



Meeting the Challenges With Content

Jim Herries

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Find the future data nerd



My first computer



"Get an Out-of-this-World Deal On My Favorite Color Computer!"

Save \$100 With This Incredible Offer From Radio Shack!

"It's a fantastic deal on an exciting entertainer!" Take it from Isaac. Now you can save \$100 on any TRS-80[®] Color Computer. That means you can get our 16K Standard BASIC Color Computer, regularly \$399.95, for only \$299.95! Add a pair of joysticks for \$24.95 and you can play Super Bustout — our exciting action game that's also sale priced at just \$19.95 — a \$10.00 savings! You'll find the TRS-80 Color Computer to be an outstanding entertainer and educator for the whole family.

"It's also a very serious, hard working computer." Just plug in a handy Program Pak[™] and your Color Computer can assist you in everything from word processing to setting up a family budget — even to creating your own electronic filing system.

"Just one of many fine computers from Radio Shack." The Color Computer attaches easily to any TV set. See it today at your nearest Radio Shack store, Computer Center or participating dealer.

"Hurry — this fantastic offer ends December 31, 1982!" Get the \$399.95 Standard BASIC Color Computer for just \$299.95 — and pay only \$19.95 for the \$29.95 Super Bustout Program Pak!¹ And save \$100 on any other TRS-80 Color Computer.

— Isaac Asimov
Renowned Science and Science Fiction Author

Radio Shack
The biggest name in little computers.[™]
A DIVISION OF SANDY CORPORATION

Circle 75 on inquiry card.

My first database



Low-Cost Printer With Dot-Addressable Graphics



399⁰⁰

- Bit-Image Mode Allows Printing of High-Density Graphics
- Prints 80 Upper/Lower Case 5 x 7 Matrix Characters on 8" Line
- Prints 50 Characters per Second at 10 Characters per Inch
- Underline Capability ■ Use With Any Full-Size TRS-80 CPU

DMP-100. Prints high-density graphic information similar to that on the Color Computer screen. Features 480-byte full-line dot buffer, selectable parallel and TRS-80 Color Computer-compatible serial interfaces (600/1200 baud) and adjustable tractor; 4 1/2 to 9 1/2". Uses up to 9 1/2" fanfold paper. With ribbon cassette, U.L. listed.

26-1253 399.00

Specifications. Print Density: 5 or 10 characters per inch. Graphic Density: 60 x 63 dots per sq. in. Print Speed: 50 characters per second, 27 lines per minute. Character Set: 96 ASCII. Bit Image: 480 addressable 7-dot columns. Dimensions: 5 1/4 x 16 x 8 1/4". Weight: 8 1/2 lbs. Power: 120VAC, 60 Hz, 15W.

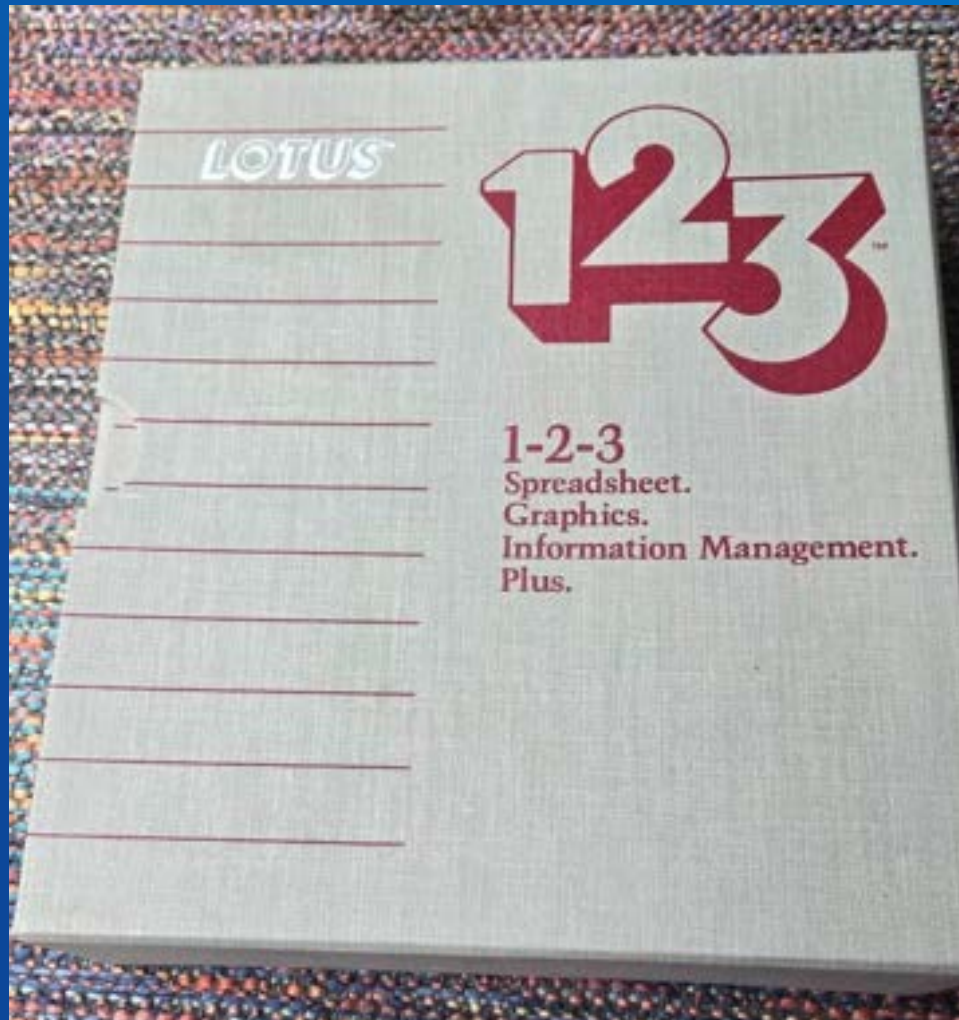
DMP-100 Print Samples

10 CPI ! " # \$ % & ' () * + , - . / 0 1 2 3 4 5 6 7 8 9 : ; < = > ?

10 CPI ! " # \$ % & ' () * + , - . / 0 1 2 3 4 5 6 7 8 9 : ; < = > ?

5 CPI ! " # \$ % & ' () * + , - . / 0 1 2 3 4 5 6 7 8 9 : ; < = > ?

My first spreadsheet



A	B	C	D	E	F	G	
1	EMP	EMP_NAME	DEPTNO	JOB	YEARS	SALARY	BONUS
2	1777	Azibad	4000	Sales	2	40000	10000
3	81964	Brown	6000	Sales	3	45000	10000
4	40370	Burns	6000	Mgr	4	75000	25000
5	50706	Caeser	7000	Mgr	3	65000	25000
6	49692	Curly	3000	Mgr	5	65000	20000
7	34791	Dabarrett	7000	Sales	2	45000	10000
8	84984	Daniels	1000	President	8	150000	100000
9	59937	Dempsey	3000	Sales	3	40000	10000
10	51515	Donovan	3000	Sales	2	30000	5000
11	48338	Fields	4000	Mgr	5	70000	25000
12	91574	Fiklore	1000	Admin	8	35000	---
13	64596	Fine	5000	Mgr	3	75000	25000
14	13729	Green	1000	Mgr	5	90000	25000
15	55957	Hernann	4000	Sales	4	50000	10000
16	31619	Hodgedon	5000	Sales	2	40000	10000
17	1773	Howard	2000	Mgr	3	80000	25000
18	2165	Hugh	1000	Admin	5	30000	---

Finding the Gaps

- I have always been interested in the **gaps**
 - Missing data (digitize, download, derive, define requirements)
 - Missing functionality (script, specify requirements)
 - Missing documentation (API, human)
 - Missing processes (define workflows, project plans)
 - Missing information products (maps, apps, reports, charts, text)
 - Missing efficiencies (cost, time, quality)
 - Missing purpose (mapping data rather than meaning, context)
- My “why” is mine
- My “why” is always evolving
- What is your “why” ?

Three Gaps We Close Together

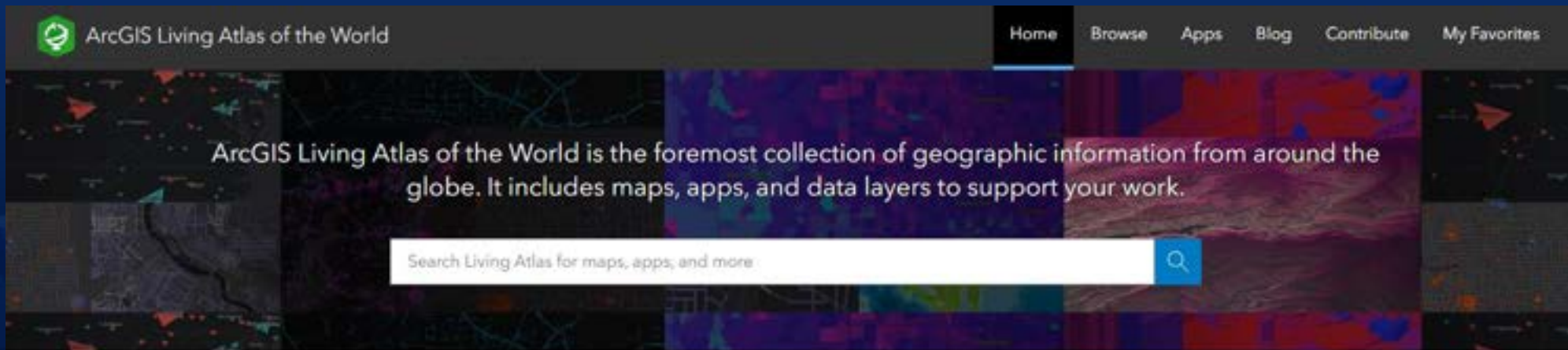


Software products	→	Platforms and APIs
2D	→	2D/3D/4D AR/VR
Client/server	→	Web Services and apps
Standalone desktop	→	Connected devices
Printed maps	→	Web maps, dashboards, other apps
Static data	→	Data services, live streams, big data
Custom applications	→	Interoperable packages, libraries
Single, all-purpose application	→	Focused apps
Proprietary data	→	Open Data & Shared Services
Using data created by others	→	Combining others' data with our own
Limited sharing	→	Many ways to share
Niche technology	→	Ties to larger IT community: GitHub
Some attention to societal concerns	→	Much attention to societal concerns
Mapping department	→	Integrated across the business

...GIS has changed.

