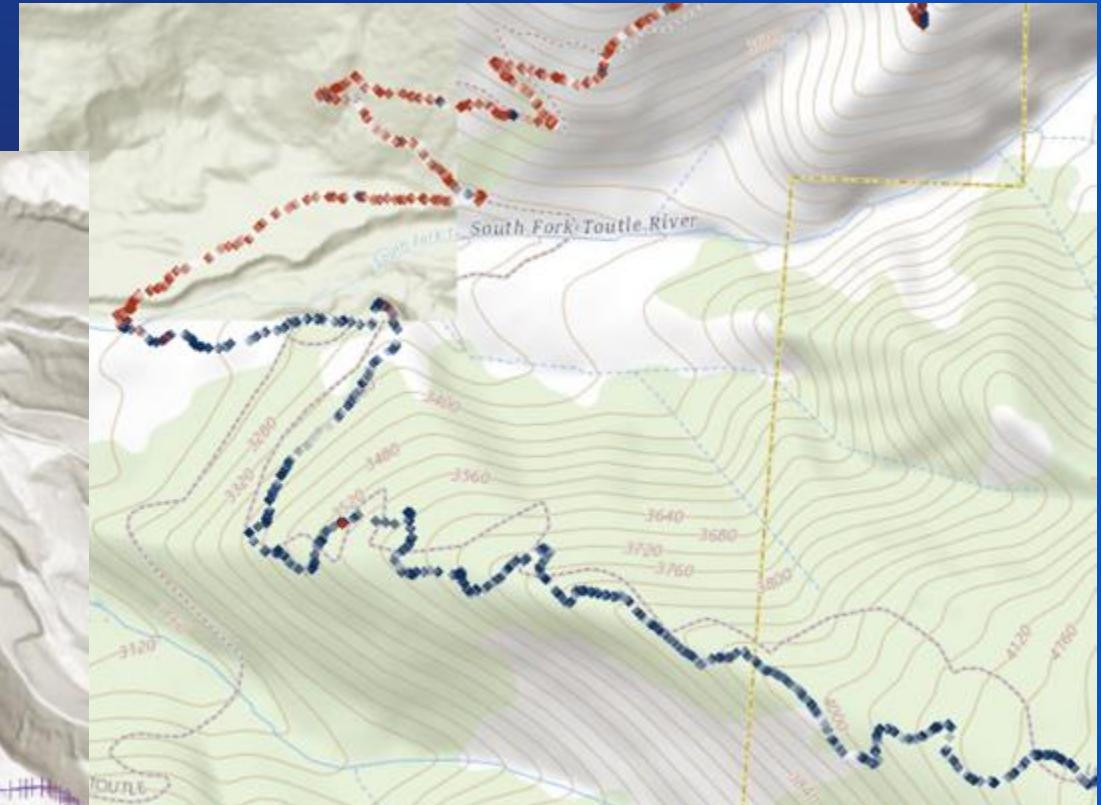


Time Since Last Sold



Map “when” – a dimension of features

Trail experience (time and slope)

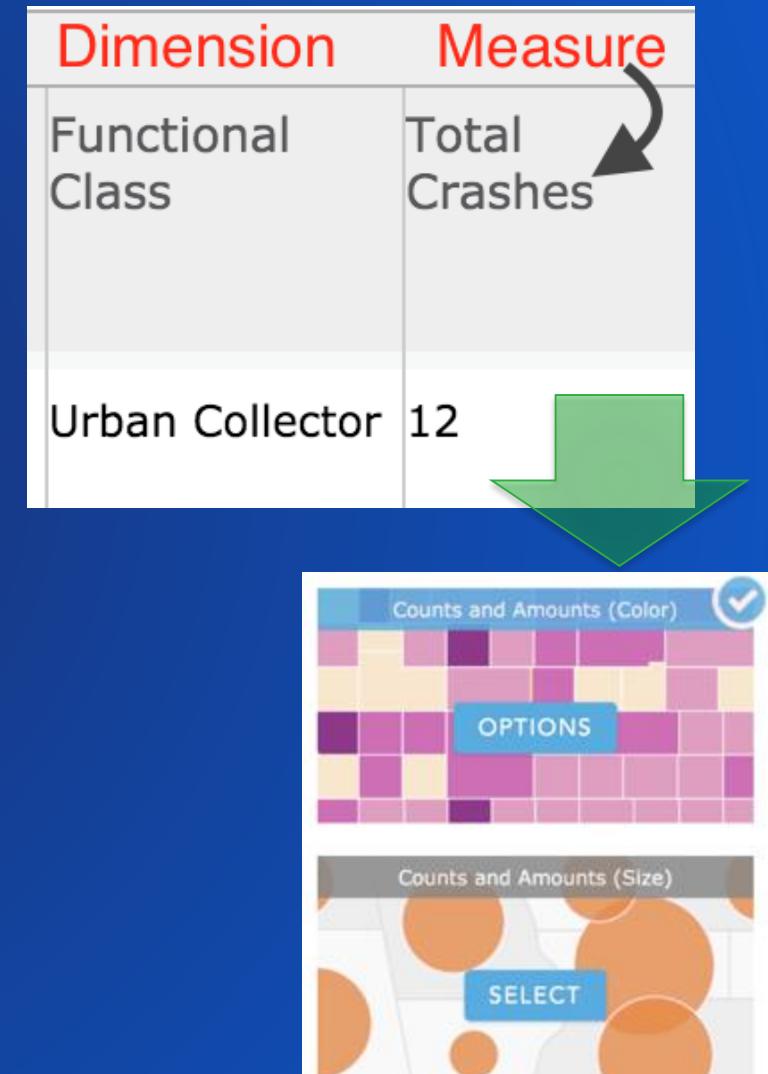


```
34
35 }
36 var metersTraveled = Distance(currentGeometry, lastGeometry, 'meters')
37 if (!isEmpty(lastElevation) && metersTraveled != 0) {
```

Map “how much” – a measure of features

- Your attribute data contains dimensions and measures
- Common measures:
 - Counts
 - Totals
 - Percentages
 - Rates
 - Averages
 - Medians
 - Ratios

