

UN-GGIM 13th Session Side Event: Inclusion and Diversity in Geospatial Information Management

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**What Kind of World
Do You Want to See?**



What Kind of World
Do You Want to See?

Healthy

Equitable

Prosperous

Peaceful

In Balance with
Nature

Secure

Sustainable



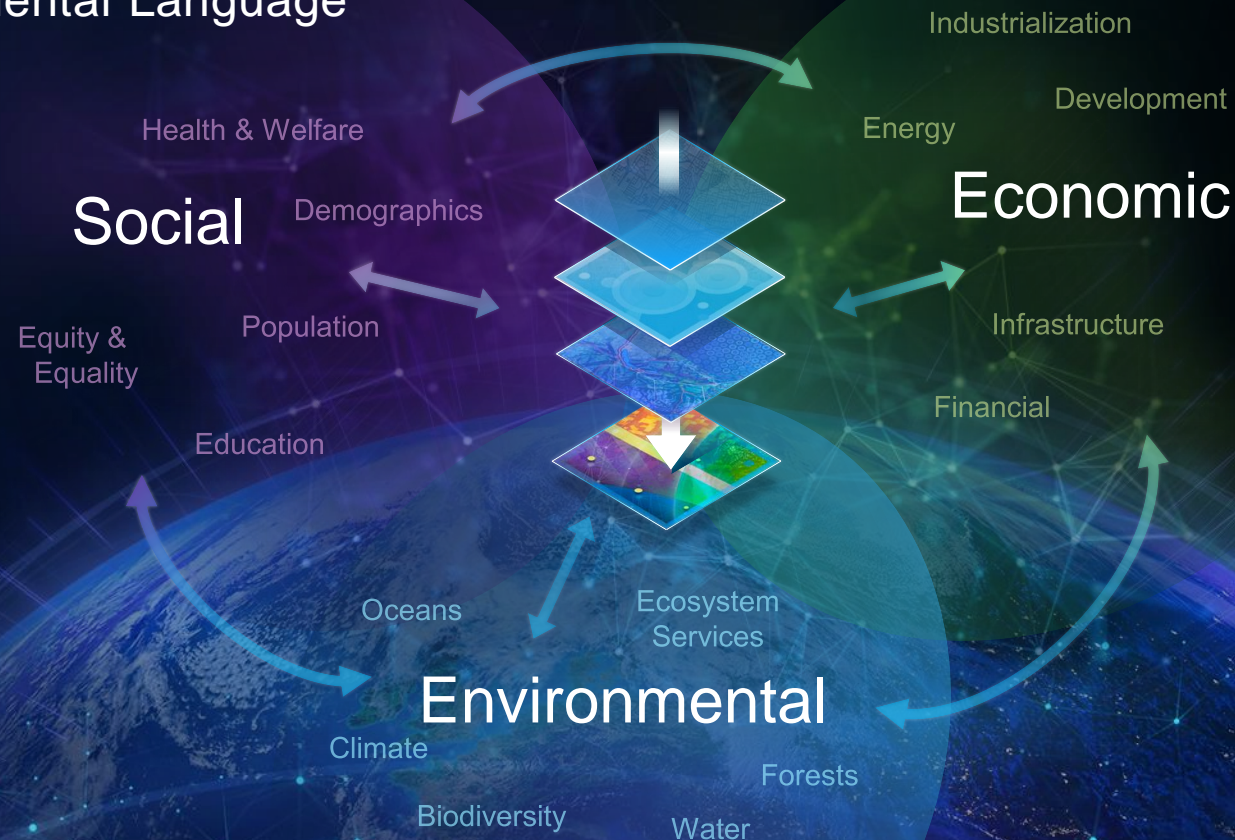
Sustainability and Equity Starts with Geography . . .

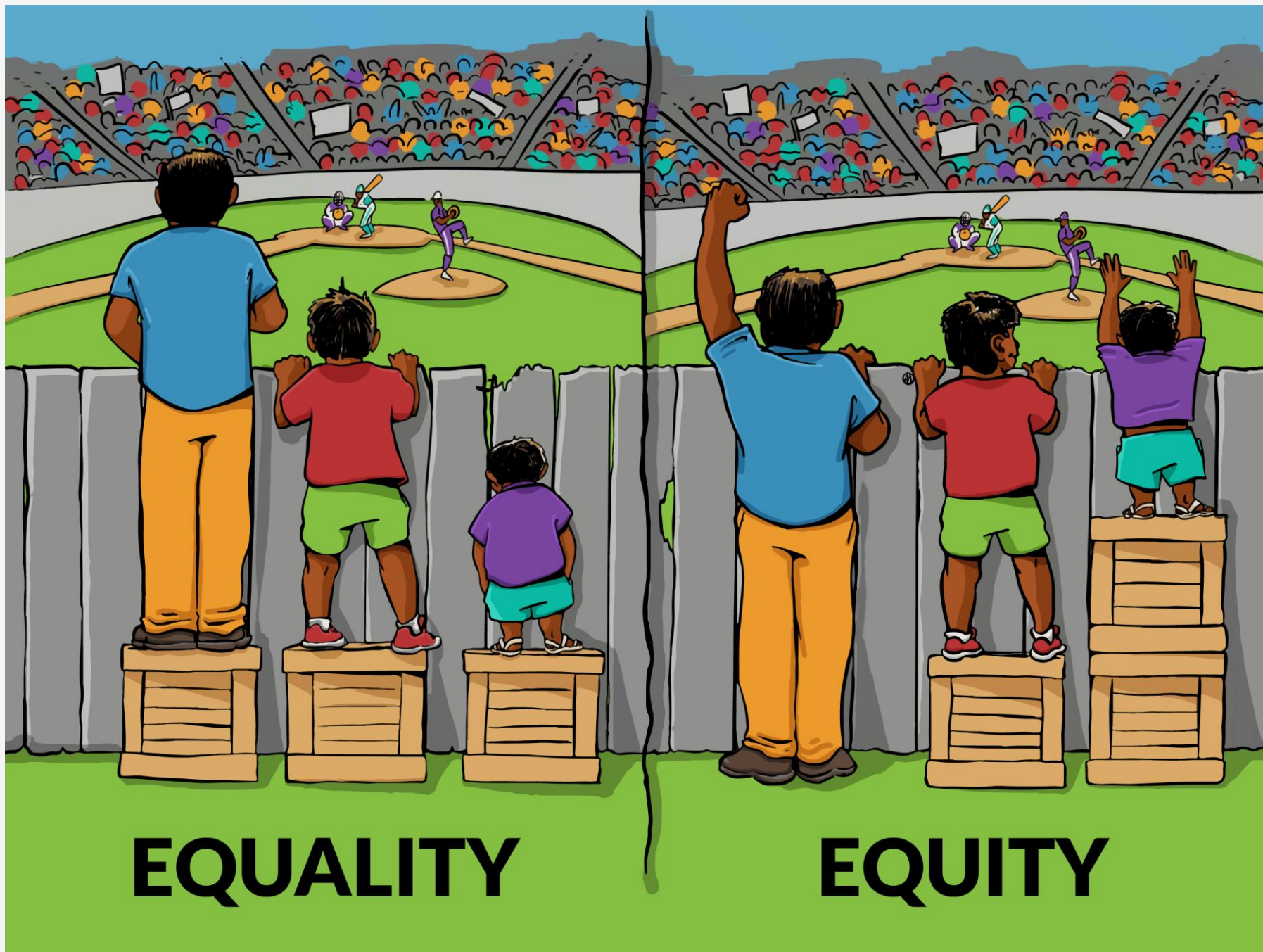
Seeing the World as One

Geography Provides the Science &
Fundamental Language

Illuminating Patterns
& Discovering
Relationships

Organizing &
Integrating
All the Factors





EQUALITY

EQUITY

CREDIT:
<https://interactioninstitute.org/illustrating-equality-vs-equity/>

ArcGIS

A Comprehensive Spatial Analytics System

.... For Understanding issues of Equity

AI, ML
& DL

Mapping

Data Engineering

Vector Analytics

Image & Raster Analytics

Spatiotemporal Statistics

Graph Analytics

Advanced Visualization

GeoAI

3D Analysis

Modeling

Big Data

Real-Time

Network Analysis

Statistical Modeling

Python Scripting

Visual Modeling

Interactive Charts

Graph Analytics

Density-Based Clustering with Time

Spatial Data Exploration

Voxels

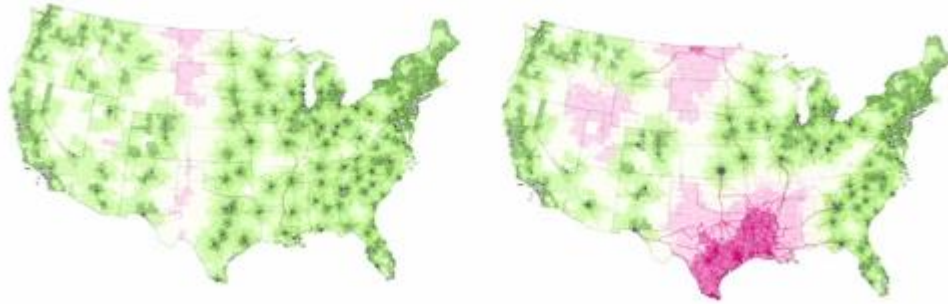
Presence-Only Prediction

Point Cloud Classification

Raster Analytics & Modeling

How will healthcare access change?

