

Using Geospatial Information and Technologies to Advance U.S. National Priorities

Deirdre Dalpiaz Bishop
Chief, Geography Division
U.S. Census Bureau



U.S. Census Bureau Vision and Mission



U.S. Census Bureau Vision

To be the trusted source for timely and relevant statistical information, and the leader in data-driven innovation.

U.S. Census Bureau Mission

To serve as the nation's leading provider of quality data about its people and economy.

Our Work at the Census Bureau



Data Collection

3 Primary Censuses
Over 100 ongoing surveys



Data Analysis

Editing, Imputation,
Estimation
Disclosure and
Confidentiality

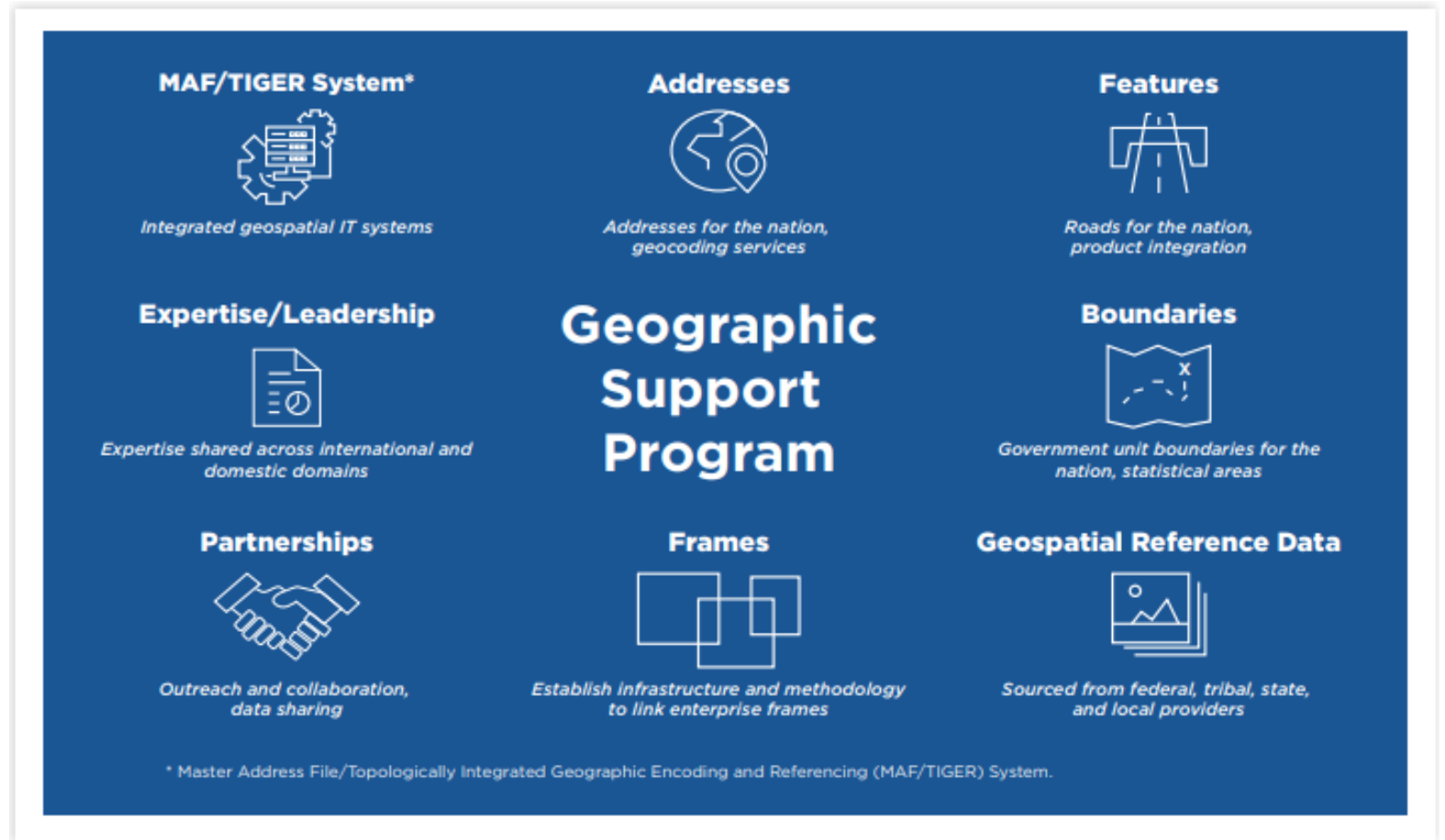


Data Dissemination

Data Tools and
Applications
data.census.gov






The Geographic Support Program

Geospatial information provides the foundation that supports Census Bureau data collection, analysis, and dissemination.