Dimension	Measure
Functional Class	Total Crashes
Urban Collector	12



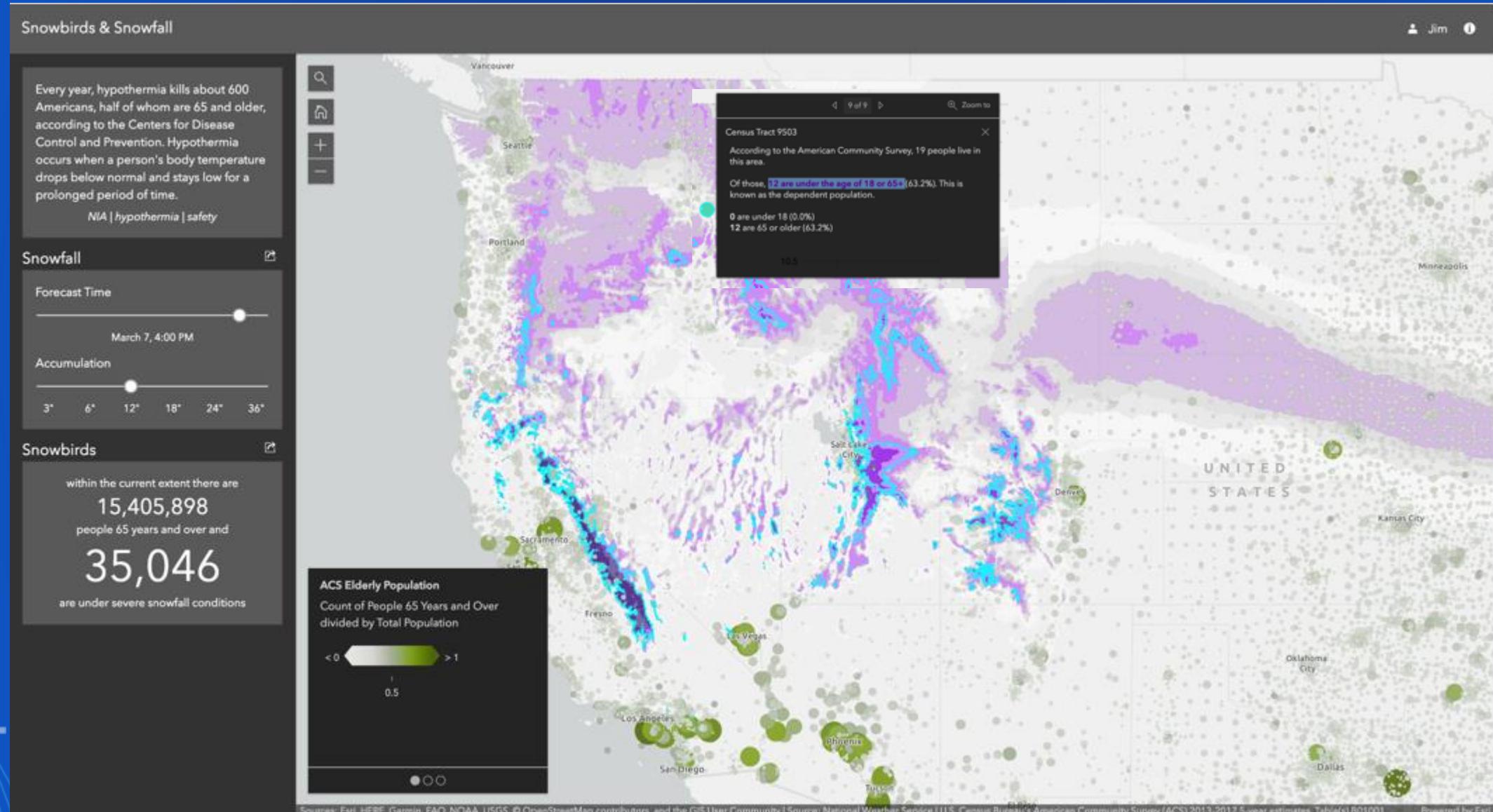
Counts and Amounts (Color)

OPTIONS

Counts and Amounts (Size)

SELECT

Map “how much” – a measure of features



Snowbirds & Snowfall

There are seniors everywhere, but clearly snowbirds are clustering in southern areas.

Nationally, only 15% of the population are seniors

Map “how much” – a measure of features



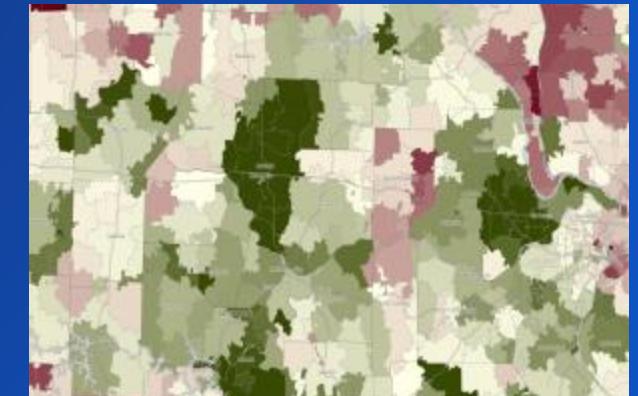
Powerplant Production

Vehicle
Collisions per
Mile



Too much data? Focus.
E.g. use a map style
with a filter to focus in
on unprofitable sales