- What were the travel times to women's healthcare clinics across the country before the recent Supreme Court decision?
- How will those travel times change after the decision?
- Where do people have the most cumulative burdens?



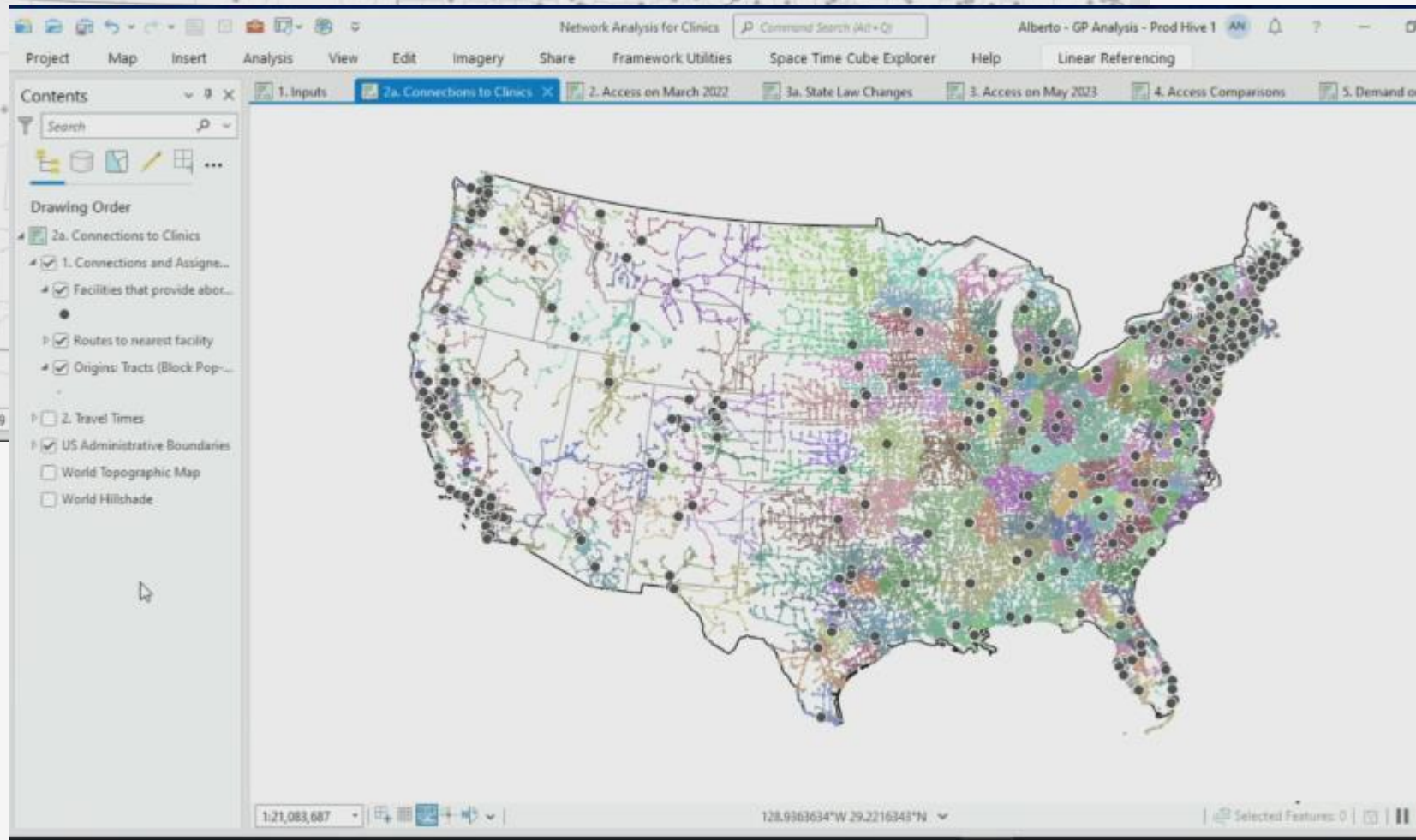
How will demand be redistributed?

- What was the demand on women's clinics across the country before the Supreme Court decision?
- How will demand change for remaining clinics after state laws go into effect?