Web GIS can enable understanding

- Discover valuable data sets, in government portals (Hub sites, other libraries)
 - And on the ArcGIS **Living Atlas of the World**
- Publish your own data layers and apps:
 - On ArcGIS Online
 - In ArcGIS Hubs
 - Also **contribute** to the Living Atlas
- Then, to dig deeper > ArcGIS Pro, and the ArcGIS Pro <> R Bridge.



GIS Professionals Are Creating Geospatial Infrastructure . . .

A Growing Network of Distributed Shared Services

Millions of Users

Sharing 10s of Millions of Datasets

Serving Billions of Maps Daily

Reaching Billions of People . . .
. . . with Stories About Our World

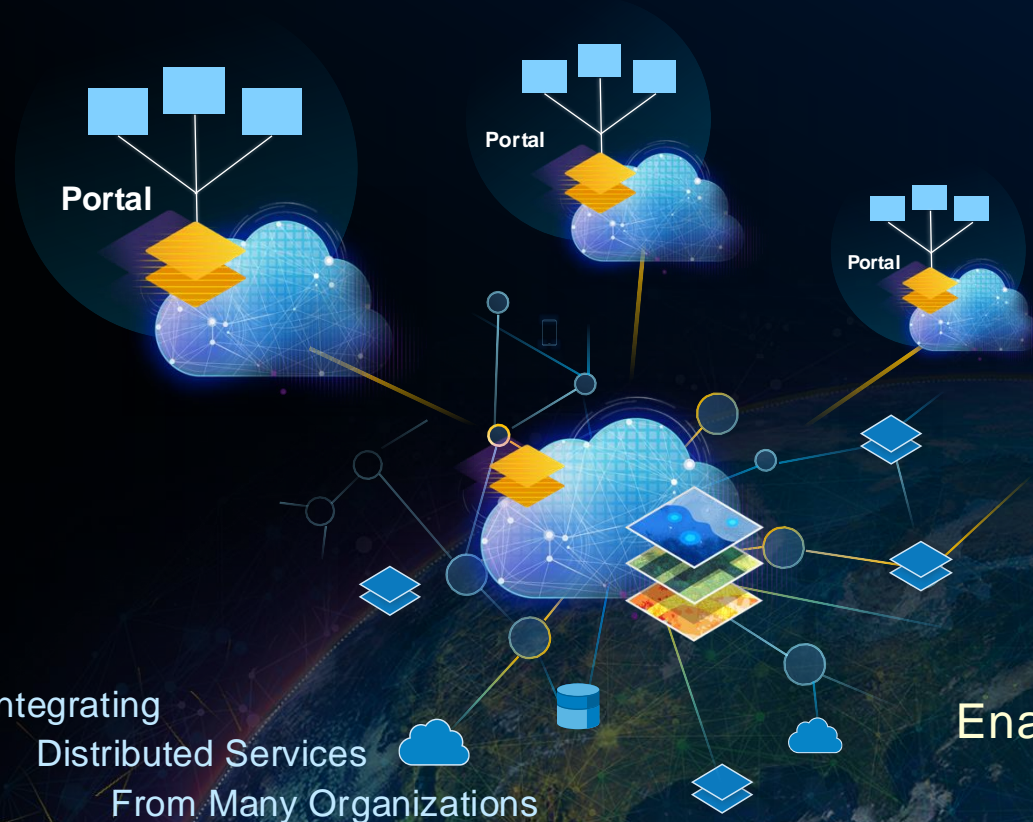
*Enabling . . .
Shared Understanding,
Collaboration and Efficient Action*



GIS Portals Are a Key Aspect of Geospatial Infrastructure

Organizing and Making Available Content and Capabilities

Supporting Multiple
Communities & Initiatives



Integrating
Distributed Services
From Many Organizations

FEMA Disaster Response



SCAG Regional Planning



ICDE Citizen Engagement

Enabling Dynamic Integration and Collaboration . . .
Transforming Organizations

ArcGIS Online offers an Ecosystem of Shared Content

Enabling a Global Geospatial Infrastructure of Useful & Authoritative Content

User Shared Apps, Maps, and Data . . .



COVID



Climate



Resilience

Recovery



Equity

- Millions of Public Items
- Billions of Views Yearly
- Thousands More Daily

. . . on Many Topics



Built by and for the ArcGIS Community

ArcGIS Includes Content – The Living Atlas

Ready-to-Use Maps, Layers & More

10,000+ High-Quality items . . .

Continuously Updated. . .

Actively Curated . . .

Authoritative Sources

Habitats Landscape Demographics

Basemaps Land Cover

Environment Transportation

Infrastructure Hydro Movement

Imagery Traffic Business

POI Boundaries Elevation

Weather Oceans

Soils Hazards



3D Basemaps

new

Global

- Places (POIs) Layers
- Overture Maps Data
- OpenStreetMap Layers
- iNaturalist Observations
- Analysis-Ready Imagery
- World Ecosystems (2050)
- Land Cover Updates (2023)
- Enhanced 3D Buildings & Terrain

US

- Nationwide Parcel Map
- Esri Demographics (2024)
- Very High-Res Imagery
- NAIP Imagery (2022-23)
- Census ACS (2018-22)
- FCC Broadband Data (BDC)
- Hydrology (NHDPlus)

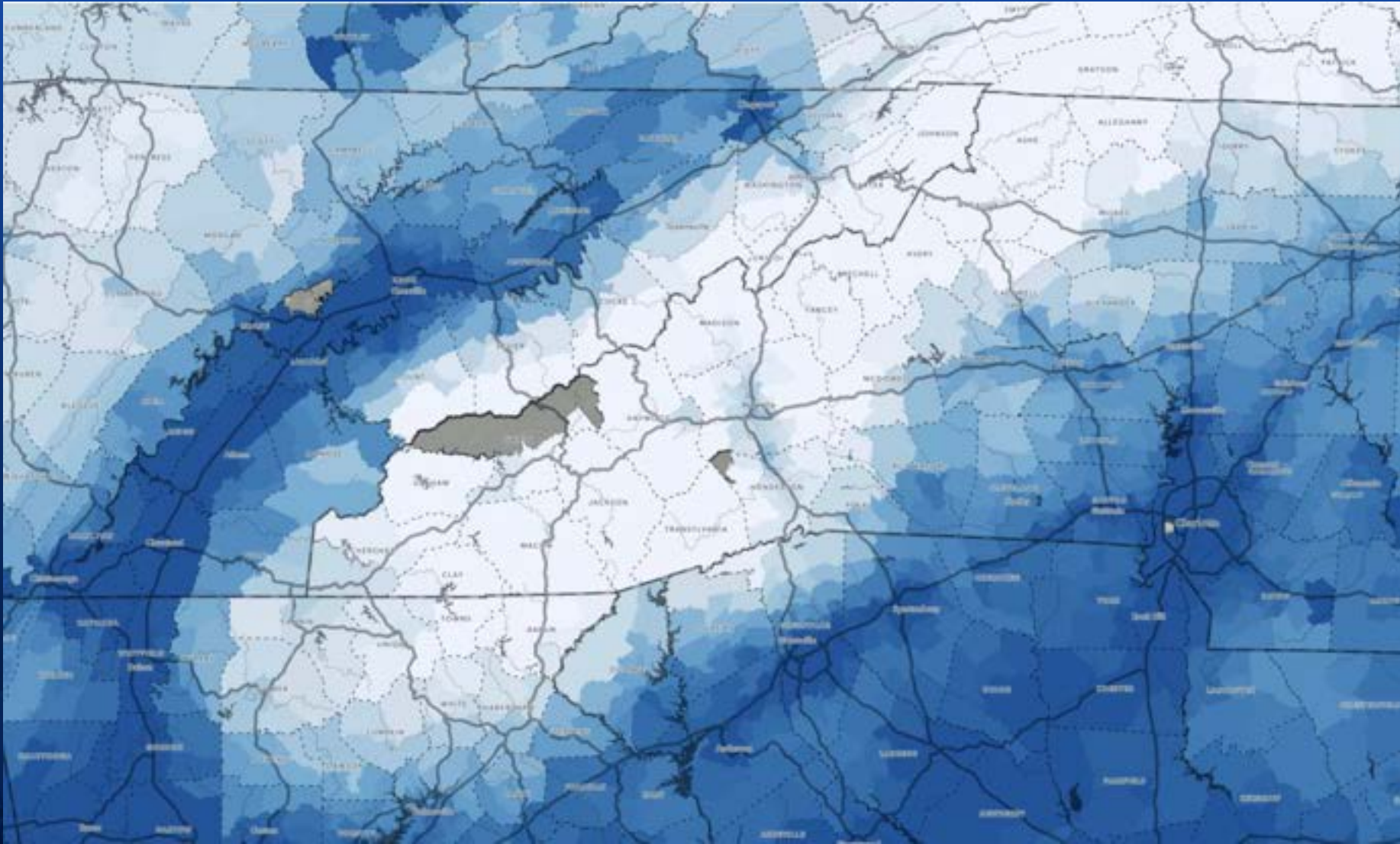
Built from Best Available Commercial and Community Sources