Population
Change



Add clarity at each step, each iteration

Reality



Data



Maps,
Charts &
User Experience

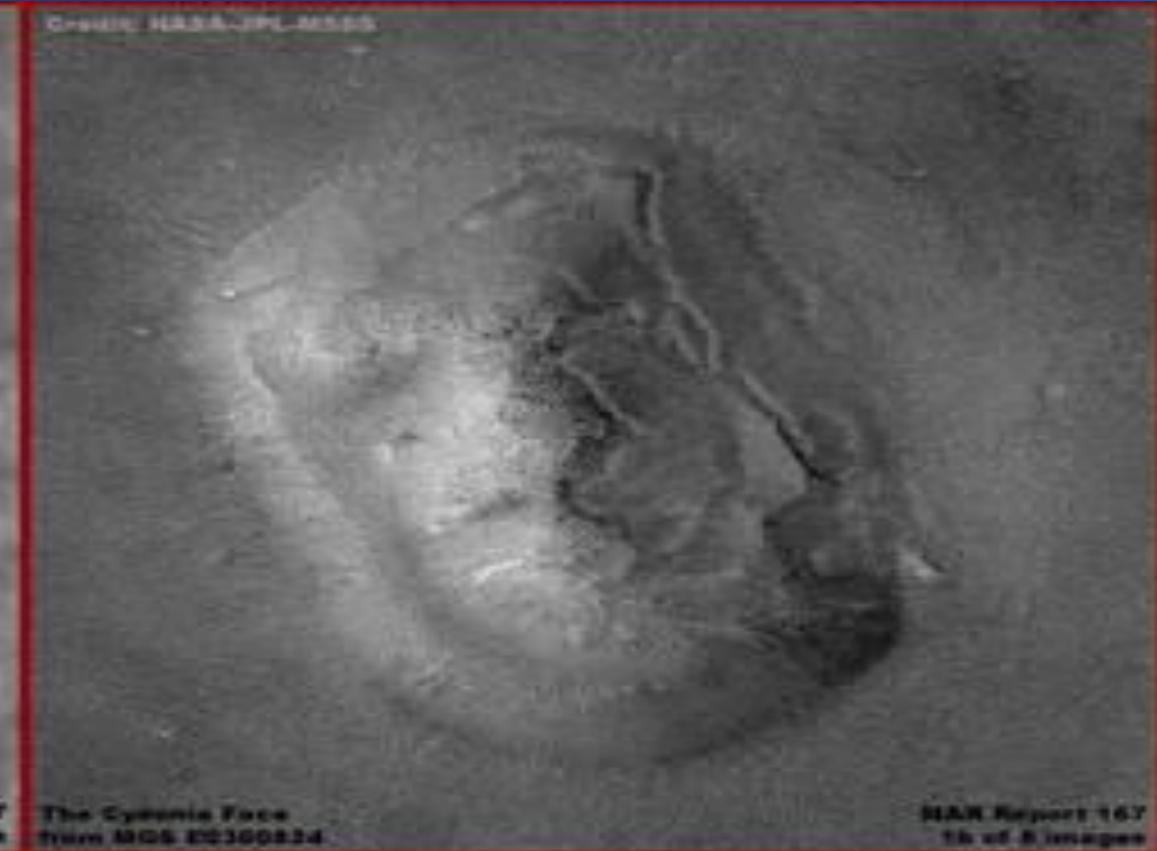


Analysis &
Interpretation

Despite best available data, sometimes people see what they want to see



Viking 1, 1976

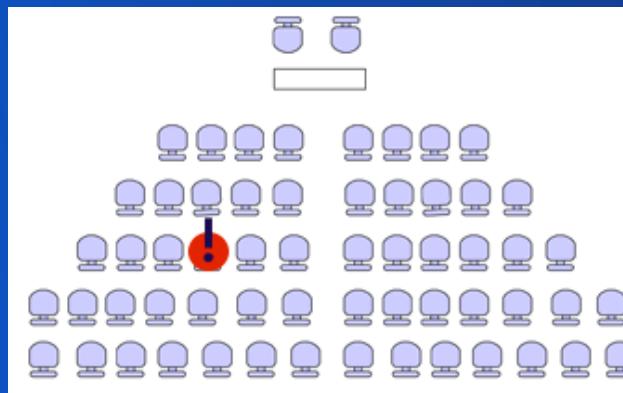


Mars Global Surveyor, 2001

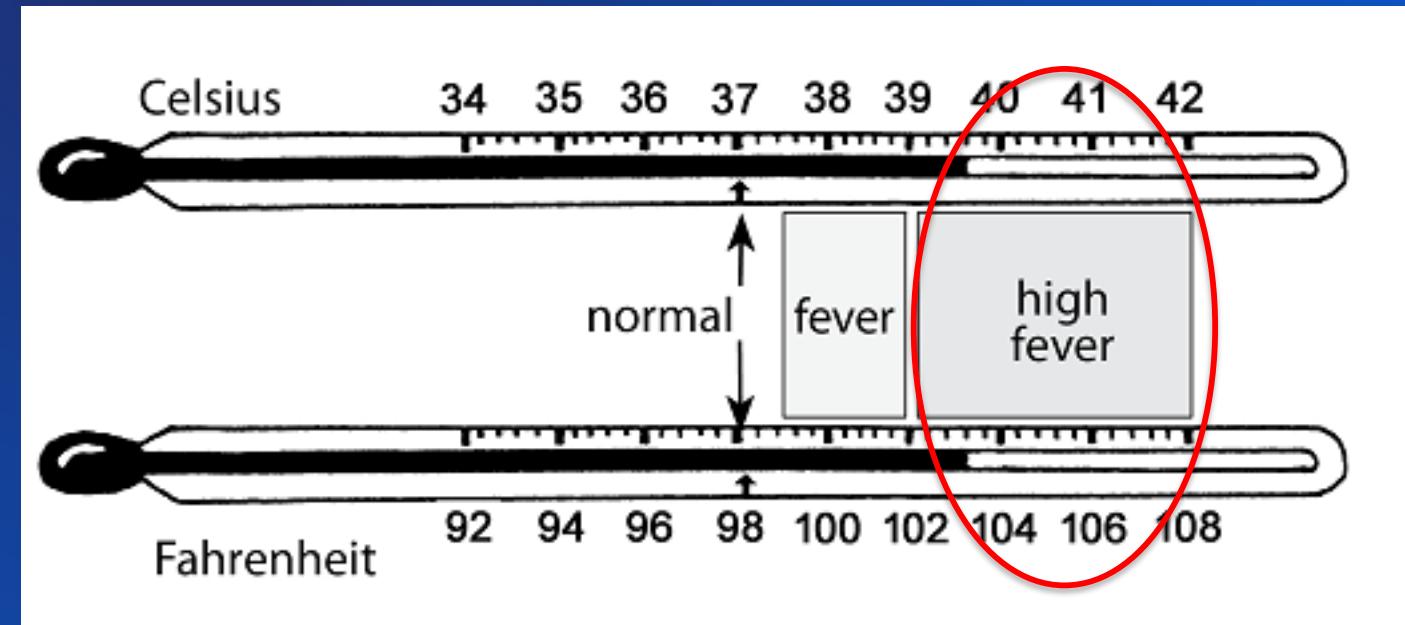
A Basis for Comparison Helps Clarify Proper Interpretation



Attendee	Name	BodyTempF	BodyTempC	State
121	Jeremy Bartley	98.6	37.1	normal
122	Jim Herries	98.6	37.1	normal
123	S. Neez	99.1	37.5	fever
124	G.R. Ump-i	103	39.5	high fever



A map that
compares



What is your map's **98.6** basis for comparison ?



Sometimes mapmakers bury the message

[Details](#) [Add](#) ▾ [Basemap](#) [Analysis](#)

Change Style

Low Birth Weight % - County Health Rankings 2018

Percent Low Birthweight

Divided By: None

Theme: High to Low

[Symbols](#)[Invert](#)[Zoom in](#)

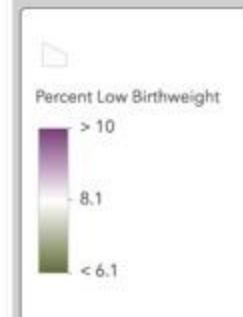
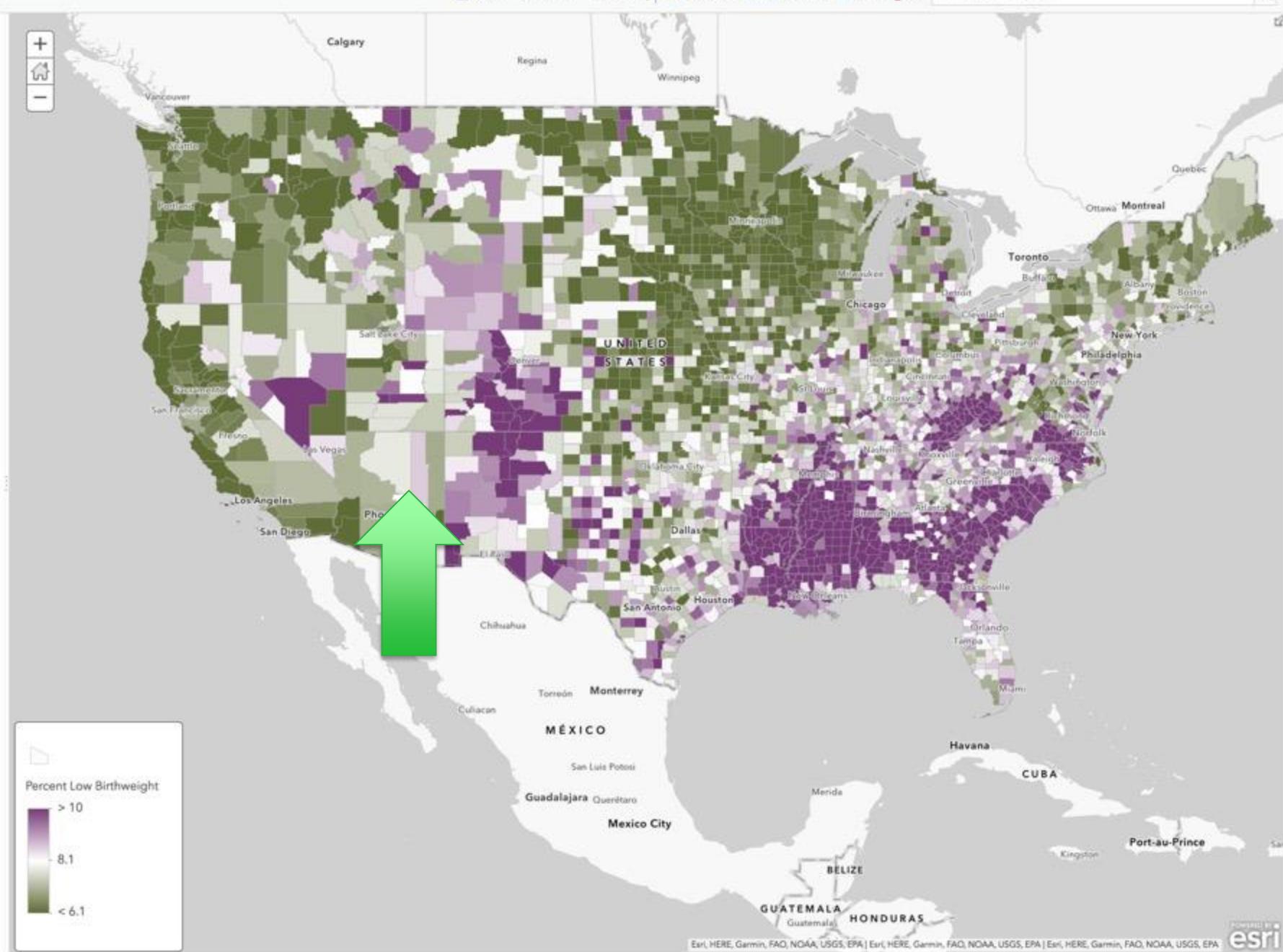
Classify Data
 Draw features with no value.
 Show in legend