Tracts weighted
by population

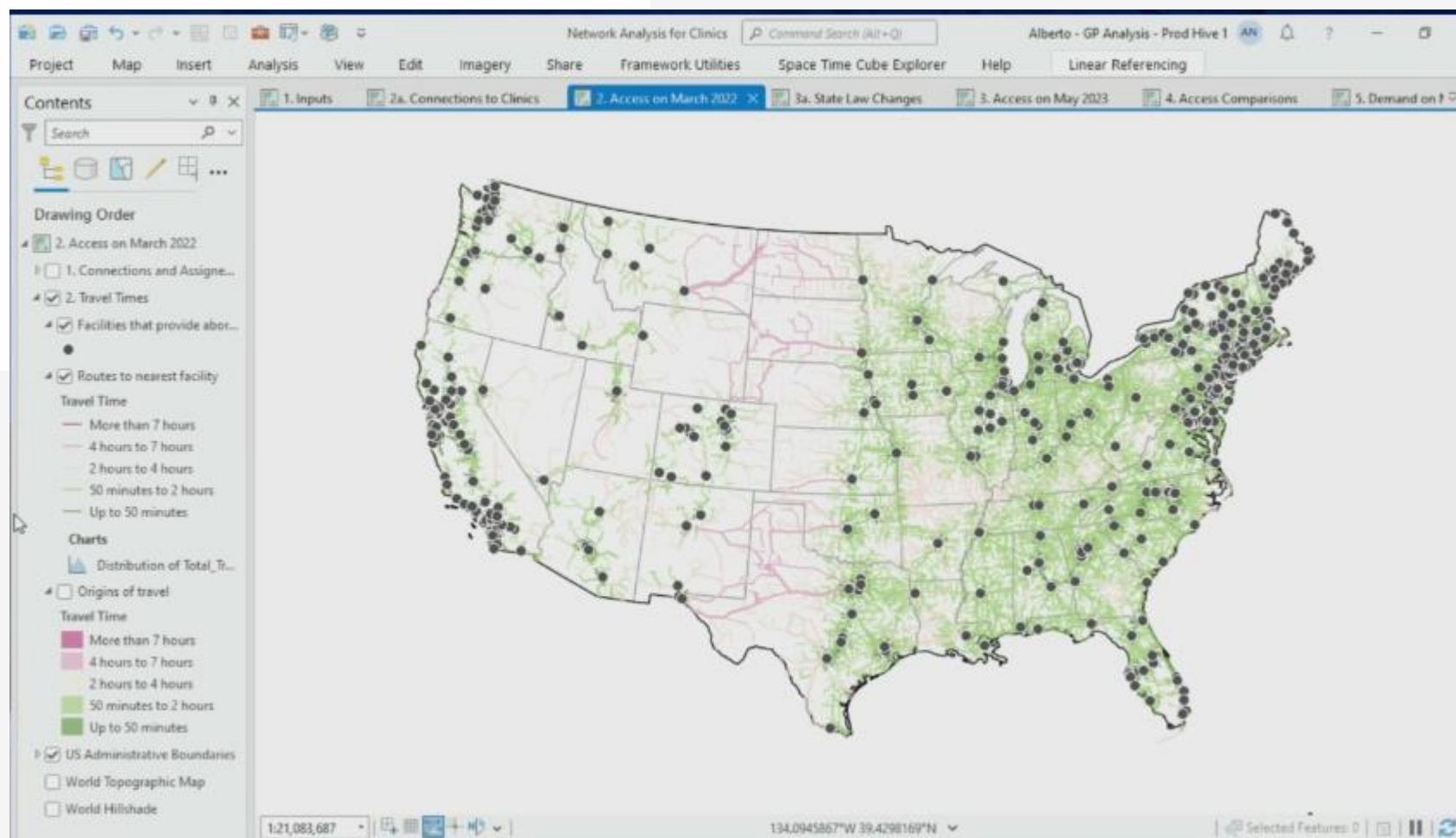


Connections
to Clinics

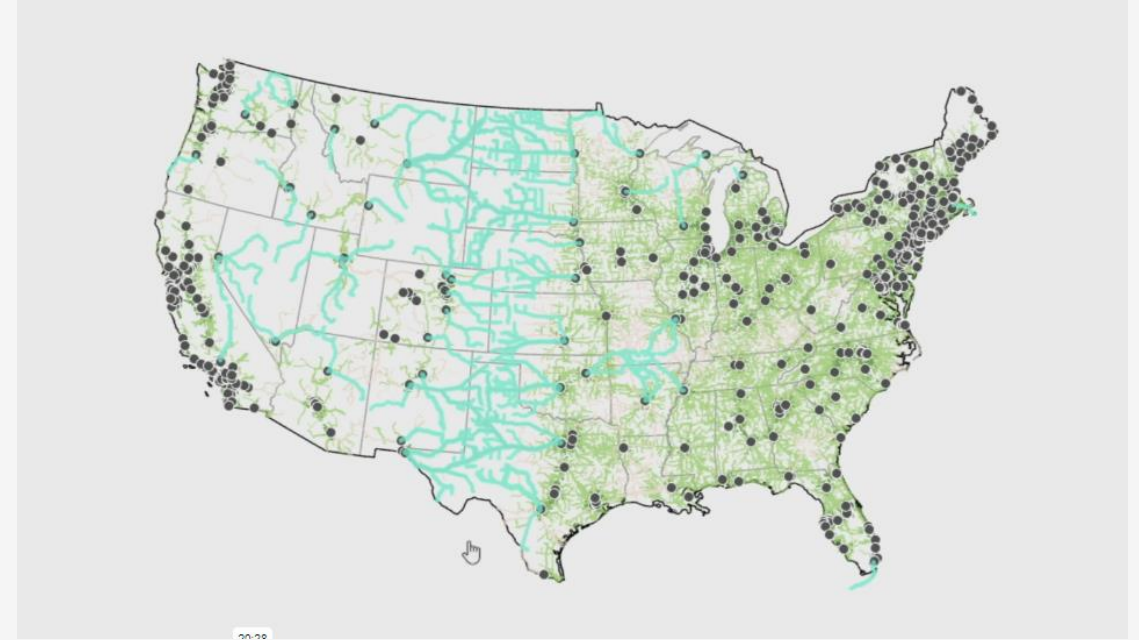
Then what?

- Calculate changes in travel times resulting from state level policies (access)
- Evaluate cumulative burden
- Calculate changes in service area population for remaining clinics (demand)