Content is Published by Esri, Partners, and Users

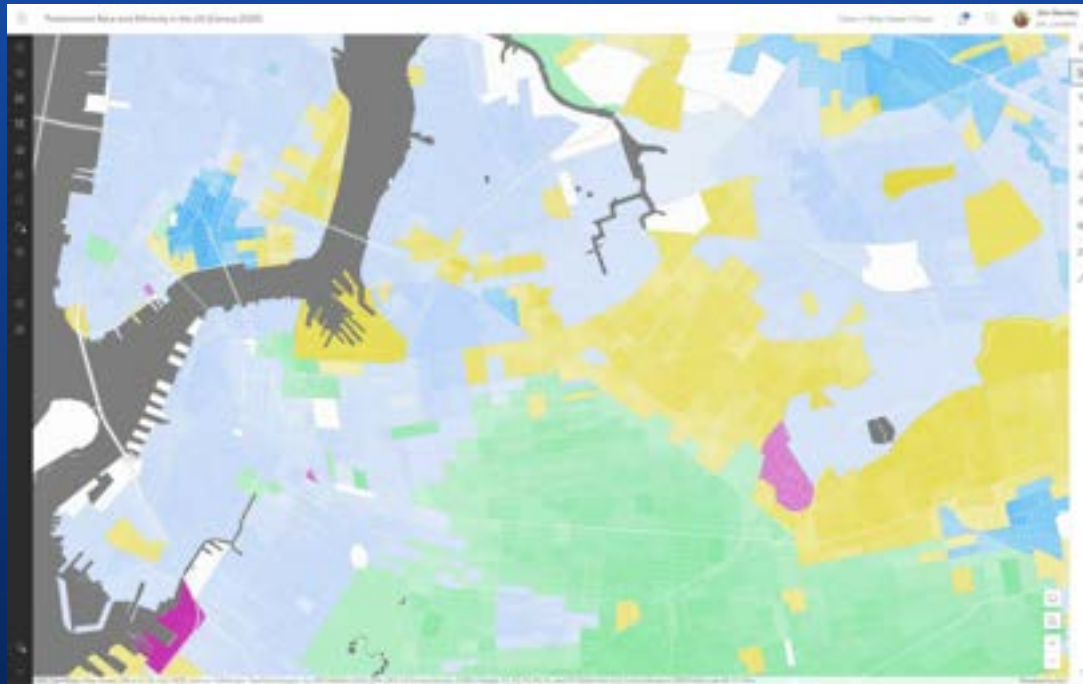
Built by the ArcGIS Community and Curated by Esri



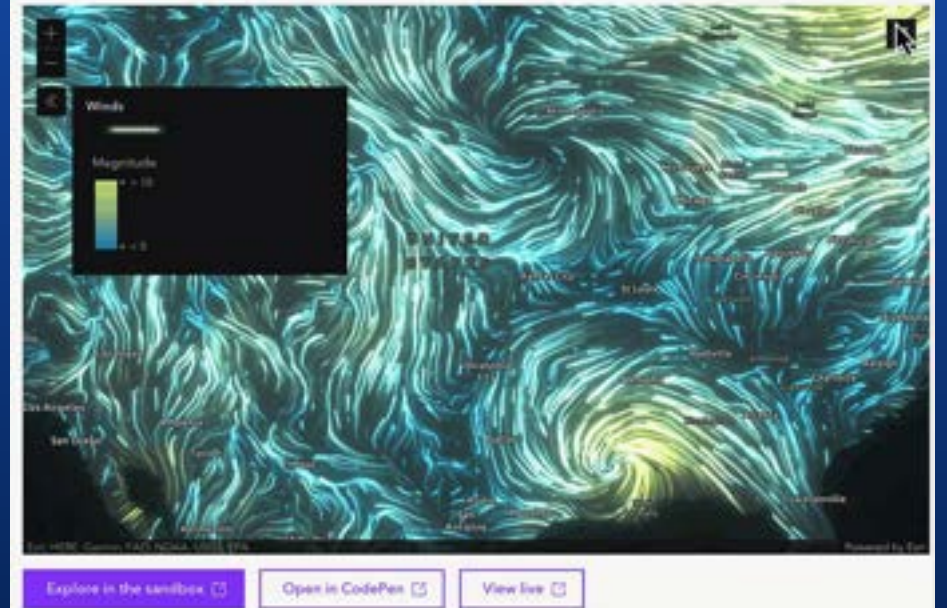
Living Atlas team uses ArcGIS every day



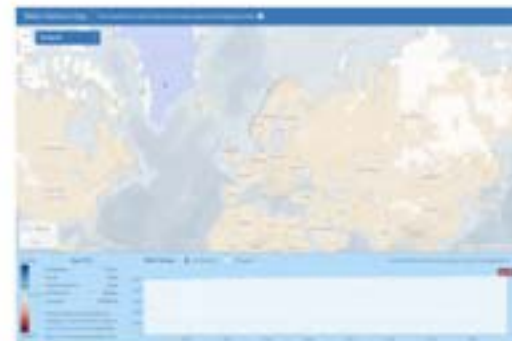
Bringing data to life



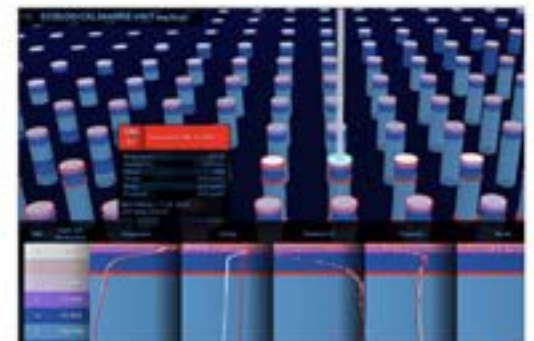
FlowRenderer with visual variables



U.S. Vessel Traffic



Water Balance App



Ecological Marine Unit (EMU) Explorer

Week Of
 OCT 17
 2023
 Selected Area

POPULATION

WATER

AGRICULTURE

Higher Population

Lower Population

COUNTY

STATE

WISE COUNTY TEXAS

POPULATIONS WITHIN DROUGHT

	Population	Households	Multi-Family Single Family
Exceptional	32,608	11,486	35 65
Extreme	37,454	15,300	27 73
Severe	0	0	0 0
Moderate	0	0	0 0
Abn. Dry	0	0	0 0
Any Droughts	70,062	26,786	30 70

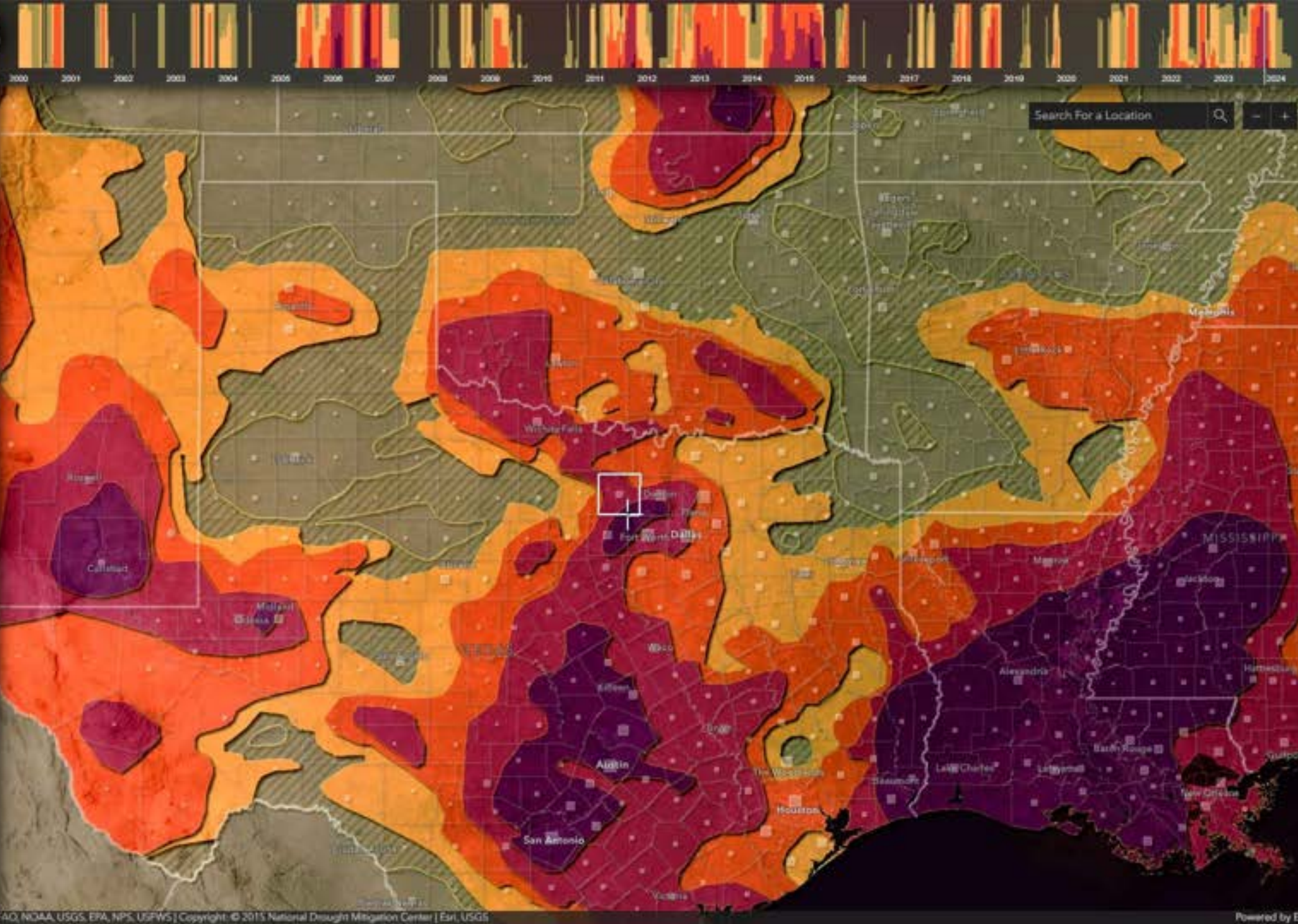
Based on 2019 US Census & drought levels.