Transparency

Overall

Per feature
Set from Attribute Values

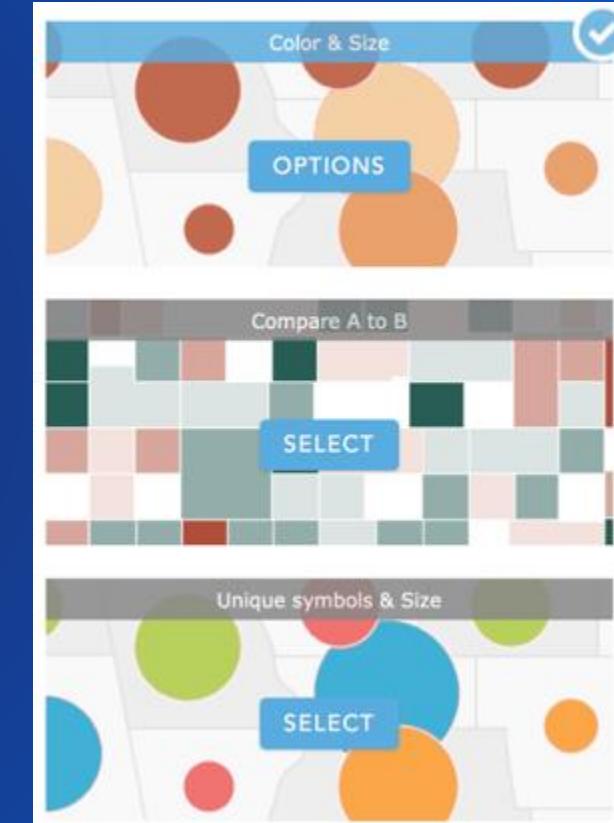
Visible Range

[OK](#)[CANCEL](#)

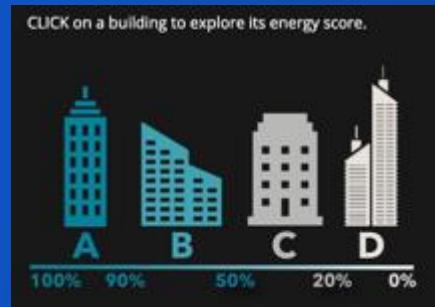
Map “how much” intensity in your data (counts and rates)