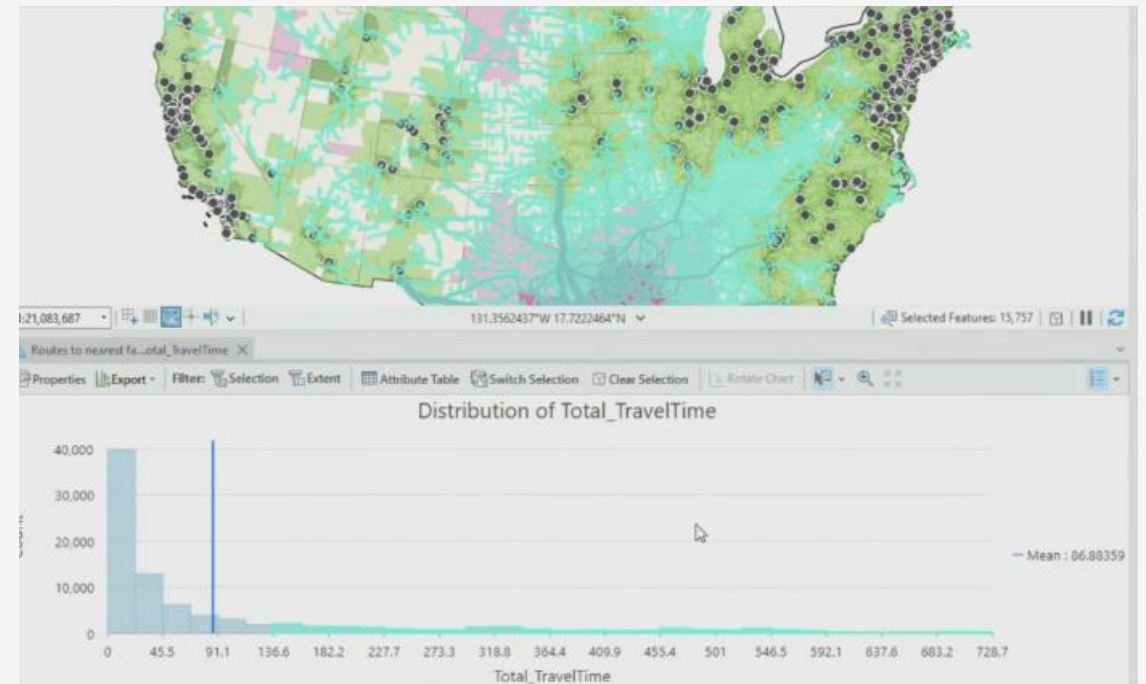
Access
March 2022

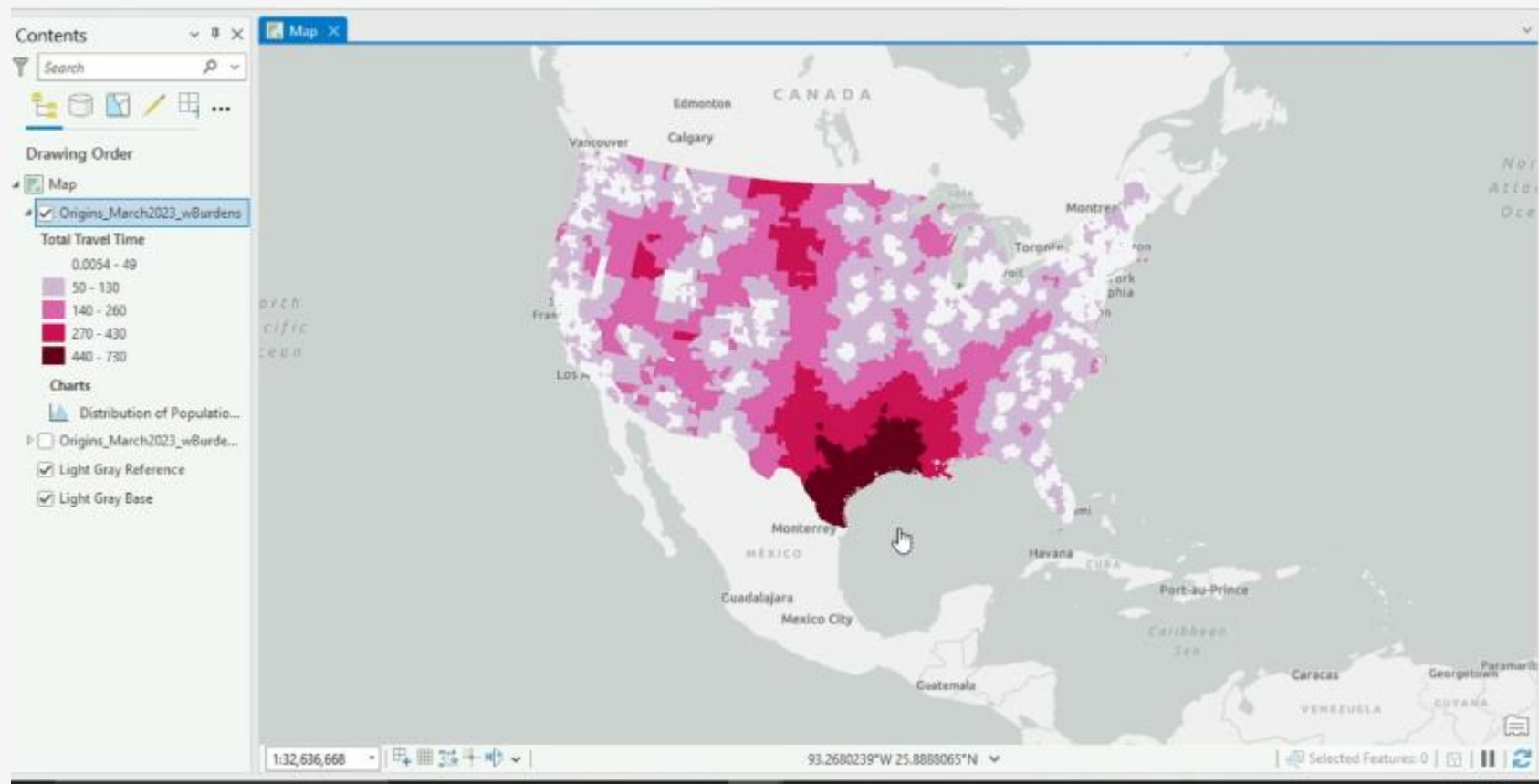


People traveling > 3 hours
to reach facility
March 2022



Post repeal
People traveling > 3 hours
to reach facility
May 2023

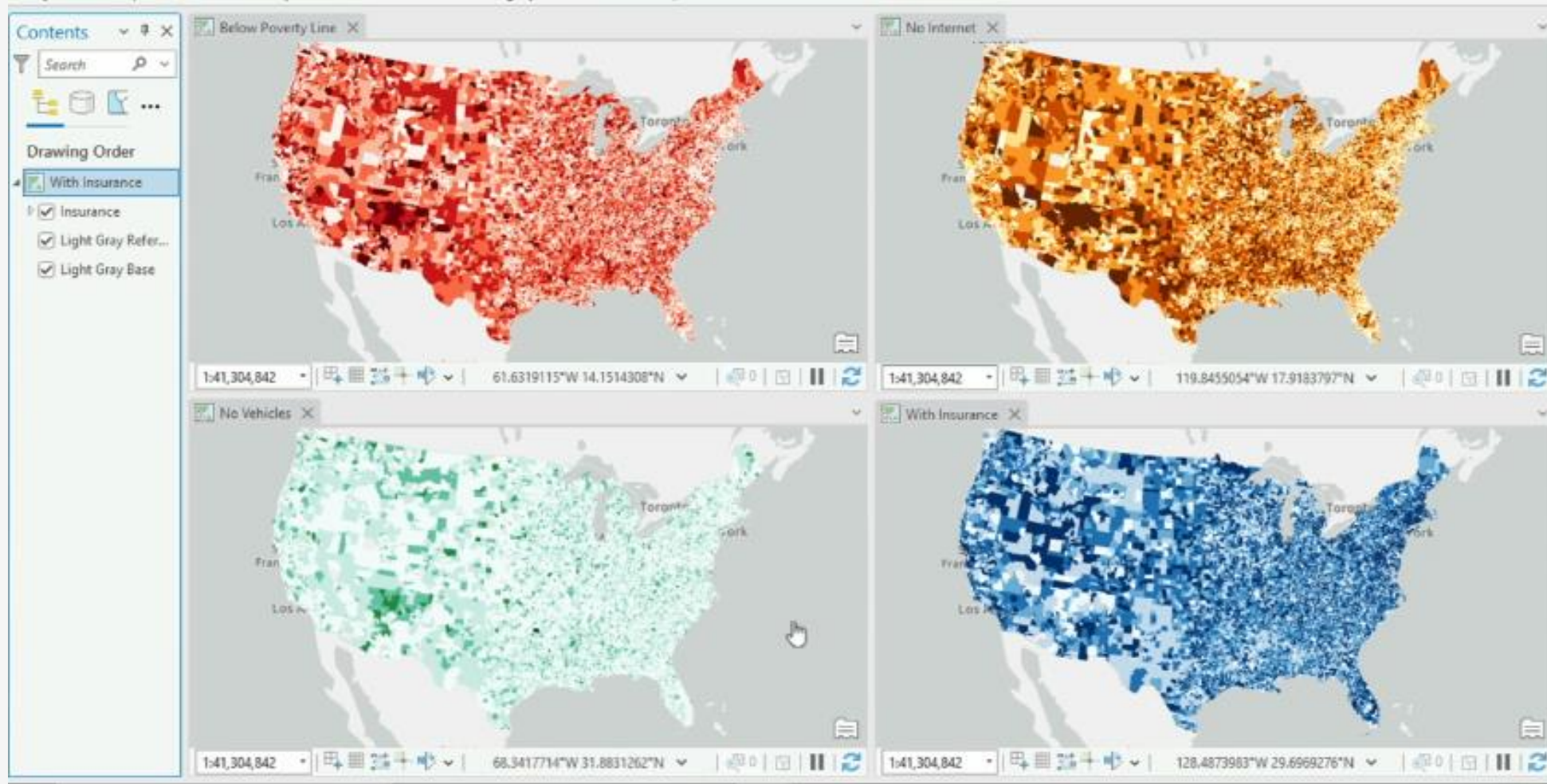




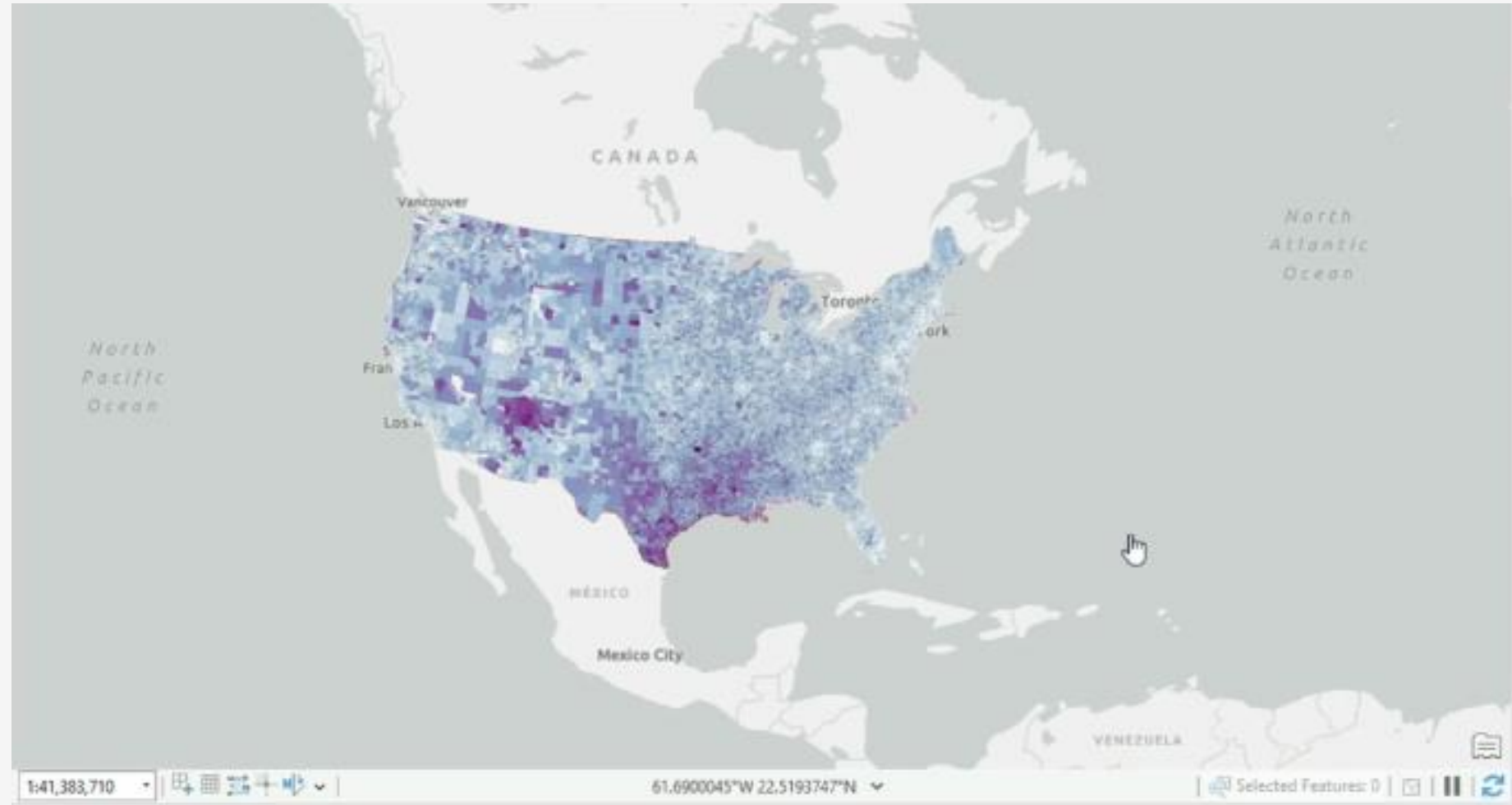
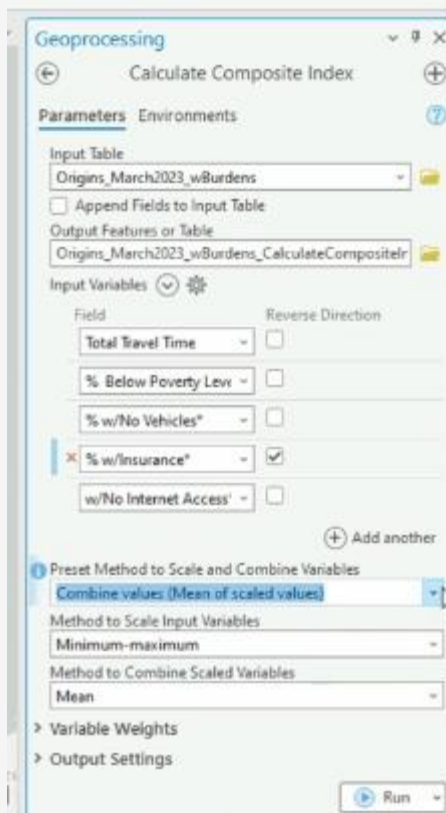
Travel time to clinics

- Where do people have the most cumulative burdens?
 - % poverty
 - % no internet access
 - % no access to vehicles
 - % w/ insurance coverage
 - Travel time to nearest clinic

Four other variables impact: Below poverty line, no internet, no vehicle, With Insurance



Calculate Composite Index based on those four indicators



Areas with highest burden in purple

Abortion Access Dashboard

by Caitlin Myers, Middlebury College | Lauren Bennett | Flora Vale | Alberto Nieto



Last update: **May 1, 2023**

[Data and Methodology](#)