VULNERABLE POPULATIONS

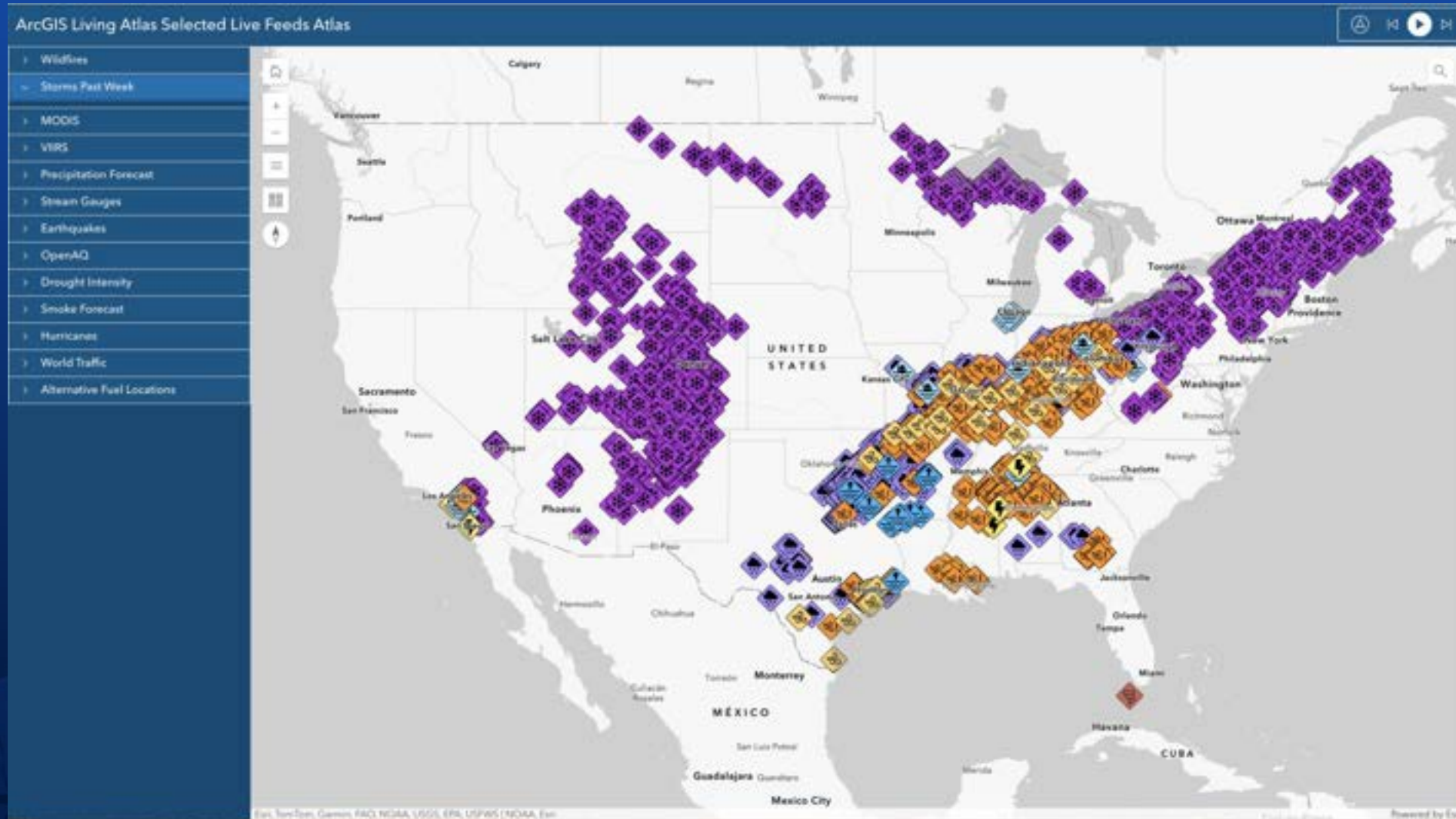
Population Under Age 9: 8,729 | 12%

Population Over Age 70: 6,861 | 10%

Social Vulnerability: Relatively Moderate



Live Feeds About Your Community



Urgent & Affecting Operations

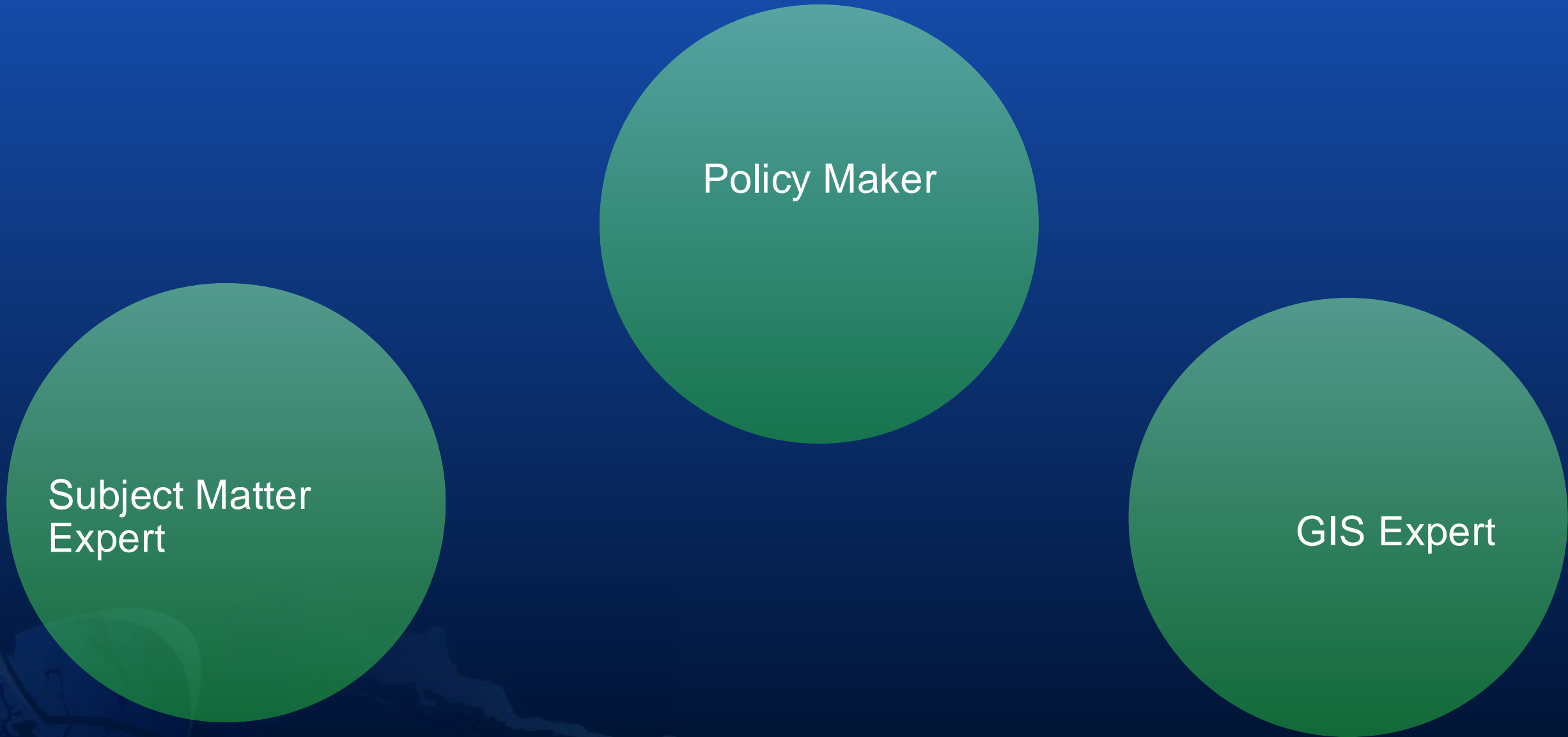
Usable Information from Data About Your Community