Water usage



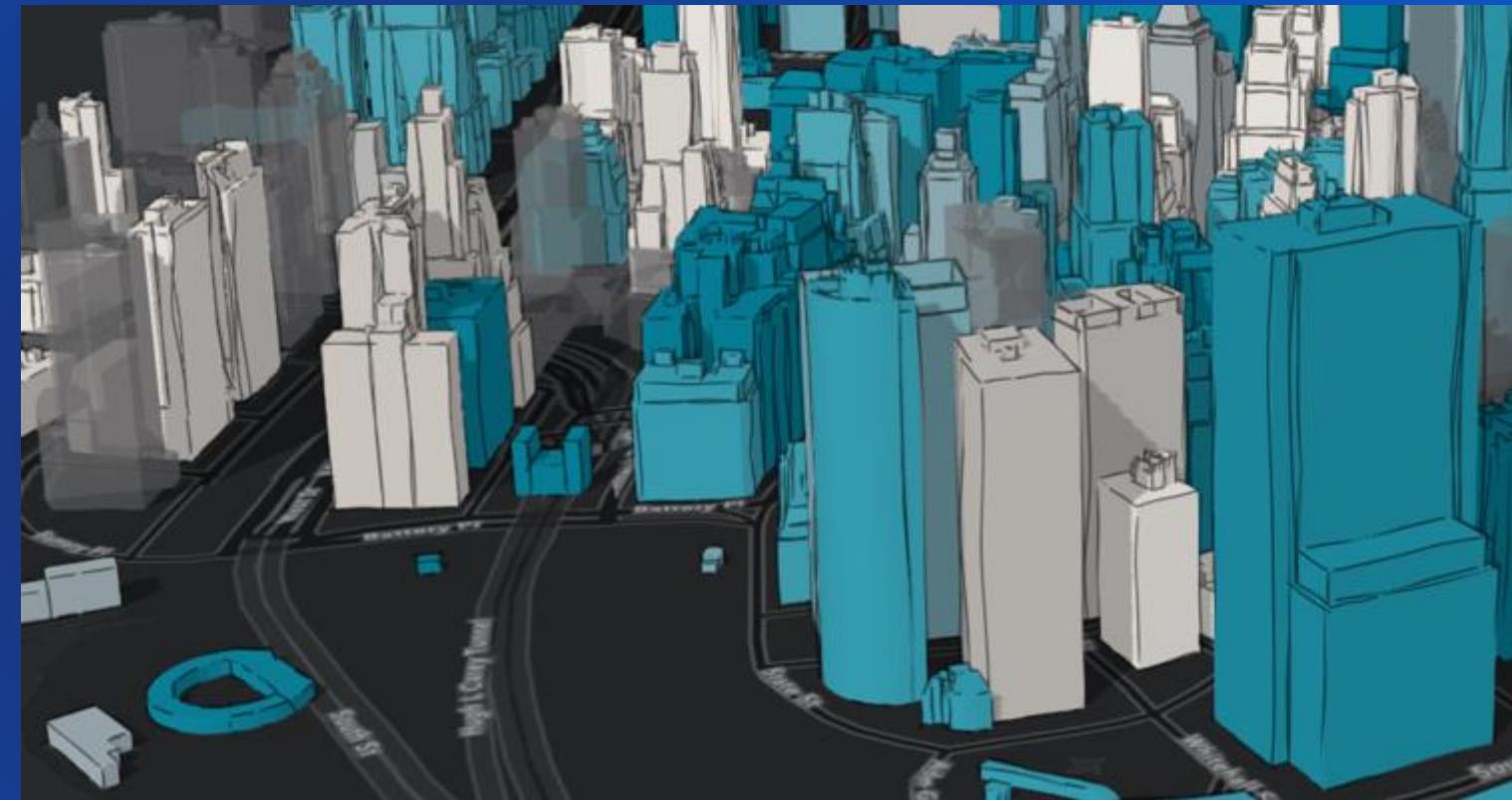
Map “how much” intensity in your data



Energy Score app
and scene

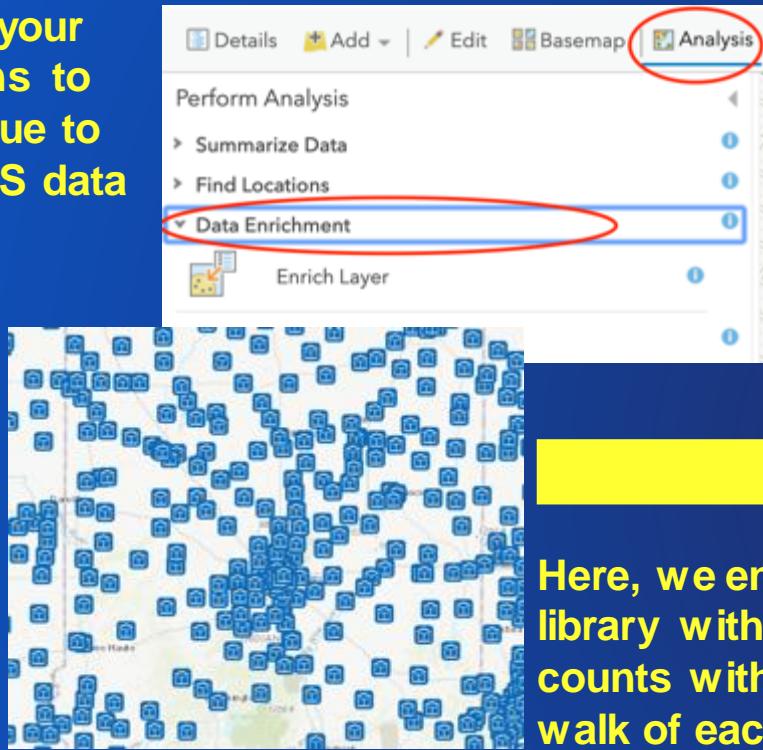


Voting results



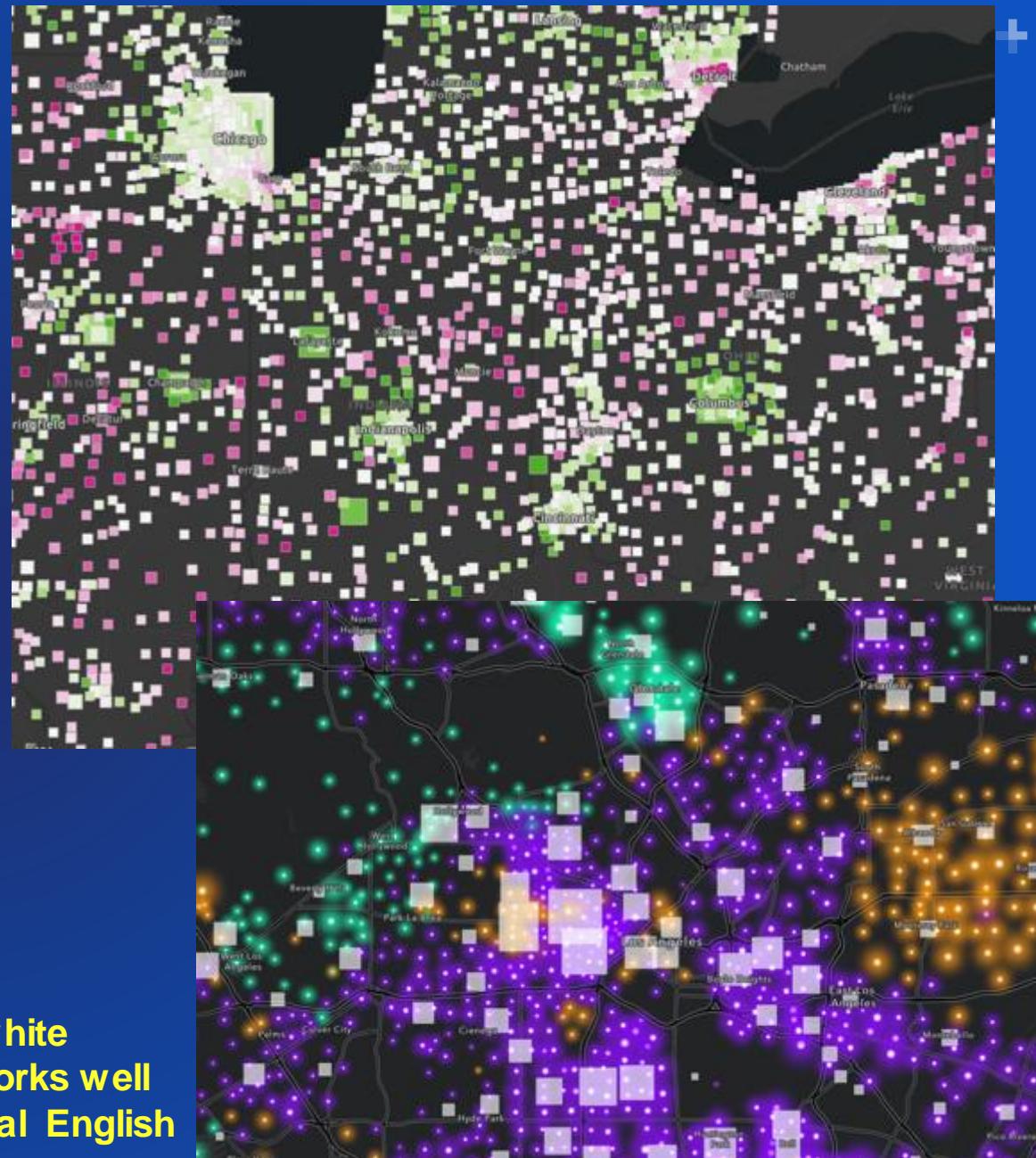
Map “who” lives within or nearby

Enrich your locations to add value to your GIS data

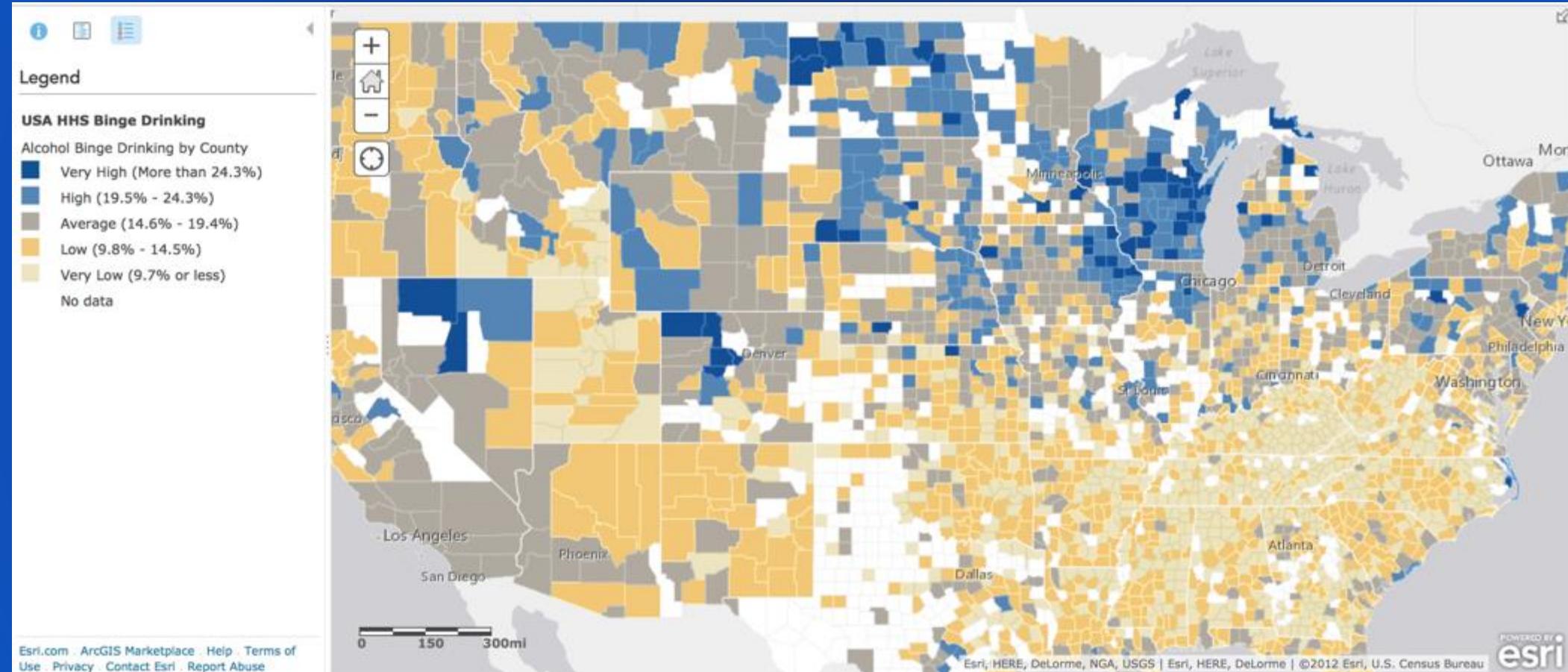


Here, we enriched each library with population counts within a 1 mile walk of each library, and show growing populations in green.