Facilities

Facilities that provide abortions

Females Age 15-44 per Facility



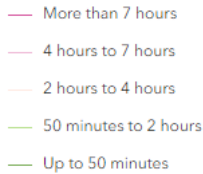
States



Routes

Routes to nearest facility

Travel Time



Contiguous United States

754 open facilities

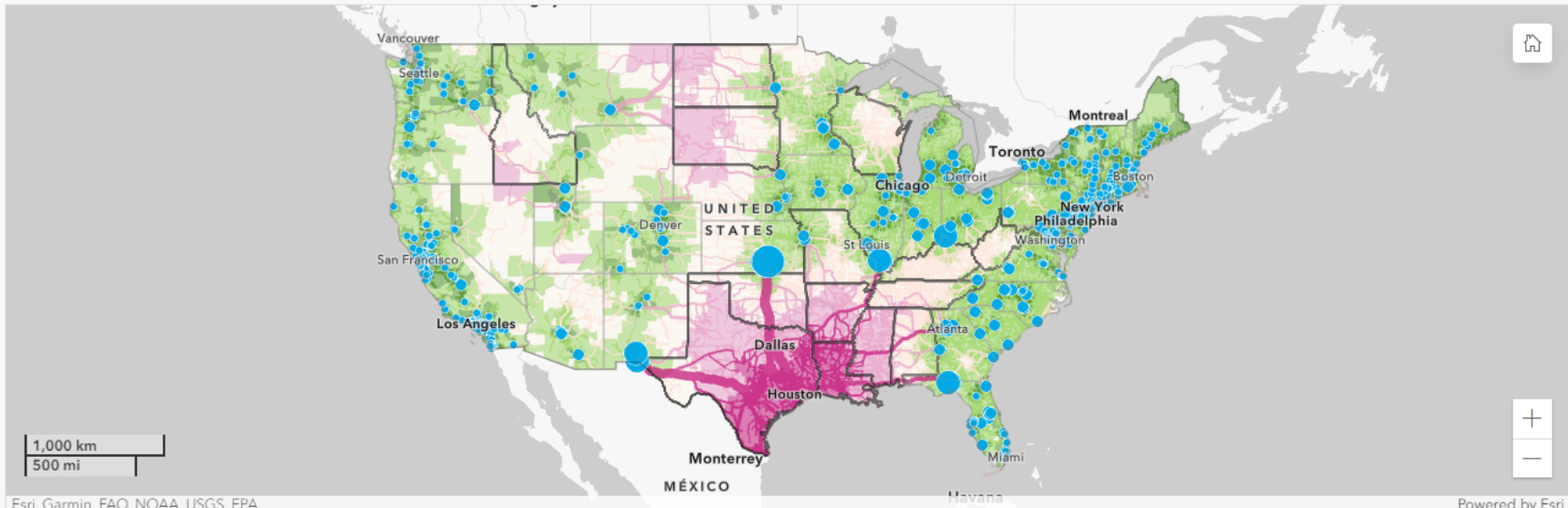
53 fewer than March 1, 2022

546 of 665 surveyed facilities

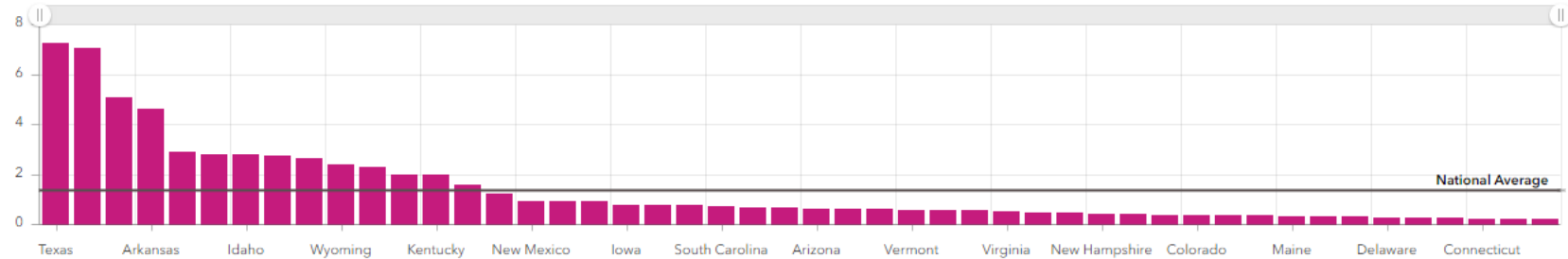
have availability within two weeks

110.5k women per facility

32% increase since March 1, 2022



Average Travel Hours to Nearest Facility by State



Destination Cities

[Facilities](#) | [Women \(age 15-44\) per facility](#) | [Appointment availability](#)

Wichita, KS
3 facilities | 1.8M women per facility | 0 facilities with appointment availability

Cincinnati, OH-KY-IN
1 facility | 957.7k women per facility | 0 facilities with appointment availability

Tallahassee, FL
2 facilities | 759.6k women per facility | 1 facility with appointment availability

Carbondale-Marion, IL
2 facilities | 740k women per facility | 2 facilities with appointment availability

Las Cruces, NM
3 facilities | 544.3k women per facility | 3 facilities with appointment availability

Columbus, GA-AL
1 facility | 490.5k women per facility | 1 facility with appointment availability

Kingsport-Bristol, TN-VA
1 facility | 487.5k women per facility | 1 facility with appointment availability

Columbus, OH
2 facilities | 369.2k women per facility | 2 facilities with appointment availability

Rockford, IL
1 facility | 369.1k women per facility | Unknown appointment availability

May 2023

March 2022 to May 2023

March 2022 to Anticipated Bans

Medication Abortion Ban

Case Example: WKKF

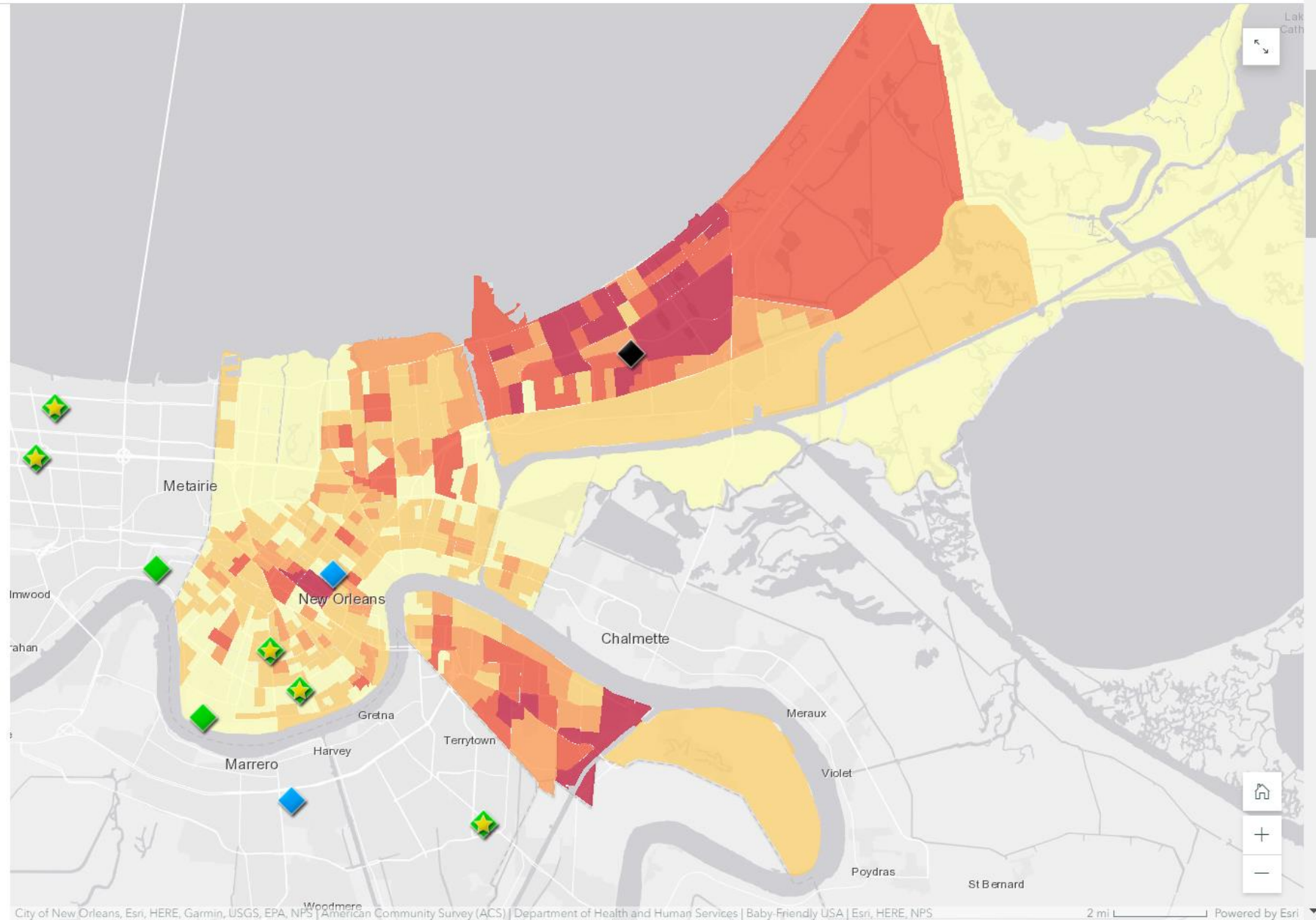
Black Women and Healthcare Access

Black women of childbearing age in
New Orleans and locations of hospitals
with and without NICU facilities.