**Characterize
neighborhoods**

**Context for
policy
decisions**

Without a Policy Mapping Approach

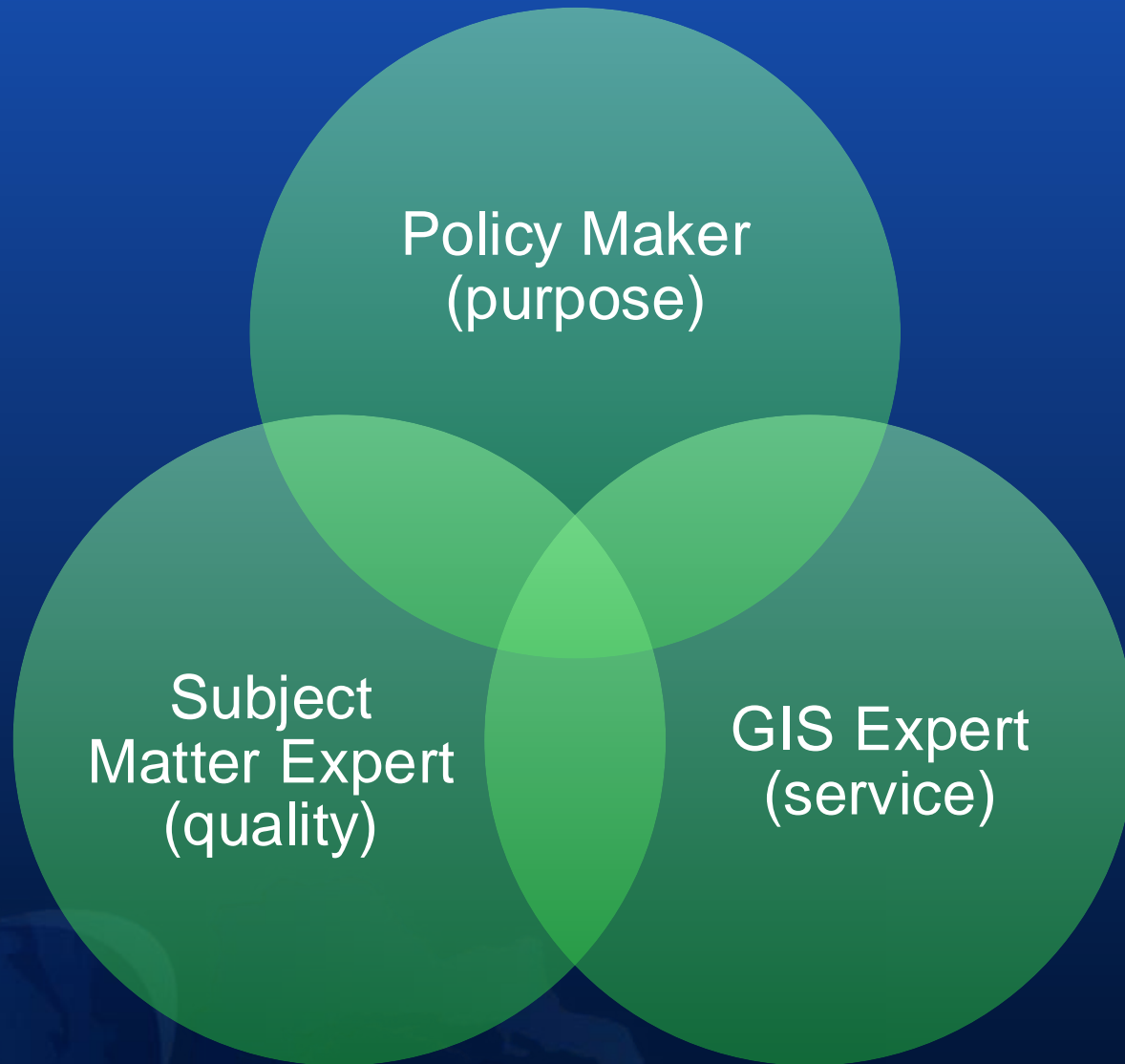


Subject Matter
Expert

Policy Maker

GIS Expert

Policy Maps bring people together



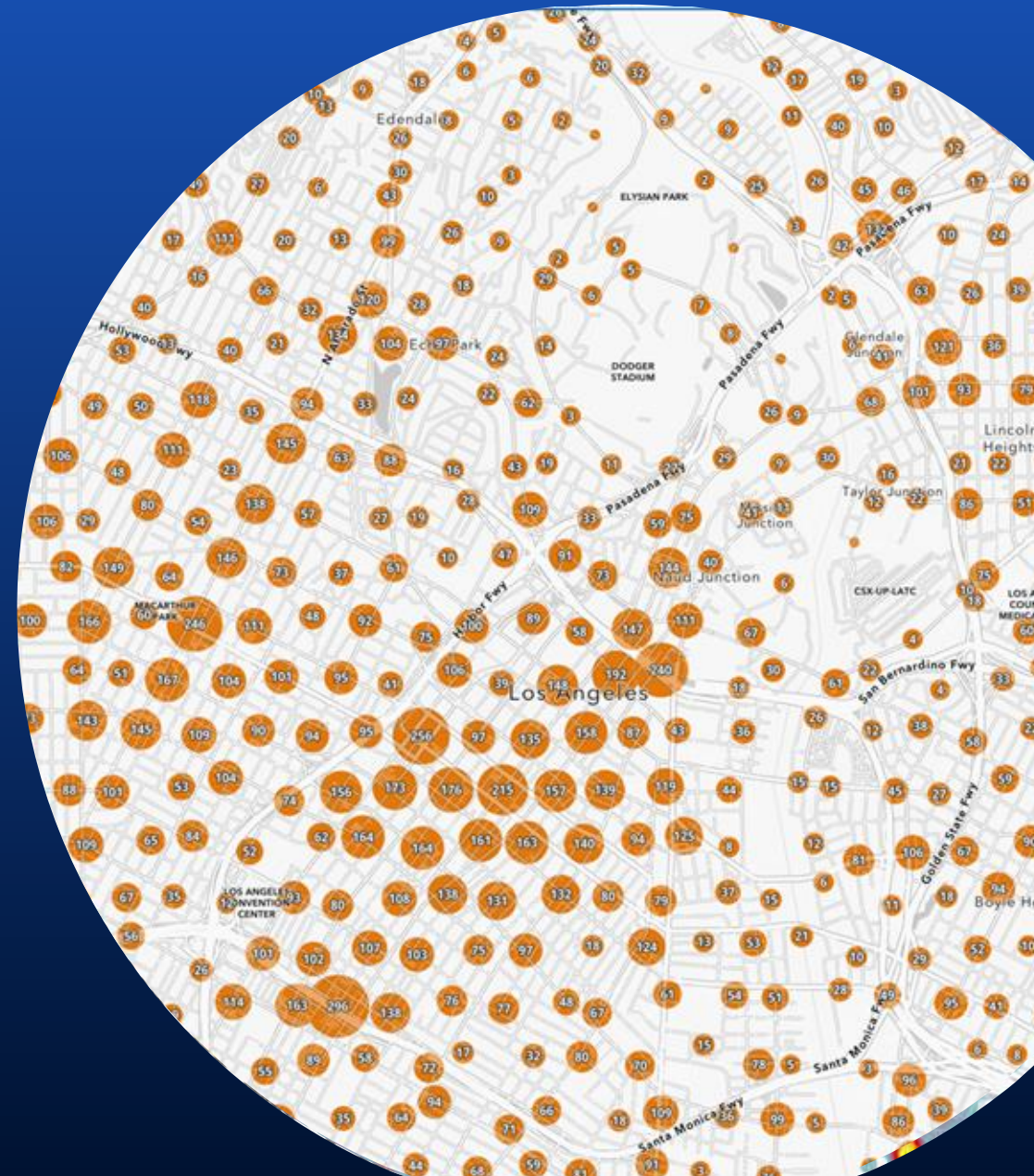
What is a policy map?



"A policy map is a map where the opportunity to intervene is made clear" - Steven Goldsmith

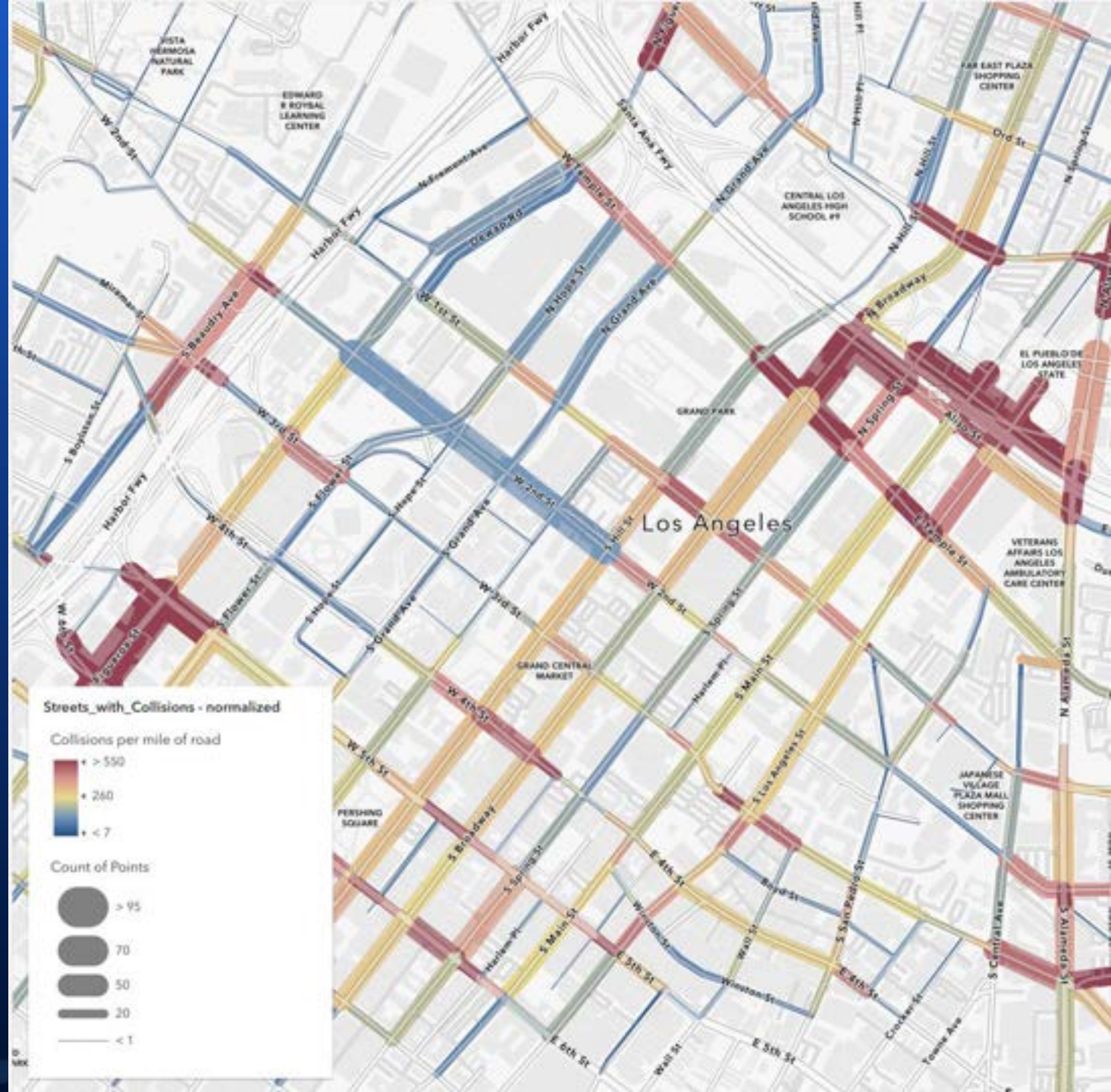
Data → policy map?