Changing the style to white transparent symbols works well with this map of potential English learners.



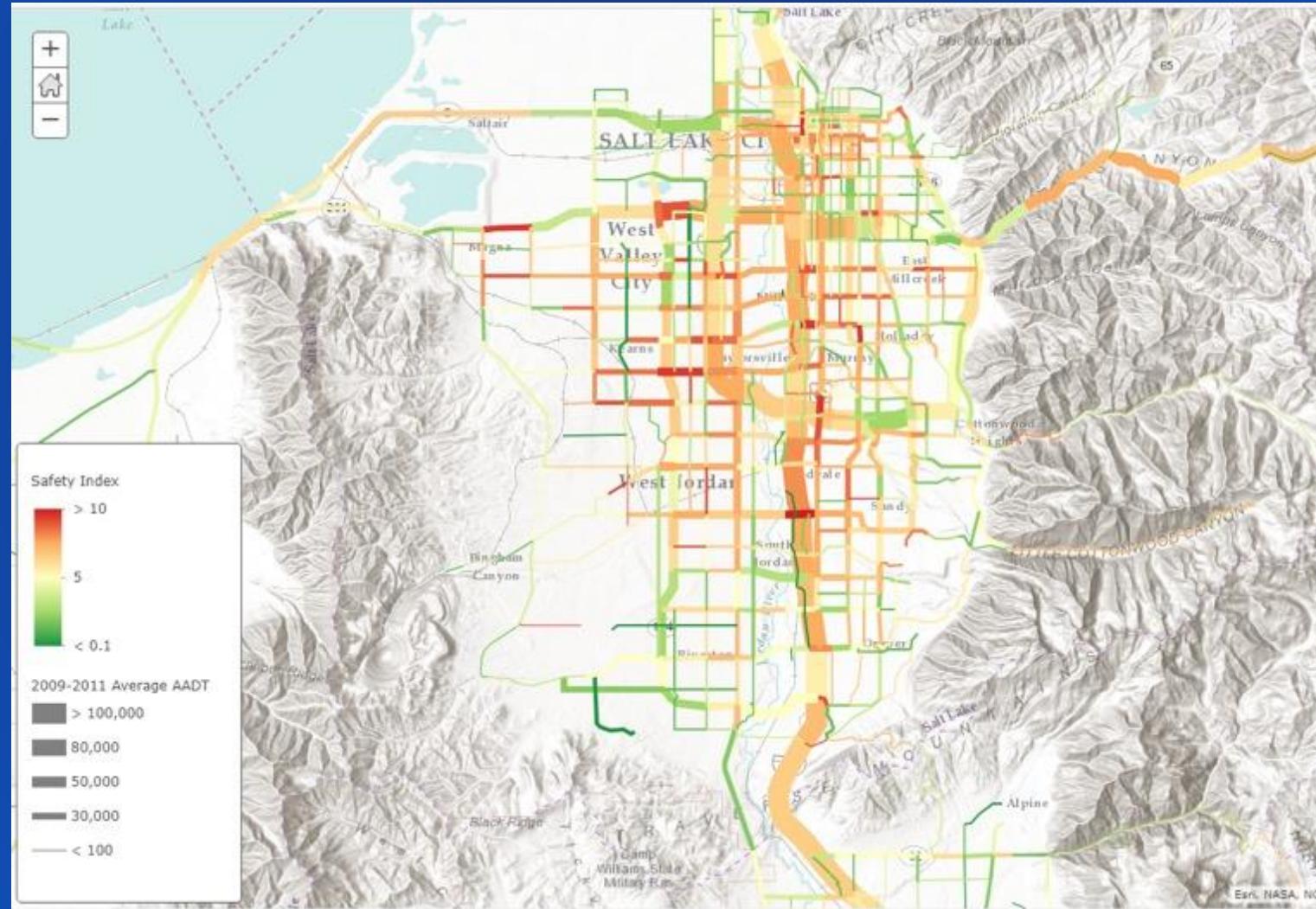
Smart maps let the policy goal speak



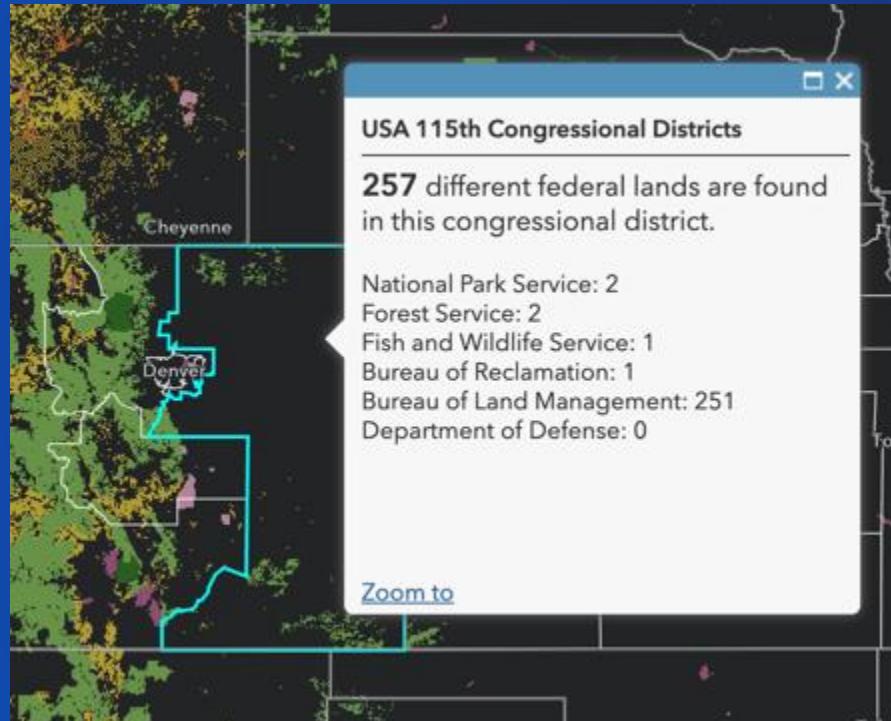
CDC baseline 27.1%, HealthyPeople target goal: <24.3%
Blue indicates counties above or near target goal.