Black Women age 15-49



- ◆ Hospitals with NICU
★ plus Baby-Friendly Designation
- ◆ Hospitals without NICU
- ◆ Hospitals without Birthing Facilities



Births and Healthcare Access

Births in the last 12 months for the total population in New Orleans, Black women of childbearing age, and access to hospitals.

Fertility

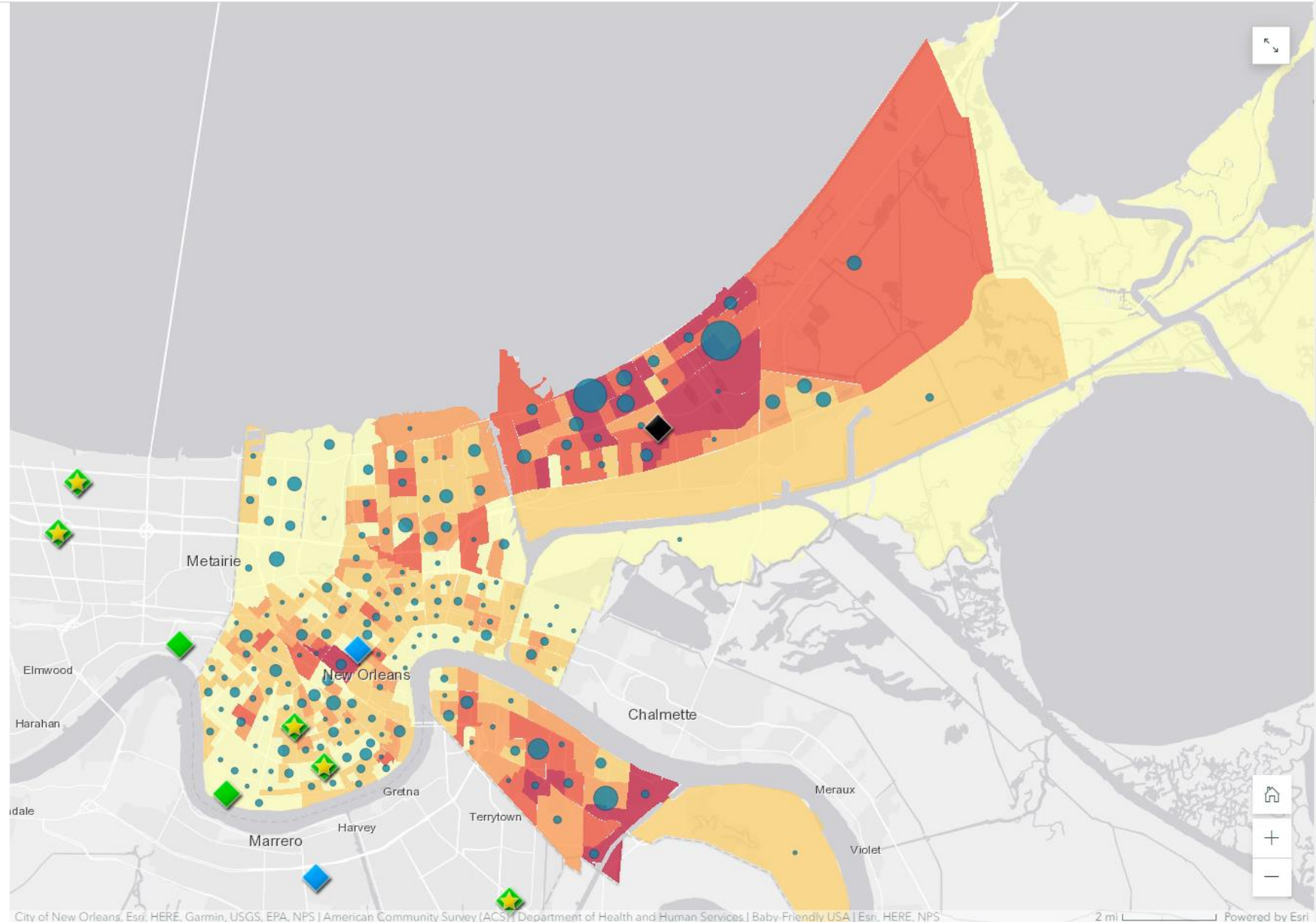
Number of women who have given birth in the last 12 months.



Black Women age 15-49



- Hospitals with NICU plus Baby-Friendly Designation
- Hospitals without NICU
- Hospitals without Birthing Facilities



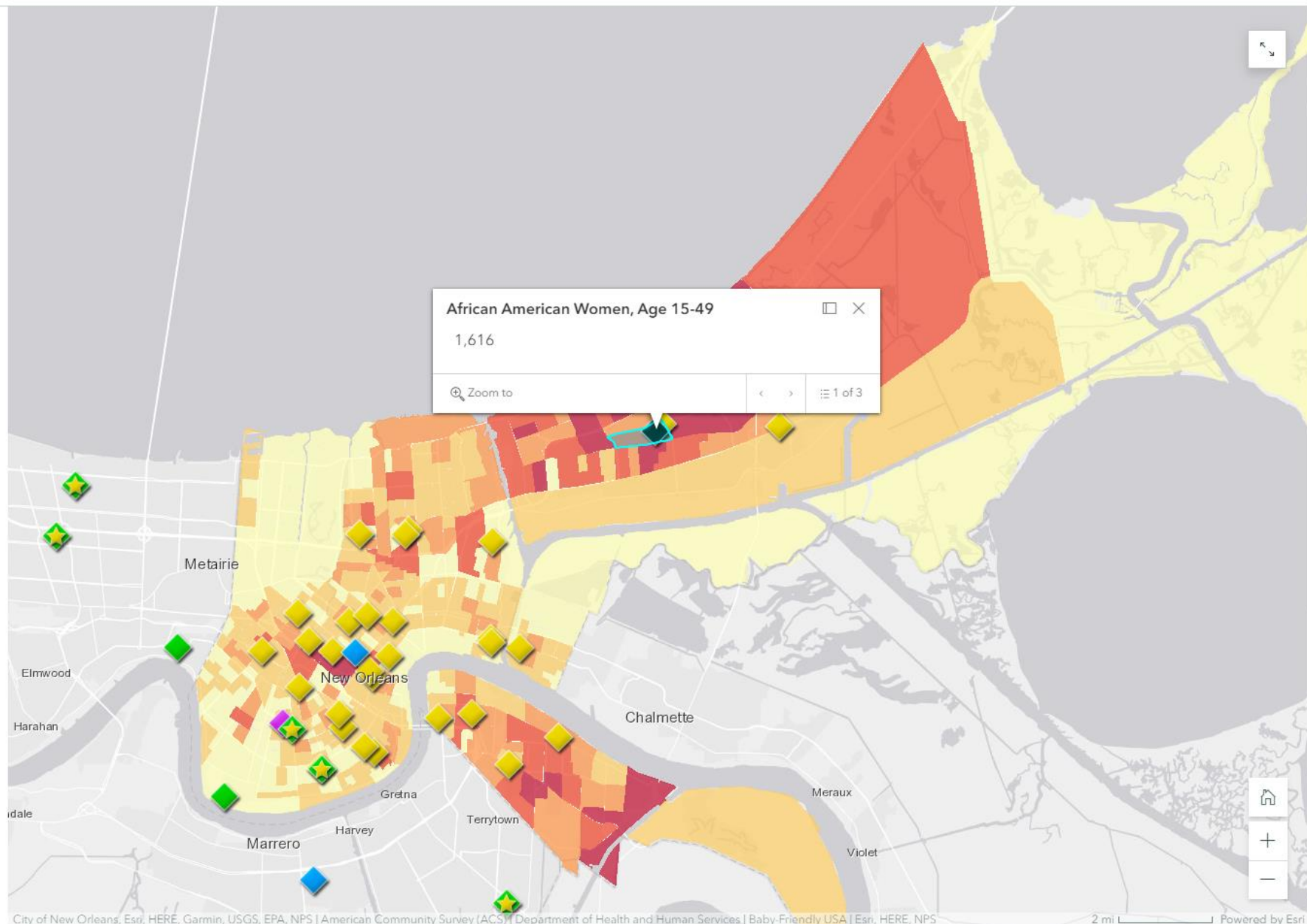
Black Women and Expanded Care

Black women of childbearing age in New Orleans, hospitals, and additional healthcare support options.