- Dots on maps? No, they mask patterns
- Heatmap? Getting warmer
- Cluster map? Would you expect clusters?

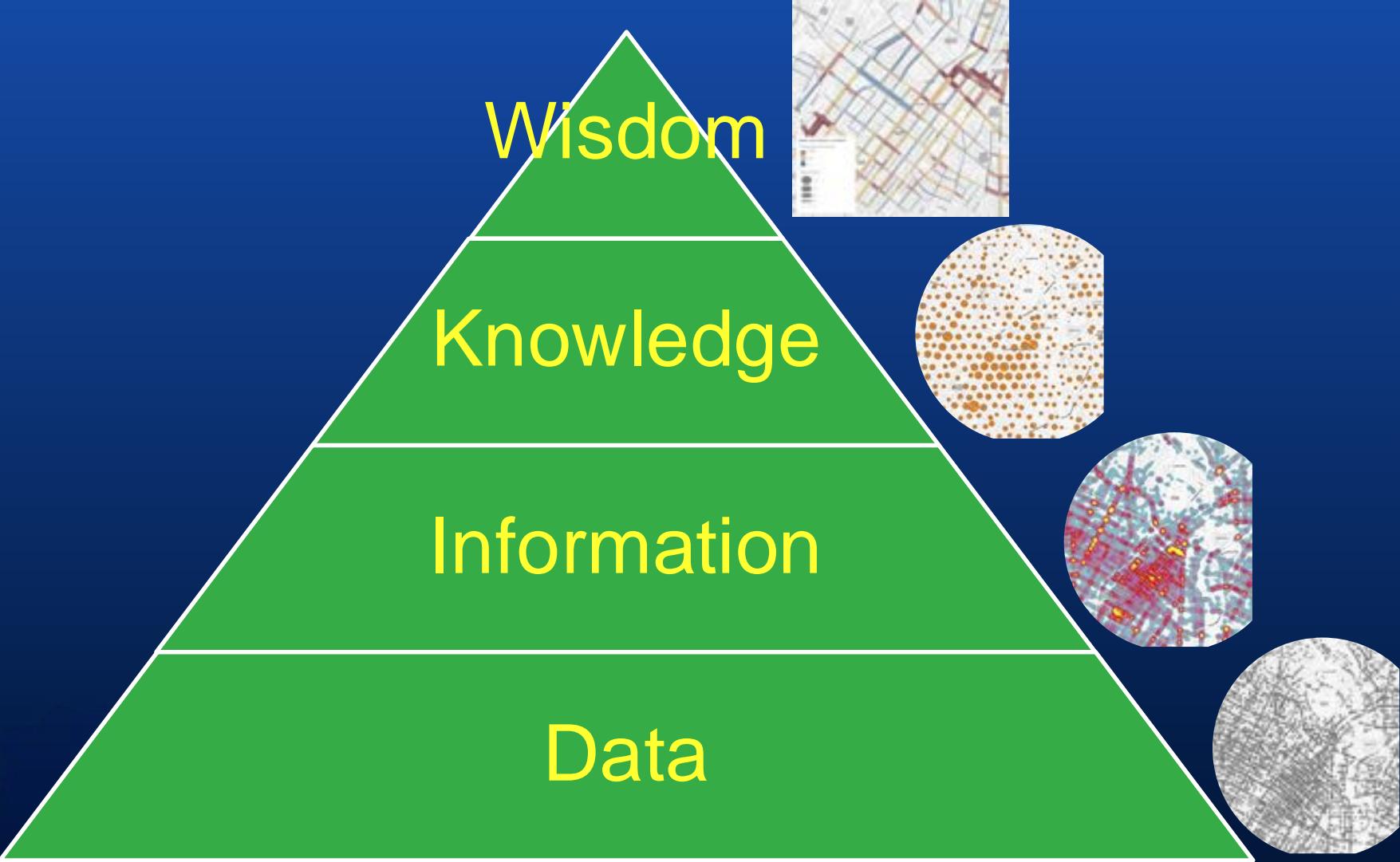


Where do people and your data intersect?

- We implement policy on streets
- Buffer the street segments
- Use the street buffers as “bins” and count up accidents
- Use line size to indicate counts
- Use color to indicate accidents per mile of road
- Still think “one policy fits all” situations?

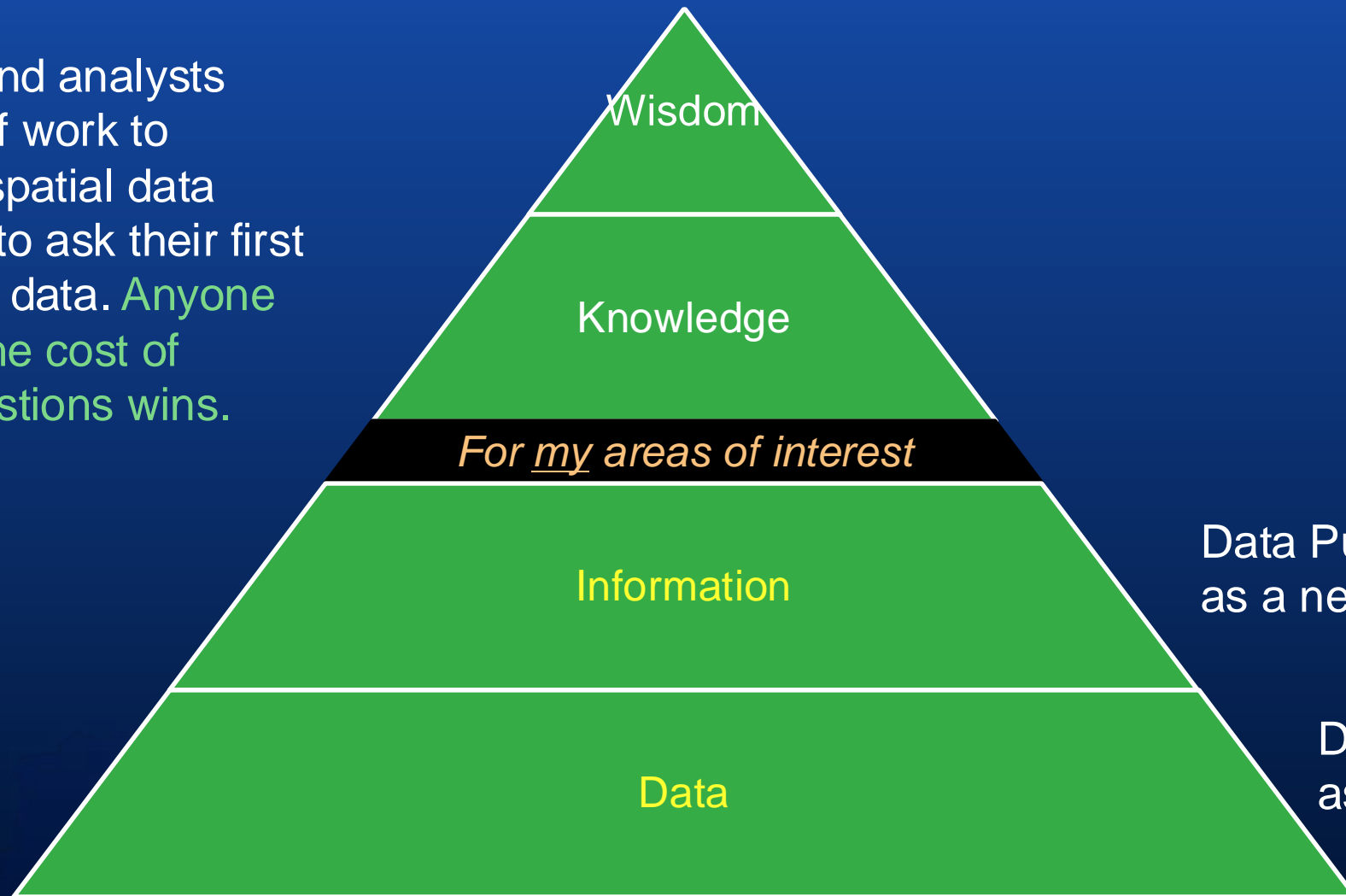


What do you want to provide?