[Binge Drinking map](#)

Smart maps let the problem speak



Smart maps let the layers talk to each other



Count of Federal Lands [Edit](#) [Test](#)

Expression

```
1 var federal = FeatureSetByName($map, "USA Federal Lands")
2
3 var countfederal = Count(Intersects(federal,$feature))
4
5 return countfederal
```

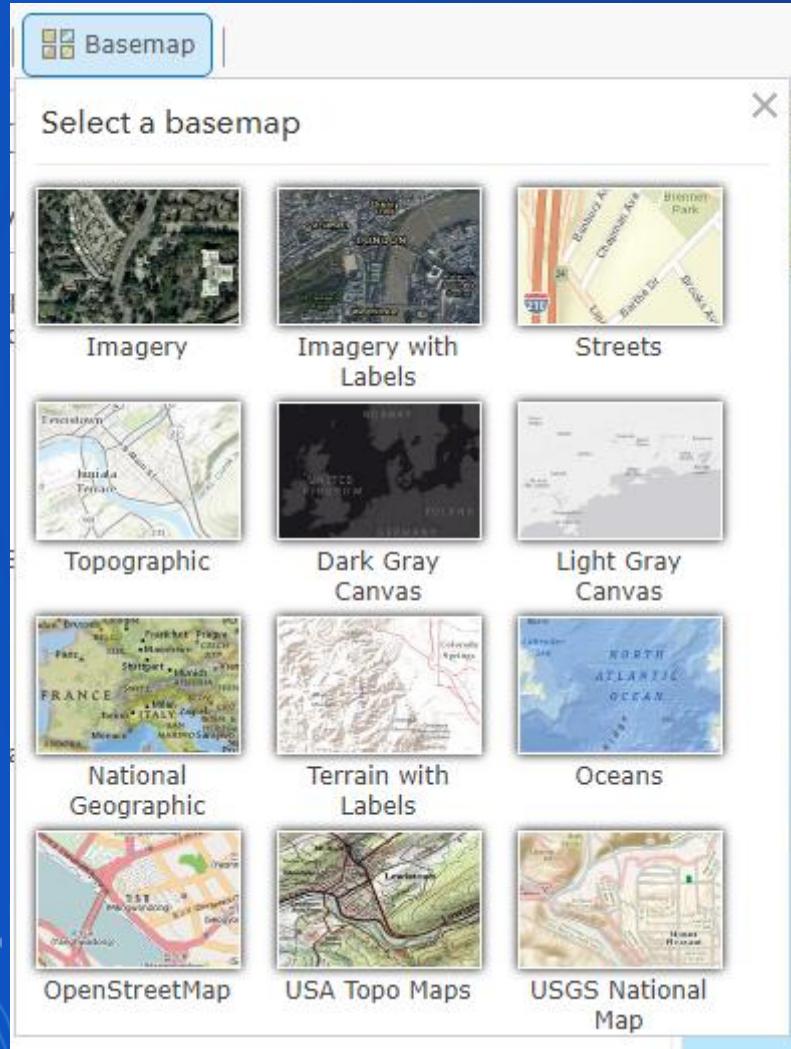
Breakdown of Types of Federal Lands [Edit](#) [Test](#)

Expression

```
1 var federal = FeatureSetByName($map, "USA Federal Lands")
2 var countrnational =Count(Intersects(Filter(federal,"Agency LIKE '%Na
3 var countforest = Count(Intersects(Filter(federal,"Agency LIKE '%For
4 var countfish = Count(Intersects(Filter(federal,"Agency LIKE '%Fis
5 var countreclamation = Count(Intersects(Filter(federal,"Agency LIKE
6 var countmanagement = Count(Intersects(Filter(federal,"Agency LIKE '
7 var countdefense = Count(Intersects(Filter(federal,"Agency LIKE '%De
8
9 return "National Park Service: " + countrnational + TextFormatting.N
10 "Forest Service: " + countforest + TextFormatting.NewLine +
11 "Fish and Wildlife Service: " + countfish + TextFormatting.NewLine +
12 "Bureau of Reclamation: " + countreclamation + TextFormatting.NewLine +
13 "Bureau of Land Management: " + countmanagement + TextFormatting.NewLine +
14 "Department of Defense: " + countdefense + TextFormatting.NewLine
```

Your popup in one layer can summarize data from another layer, no pre-processing required
So, ask a better question! How many federal lands are found in this congressional district?

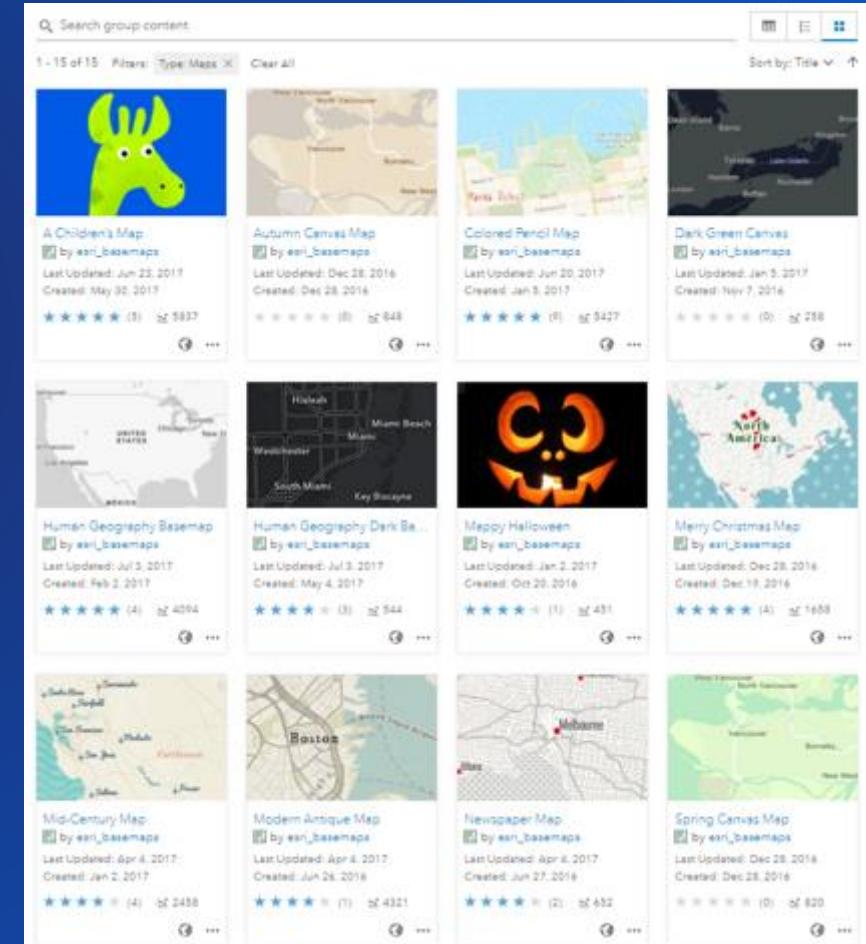
A basemap for every purpose



- You are not limited to the basemaps in these pulldowns

- Creative vector basemaps group

- Build your own



Resources



Smart Map Tutorials

- How to Smart Map
- How to Smart Map: Color
- How to Smart Map: Color and Size
- How to Smart Map: Heat Maps



Videos

- Data Driven Design for Your Maps
- Smart Mapping
- Smart Mapping for Election Results
- Smart Mapping in ArcGIS Online
- Building a Web App for Data Exploration
- Predominance



Resources

- Developers
- ArcGIS Pro
- ArcGIS Online
- ArcGIS Enterprise
- Learn ArcGIS



Blogs

- See our Blog

<http://www.esri.com/smartmapping>

Capability highlights

Display your data in 3D > Work with basemaps > Display and manipulate imagery > Perform analysis > Visualize data by size > Visualize data by color > Interact with subsurface data > Create realistic scenes >

<https://developers.arcgis.com/javascript>

Arcade Expressions and You



Arcade expressions allow for custom expressions to be used in ArcGIS Online maps. This map was created by [lisa_berry](#)