Black Women age 15-49



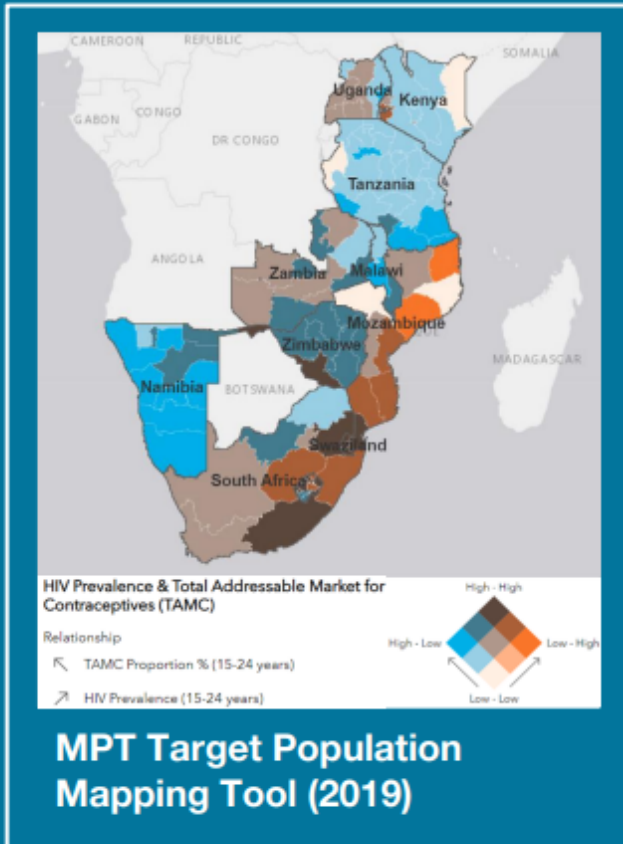
- Hospitals with NICU
 plus Baby-Friendly Designation
- Hospitals without NICU
- Hospitals without Birthing Facilities
- Federally Qualified Health Centers
- Planned Parenthood



Case Example:

African Women Share their Reproductive Health Stories

Background + Objectives



“AGYW in sub-Saharan Africa are a heterogeneous population, and a one-size-fits all approach for HIV or pregnancy prevention will not work.”

Word on the Street was created to

- To raise awareness in this field for potential new funders and policymakers, leveraging USAID funding
- Amplify and strengthen the MPT Target Population Mapping Tool through digital storytelling - bring the data to life
- Highlight the intrinsic links between unintended pregnancy and risk of HIV and other STIs
- Enhance MPT advocacy resources
- Foster an enabling environment for female-initiated HIV prevention and family planning choices, including MPTs

THE DATA

- In sub-Saharan Africa, women aged 15-49 are nearly twice as likely to be living with HIV as men of the same age.
- Nearly 50% of individuals are infected with herpes in South Africa. Many STIs are correlated with an increased risk of HIV.
- In sub-Saharan Africa, only slightly more than half (55%) of the need for family planning is being met with modern methods.

Word on the Street: African Women Share Their Reproductive Health Stories

StoryMap developed as part of a collaboration between
CAMI Health, Wits RHI, and FHI360



Word on the Street

African Women Share Their Reproductive Health Stories

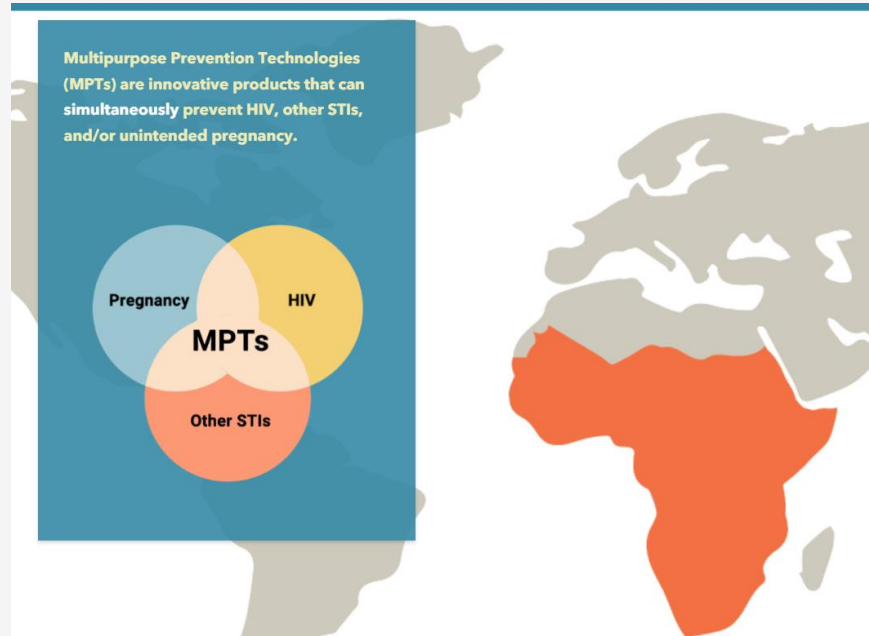
Scroll down to continue





"I'm worried about unplanned pregnancy"

Young women in South Africa discuss unintended pregnancy.



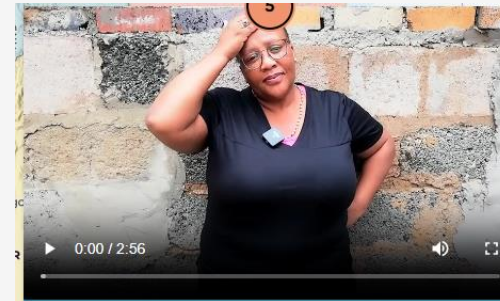
"It's a good thing to be protected"

Male partners in South Africa speak about HIV prevention.



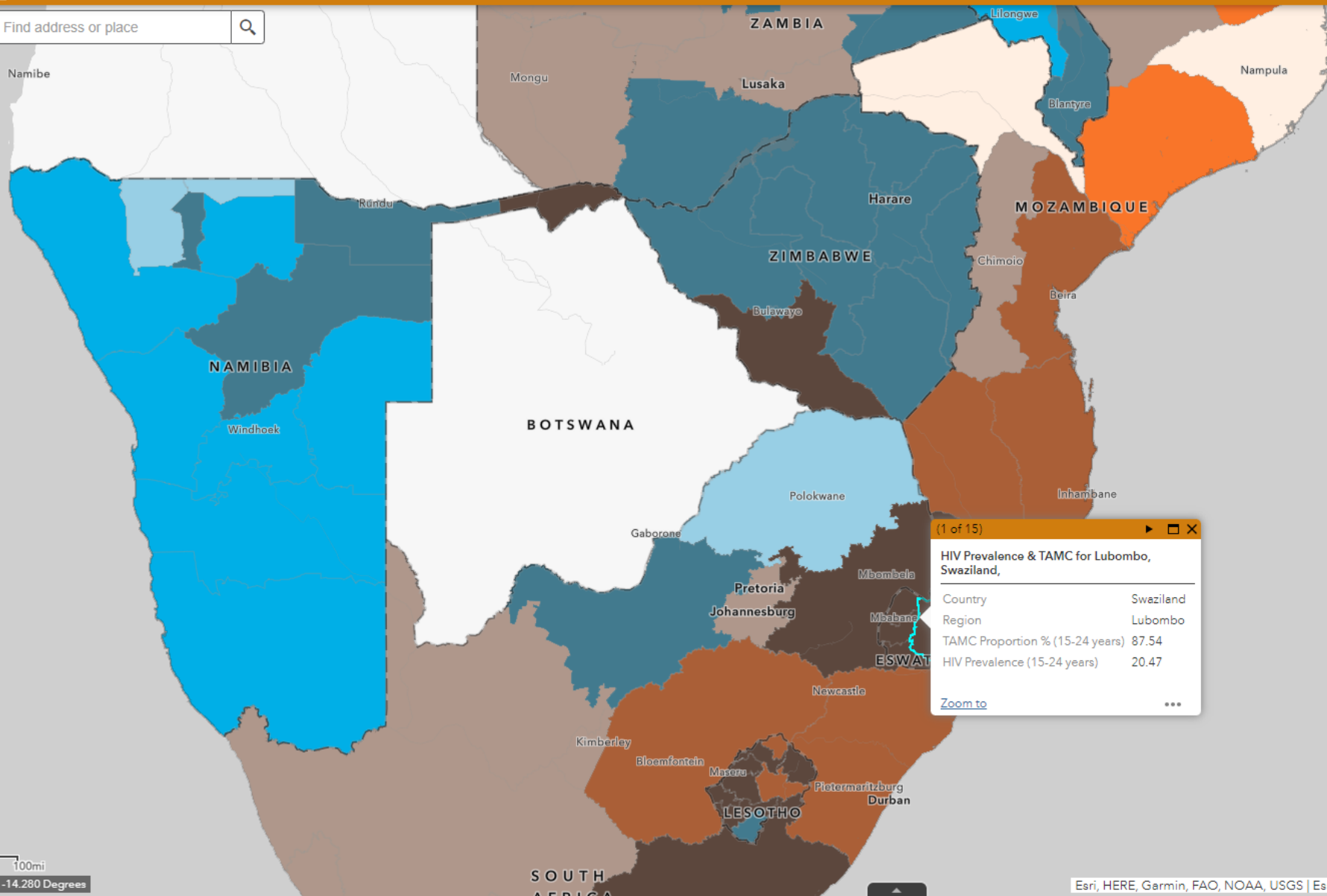
"We women don't have a choice"

Young women in South Africa share their thoughts on combining prevention.



"Life is too short"

Grandmothers of young women in South Africa discuss HIV, other STIs, and unintended pregnancy.