The Gap

Researchers and analysts must do a lot of work to assemble the spatial data they need just to ask their first question of the data. *Anyone who reduces the cost of answering questions wins.*

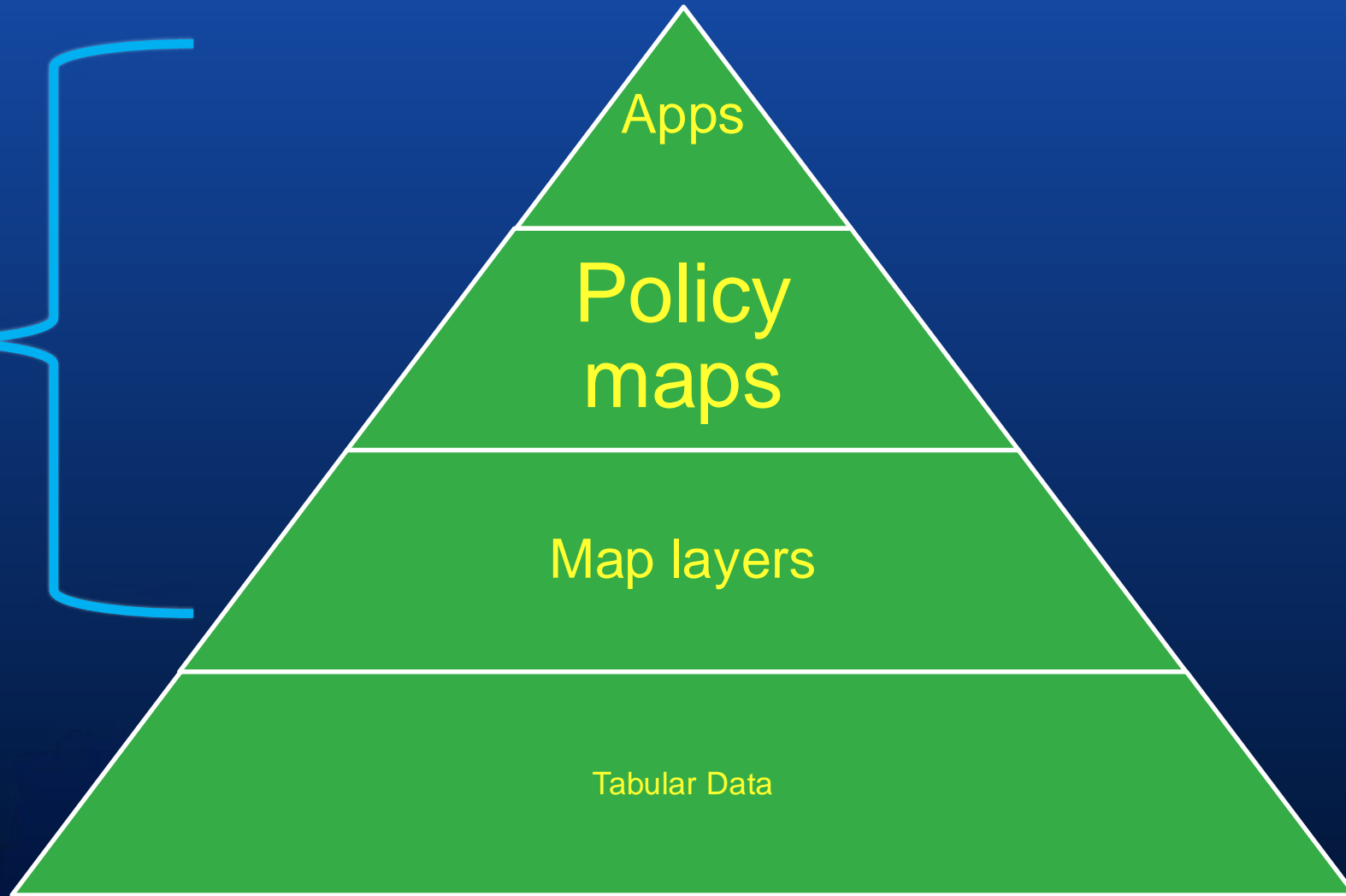


Data Publishers see this as a necessary activity

Data Publishers see this as their primary mission

What do you want to provide?

Goal: reduce the cost of answering the first question for my areas of interest

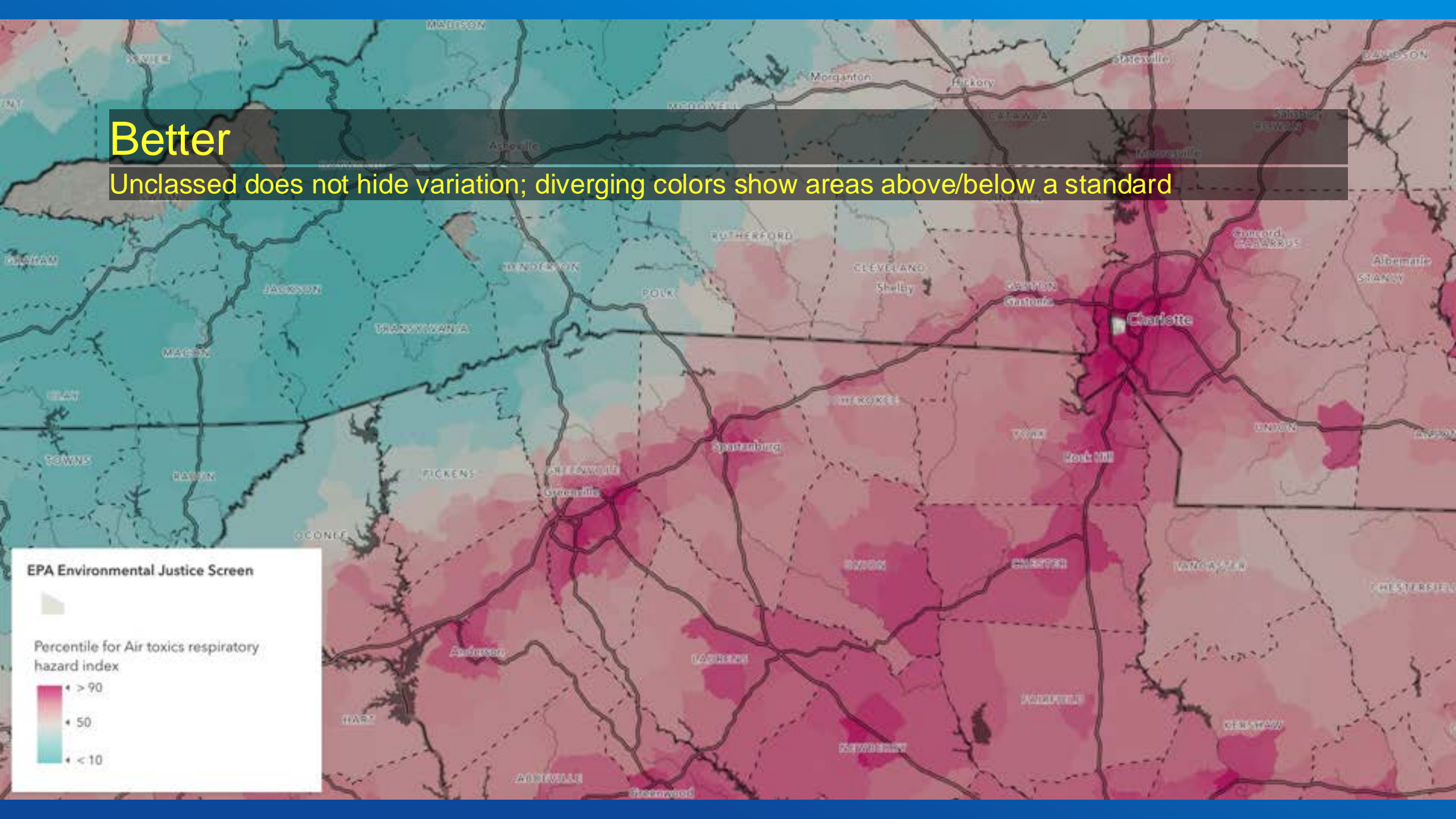
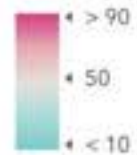


Better

Unclassed does not hide variation; diverging colors show areas above/below a standard