The MAF/TIGER System Today

Geospatial
information in our
MAF/TIGER System
includes...

-  Over 14 million unique geographic areas, including legal, administrative, and statistical areas (e.g., census tracts, block groups, blocks)
-  Legal boundaries for approximately 40,000 units of government
-  Approximately 7 million miles of roads
-  More than 144.5 million housing units
-  Structure points for approximately 94% of those housing units

The Evolving Geographic Support Program

Key focus areas:

- Workforce Development
- Data Science
- Artificial Intelligence
- Machine Learning
- Cloud Computing
- Satellite Imagery
- Open-source Programming
- Statistical Grids
- Data Visualizations
- Interactive Maps



Building a Workforce for the Future



Training Goals

Develop technical and occupation-specific competencies
Promote innovation, adaptability and industry trends
Upskill staff to solve complex problems using data science



Geography University (GEO U)

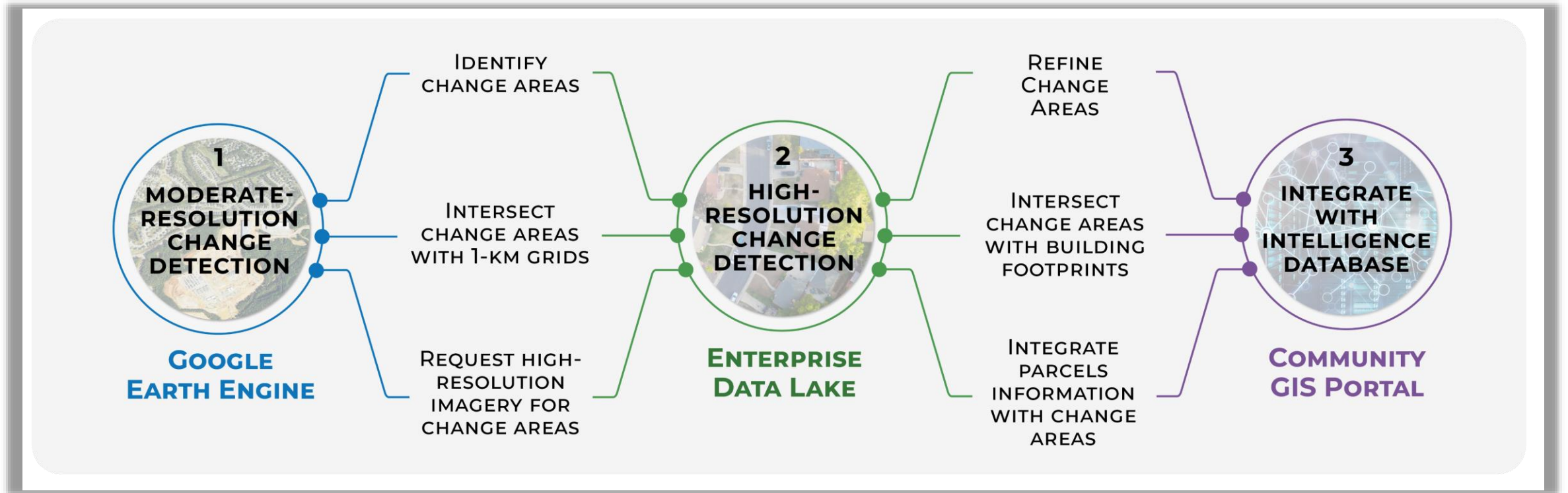
Broad curriculum for all staff that includes courses such as:
Esri, FME, QGIS, GitLab, SQL, Python, Cloud Computing, Plain Language Writing, Communications, and Project Management



Data Science Program

Diverse Curriculum, Hands-on Experience, Ongoing Mentorship
Courses: AI/ML, Data Visualization, Cleaning Data in Python