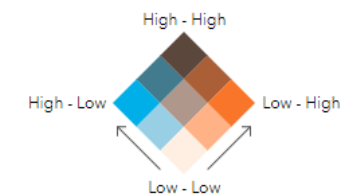


Legend

HIV Prevalence & Total Addressable Market for Contraceptives (TAMC)

Relationship

- TAMC Proportion % (15-24 years)
- HIV Prevalence (15-24 years)



Total Addressable Market for Contraceptives (TAMC)

TAMC Proportion % (15-24 years)

- > 76.8 - 92
- > 52 - 76.8
- 7 - 52

HIV Prevalence

HIV Prevalence (15-24 years)

- > 10.5 - 27
- > 4 - 10.5
- 0 - 4

Top Contraceptive Method (15-24 years)

- Injections
- Male Condom
- Pill
- Implants/Norplant
- Withdrawal

(1 of 15)

HIV Prevalence & TAMC for Lubombo, Swaziland,

Country	Swaziland
Region	Lubombo
TAMC Proportion % (15-24 years)	87.54
HIV Prevalence (15-24 years)	20.47

[Zoom to](#)

SDG Data Alliance



Visualizing the Gap: Unveiling Socio-Economic Inequalities



Visualizing the Gap: Unveiling Socio-Economic Inequalities

A Data-Driven Approach to Propel SDG 10 Forward

Ines Mato, PVBLC Foundation

July 6, 2023



GIS and the Geographic Approach

Have Never Been So Important



Helping us better understand issues of Equity

GIS

Enables The Geographic Approach

A Powerful Platform for . . .

Creating Understanding . . .

Exploring Alternatives . . .

Finding Solutions . . .

Explaining . . .

. . . and Taking Action
on issues of Equity



Data
Collection

Visualization &
Mapping

Analysis &
Modeling

Planning &
Geodesign

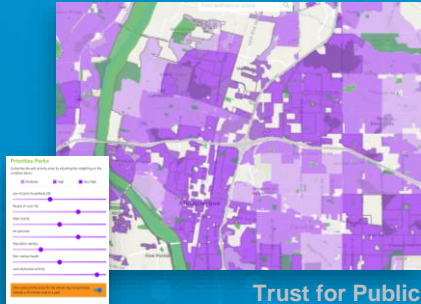
Decision-
Making

Improving How We
Create the Future

Action

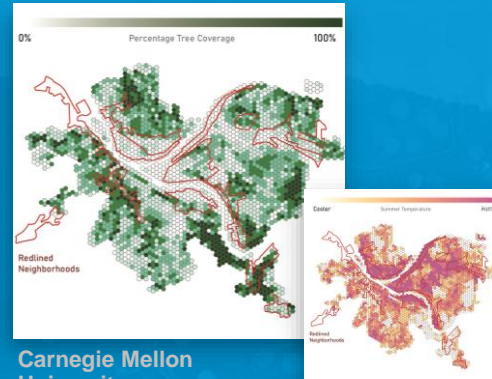
Social Equity

Park Planning & Social Equity



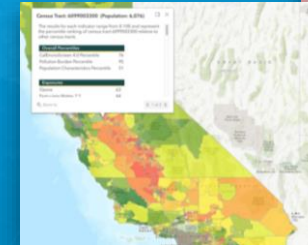
Trust for Public Land | Innovate US

Tree Cover & Summer Temperatures in Redlined Areas

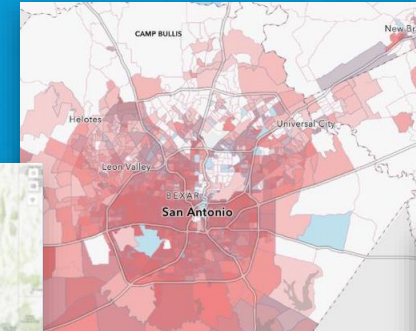


Carnegie Mellon University
Pittsburgh, Pennsylvania

Environmental Justice Areas

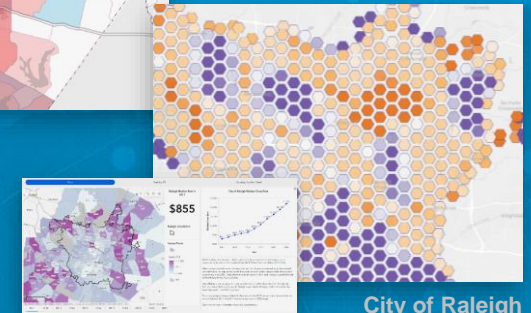


CalEnviroScreen
California



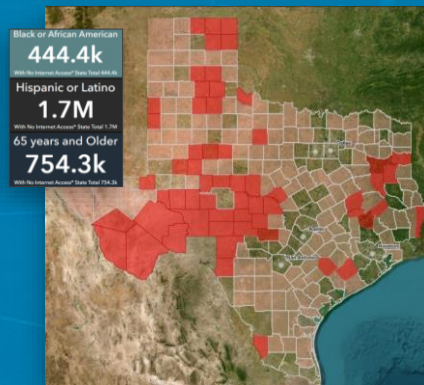
Alamo Area MPO
San Antonio, Texas

Racial Equity & Social Justice



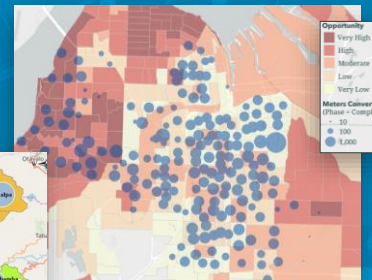
City of Raleigh

Access to Legal Services & the Digital Divide



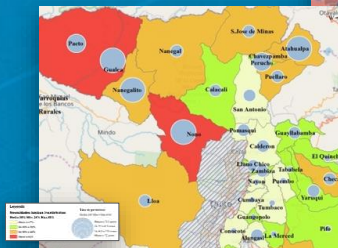
Self-Represented Litigation Network
Texas

Infrastructure Investments & Equity Index



City of Tacoma
Washington

Poverty & Unsatisfied Needs



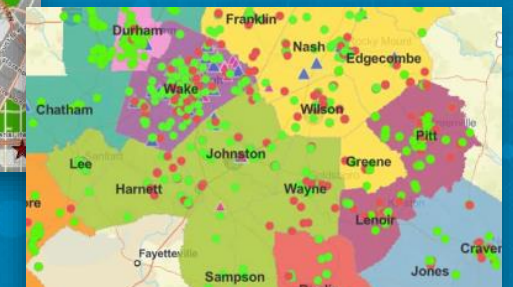
Ministerio de Salud Pública
Quito, Ecuador

Low Income & Food Deserts



Retail Profit Management
US

Food Bank Operations



Food Bank of Central & Eastern North Carolina



OUR FUTURE

Starts With Geographic Understanding

... Recognizing Our World as one

... A World In Which
Humans Play
a Dominant Role



You Have an Enormous Role to Play . . .

Your Work Is Part of Something Much Larger . . .
Influencing and Creating the Future of Our Planet . . .

You and the Work You Do . . .
Are Essential for . . .
. . . Creating a **Sustainable**
and **Equitable Future**

What Kind of World Do You Want?

Resources to help you

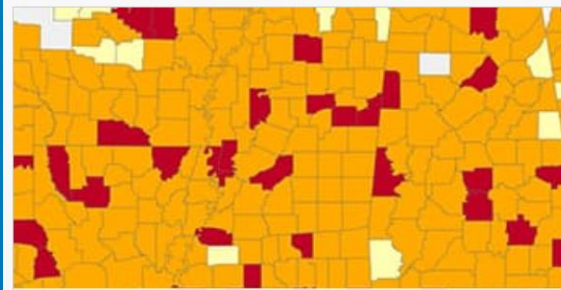


ARCGIS LIVING ATLAS

Access gender identity and sexual orientation data

ArcGIS Living Atlas of the World now includes gender identity and sexual orientation data for the nation, states, and 15 largest metro areas.

[Learn about this dataset](#) →

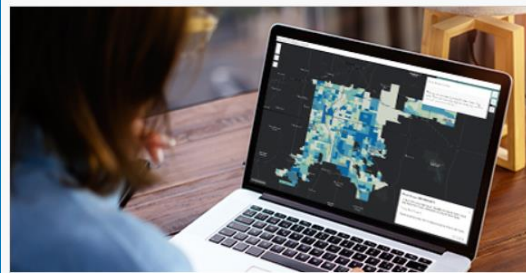


ARCGIS TUTORIAL

Measure and visualize digital exclusion

Learn how to analyze data about internet access and gain insights into digital exclusion in the US using a racial equity lens.

[Go to the tutorial](#) →



ARCGIS SOLUTIONS

Social Equity Analysis Solution Released

Organizations can use this solution to understand community conditions and evaluate actions for more equitable outcomes.

[Explore the solution](#) →



ESRI ACADEMY

Apply the racial equity workflow using ArcGIS

Discover how ArcGIS can play a significant role in helping organizations achieve racial equity by applying the racial equity workflow.

[Go to the web course](#) →

Be a Part of Change

Share Your Equity Work



The Esri equity and social justice team is looking to highlight best practices from leading professionals who have successfully leveraged geographic information system (GIS) technology to make significant strides toward achieving equity. We are looking for submissions from government agencies, community organizations, academic institutions, and international groups that include GIS maps, dashboards, and app screenshots. Final content will be featured in the **GIS for Equity** map booklet, a resource that can be used as a tool to start conversations with other teams or peers to inspire the next GIS for equity application or project.

go.esri.com/EquityBooklet

Thank You

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For more information