Description

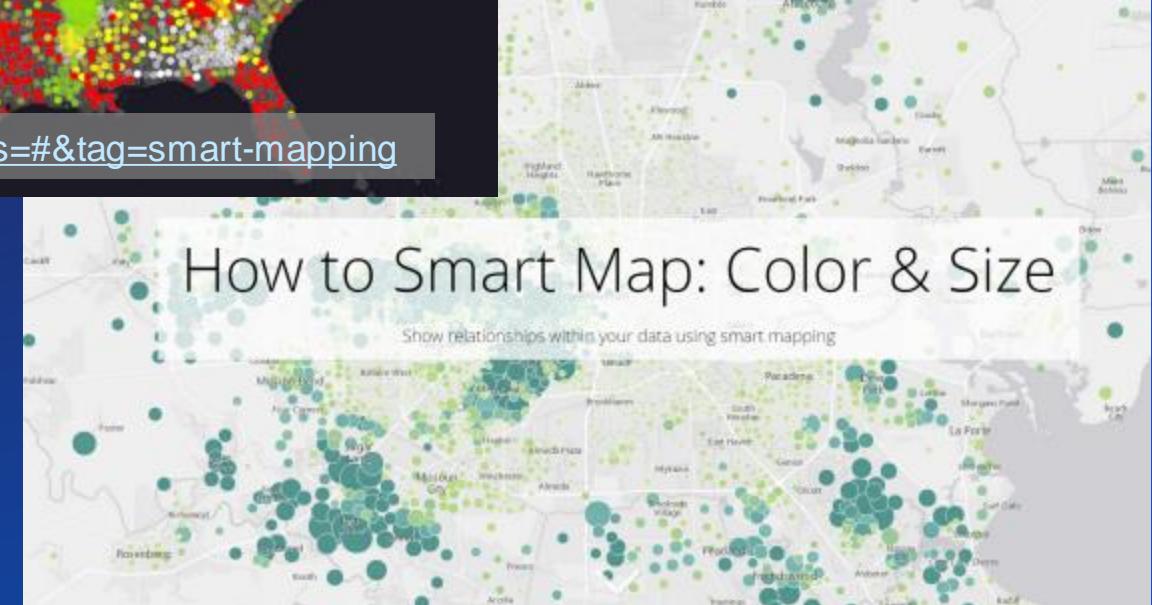
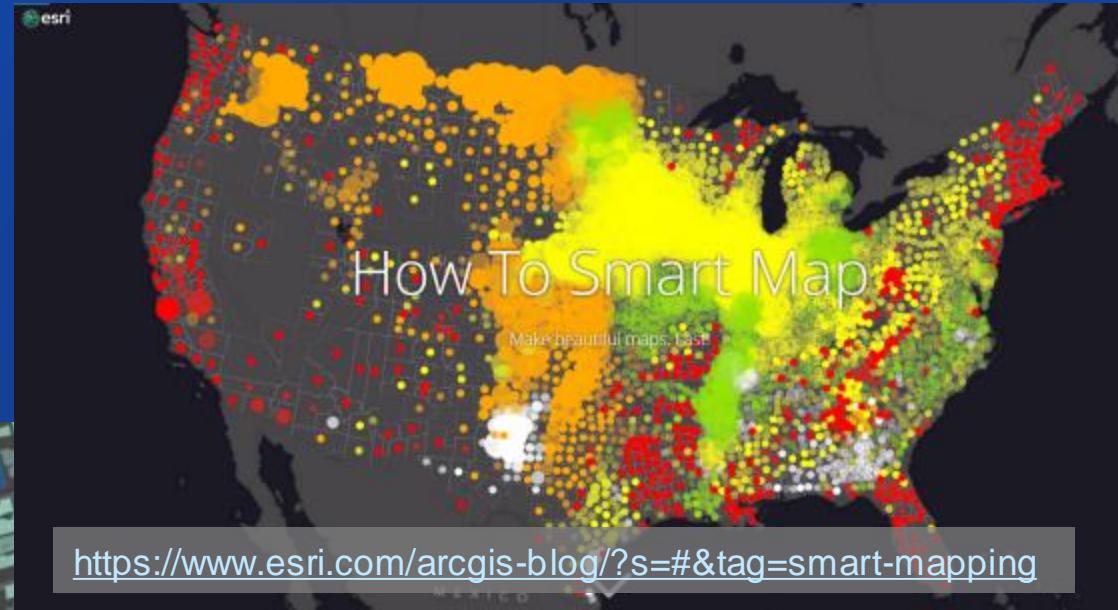
This collection of maps are available as examples for you to open and review, along with the expressions used to create them.

Arcade Expressions & You group

 [Esri / arcade-expressions](#)

[Github](#)

Blogs and Story maps

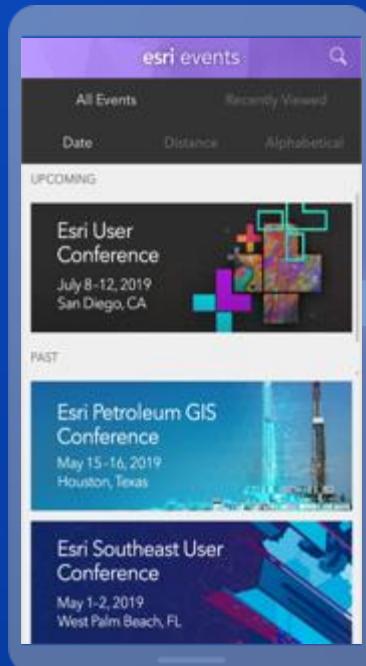


Questions !

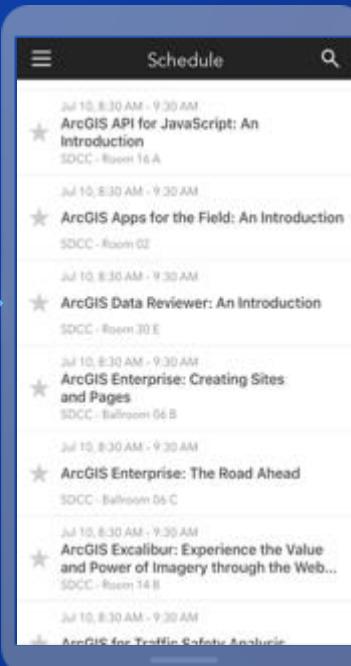


Please Share Your Feedback in the App

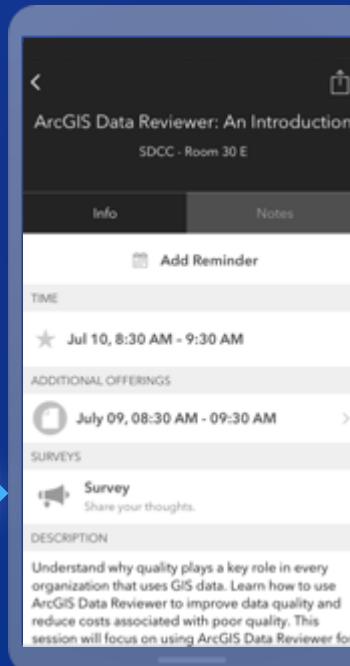
Download the Esri Events app and find your event



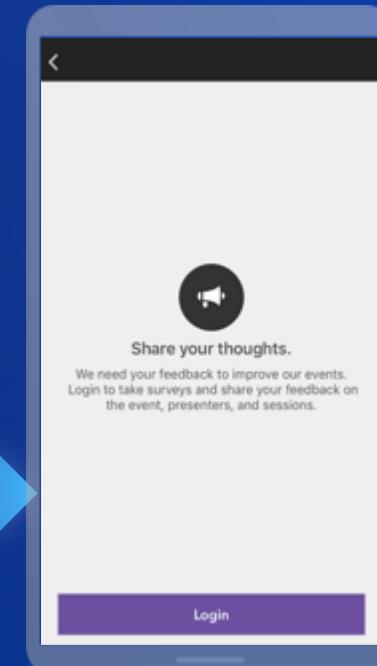
Select the session you attended



Scroll down to "Survey"



Log in to access the survey



Complete the survey and select "Submit"