Machine Learning and Automated Change Detection



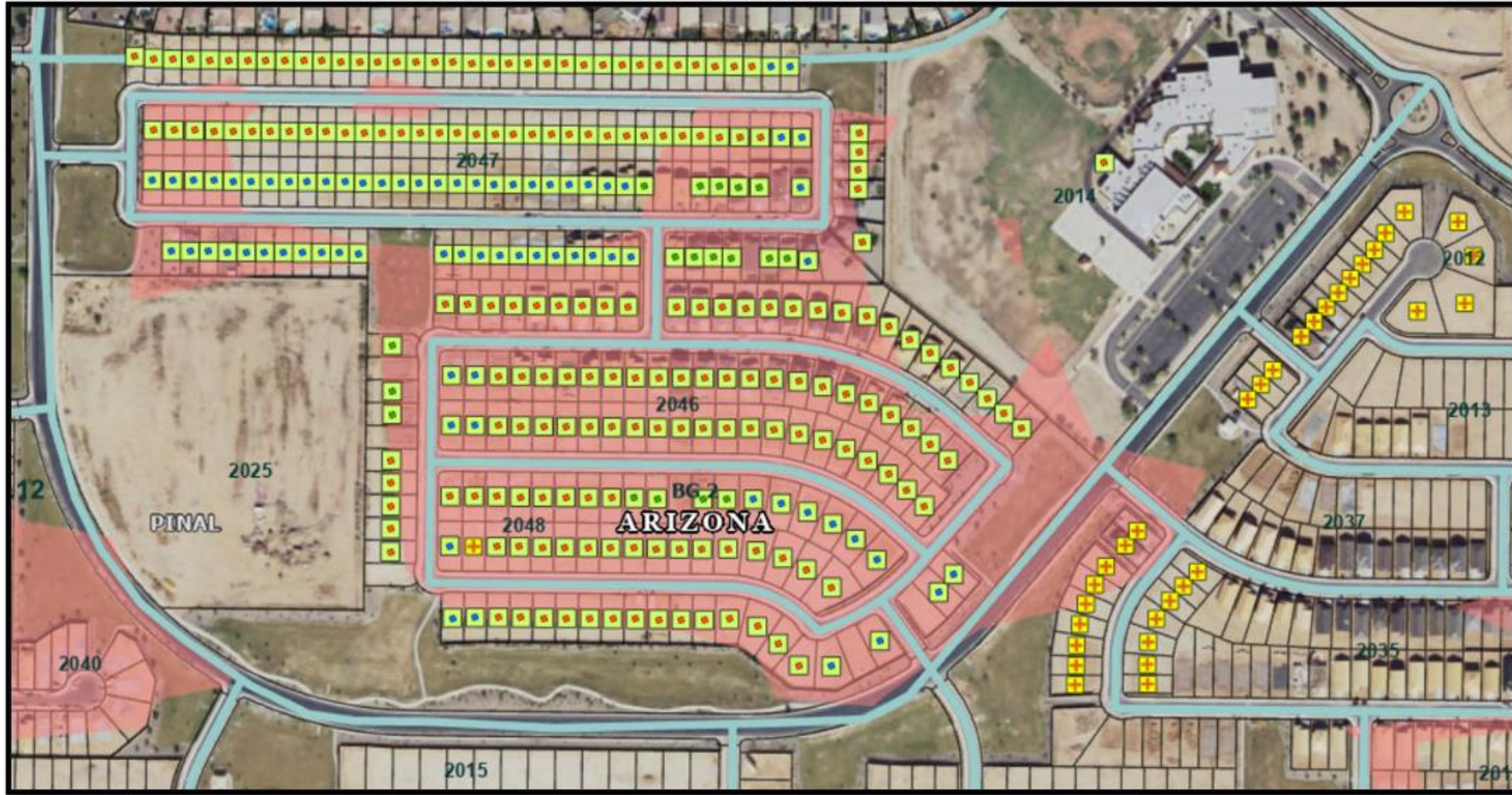
Step 1: Automated Change Detection



Step 2: Automated Change Detection



Step 3: Parcel Matching



Geospatial Data Files