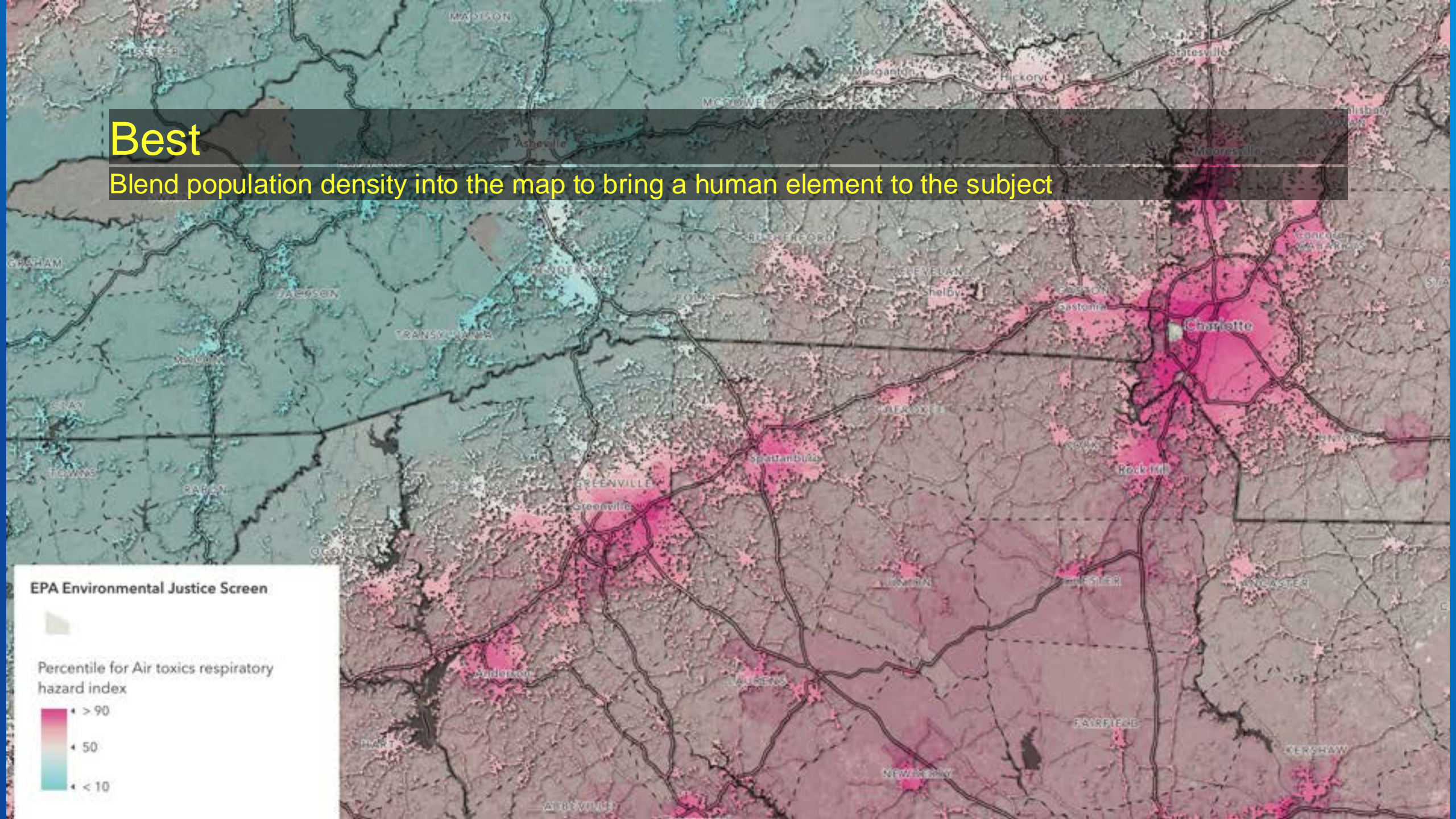
EPA Environmental Justice Screen

Percentile for Air toxics respiratory hazard index



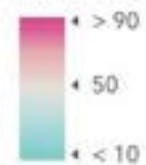
Best

Blend population density into the map to bring a human element to the subject



EPA Environmental Justice Screen

Percentile for Air toxics respiratory hazard index



Best

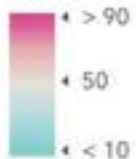
Your popup makes a local connection and builds trust

Explanation and context

Data with readable field aliases

EPA Environmental Justice Screen

Percentile for Air toxics respiratory hazard index



Get directions Zoom to

1 of 14

Tennessee ID 470930066001

The EPA Environmental Justice Screen indicates that 1,287 people live here with an air toxics rank in the 94th percentile (100 = worst in the country).

Percent Minority: 14%

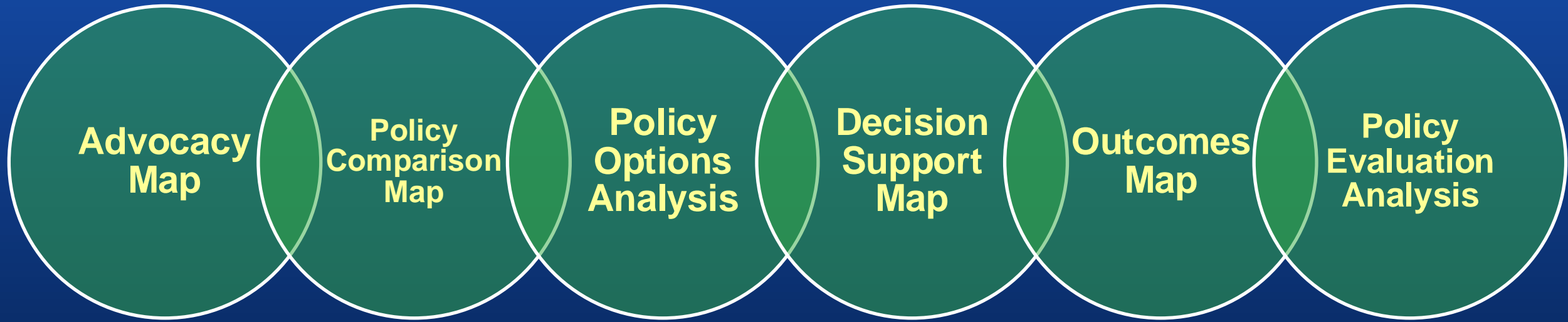
Percent Low Income: 61%

Factoring in those who are likely to be more susceptible to hazards like this, the demographic index for this area ranks in the 61st percentile (100 = most susceptible in the country).

Hazard Data

Percentile for Air toxics respiratory hazard index	94
Air toxics respiratory hazard index	0.7
EJ Index for Air toxics respiratory hazard index	18

Policy lifecycle



Advocates
raise
awareness

Policy analysts weigh
options

Elected officials
implement
strategies

Data dept.
reports
outcomes

Policy
researchers
review

Owner, Renter and Vacant Housing in

 Edit thumbnail



 Add to Favorites

Add a brief sun

 Web Map by

Item created: Apr

Description

Add an in-depth description of the item.

Layers

USA 2020 Census Housing Characteristics

Group layer

 Nation

Feature layer

 State

Feature layer


 County

Feature layer

 Edit thumbnail



 Add to Favorites

This map shows the prevalent or predominant type of housing in each area: owner-occupied, renter-occupied or vacant. Source: U.S. Census Bureau's 2020 Census Demographic and Housing Characteristics, for Nation, State, County, Census Tract, Block Group and Block in the United States and Puerto Rico. 

 Web Map by esri_demographics

Item created: Jun 14, 2023 Item updated: Jun 27, 2023 View count: 2,575

 Living Atlas

Description



This map shows the prevalent or predominant type of housing in each area: owner-occupied (green), renter-occupied (yellow) or vacant (brown). Source: U.S. Census Bureau's 2020 Census Demographic and Housing Characteristics, for Nation, State, County, Census Tract, Block Group and Block in the United States and Puerto Rico.

3. Is this house, apartment, or mobile home — Mark ONE box.

- Owned by you or someone in this household with a mortgage or loan? Include home equity loans.
- Owned by you or someone in this household free and clear (without a mortgage or loan)?
- Rented?
- Occupied without payment of rent?

About the data

Each geography layer in this map contains a common set of Census counts based on available attributes from the U.S. Census Bureau. There are also additional calculated attributes related to this topic, which can be mapped or used within analysis. The blocks layer has a much smaller set of attributes compared to other larger geographies.

To see the full list of attributes available in the layers in this map, click on a layer below and choose the "Data" tab on that page, and then choose "Fields" at the top right of that page. Each attribute contains definitions, additional details, and the formula for calculated

Open in Map Viewer 

Open in Field Maps Designer

Create Web App 

Share

Metadata 

Item Information

 Learn more

Low

High

Details

Size: 880,465 KB

ID: 41672388842b425eb3ae#5a41b62cc3

☆☆☆☆☆



Share





Owner



esri_demographics

Nominate Your Content



[Edit thumbnail](#)

[Owner, Renter and Vacant Housing in the US \(20...](#) 60 / 100 Points

[Web Map by esri_demographics | Private](#)

Add a brief summary about the item.

[Demographics](#) [Census](#) [Census Bureau](#) ... [49 more](#)

Modified: 10/18/2024

[Views: 20](#)

80/100 points required to nominate

Open In

Edit

Nominate now

Suggested improvements

- 0/9 Points [A description is required](#)
- 0/9 Points [Summary is required](#)
- 0/1 Points [Set sharing level to: Public](#)
- 0/1 Points [Item must have 'Delete Protection' enabled](#)
- 0/9 Points [Add Credits \(Attribution\)](#)
- 0/9 Points [Improve Terms of Use](#)

Secure layers

- Yes [Block](#)
- Yes [Block Group](#)
- Yes [Census Tract](#)
- Yes [County](#)
- Yes [State](#)
- Yes [Nation](#)



General Content Validation Rules

The following rules apply to all item types you can nominate to Living Atlas.

Check Thumbnail

Guidance:

Upload a great-looking thumbnail that shows the layer, map or app at its best. Zoom to a scale at which your item looks great and take a screen capture. Then trim or resize it to the standard thumbnail image size, 600 x 400 pixel dimension.

Scoring:

Full points are awarded for adding a non-system generated thumbnail that is 600 pixels wide by 400 pixels high.

Check Title

Guidance:

Enter a title that is easy to read and avoid the use of jargon or abbreviations. The item title answers the question, **What is this?**

Scoring:

Points are deducted if *copy*, *demo*, *test*, *eval*, *_* or words in ALL CAPS are used. Points are awarded if two or more words are in the title.

Check Summary

Guidance:

Enter one or two sentences to answer to the question **What is this?** This summary is a much shorter version of the full description below.

Scoring:

Points are awarded for having 1-2 sentences, 10 word minimum. Points are deducted if *copy*, *demo*, *test*, or *eval* are used.



Texas Map Portfolio

This collection of Texas maps enables decision-makers to monitor current conditions in the Lone Star State.

The map portfolio contains information from:

Federal sources - USGS, EPA, NOAA, NWS, NWC, Census, FCC, USDOT, CEQ, DOE and EIA

Maps are Compiled and Published by Esri.



1 Wildfires



2 Weather Conditions



3 River Conditions



4 Drought Intensity



5 Air Quality



6 Weather Forecast



7 Climate Impact



8 Green Infrastructure



9 Conservation Opportunities





Meeting the Challenges With Content

Jim Herries

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