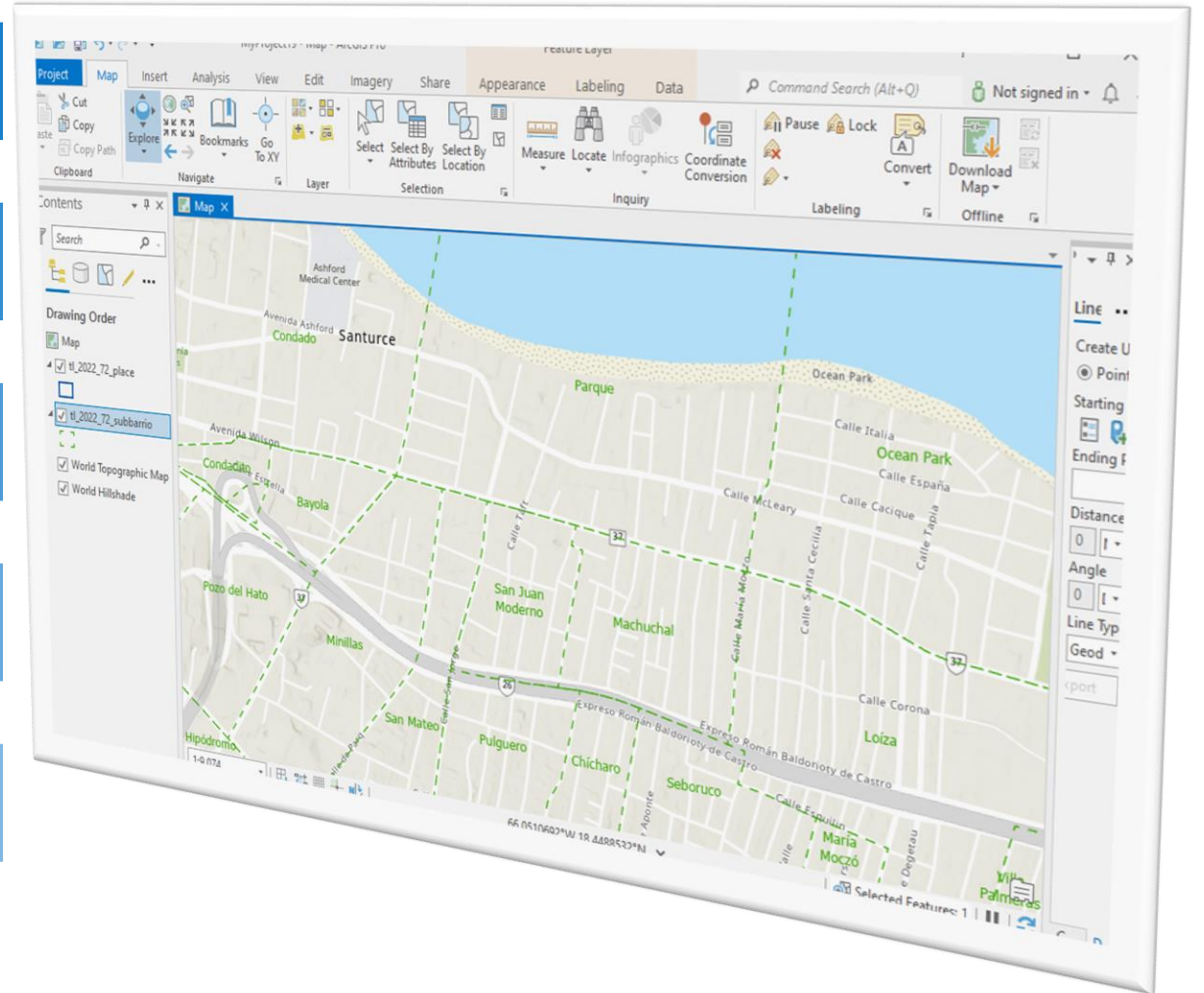
Shapefiles

Geodatabases

Cartographic Boundary Files
(Geodatabases & KML format)

Application Programming Interface (API)

TIGERweb



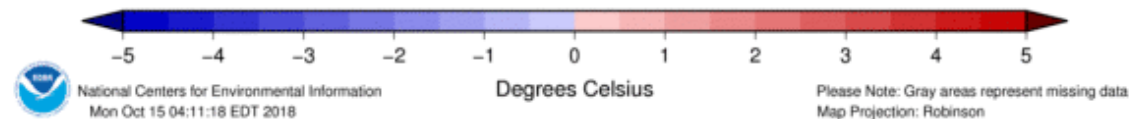
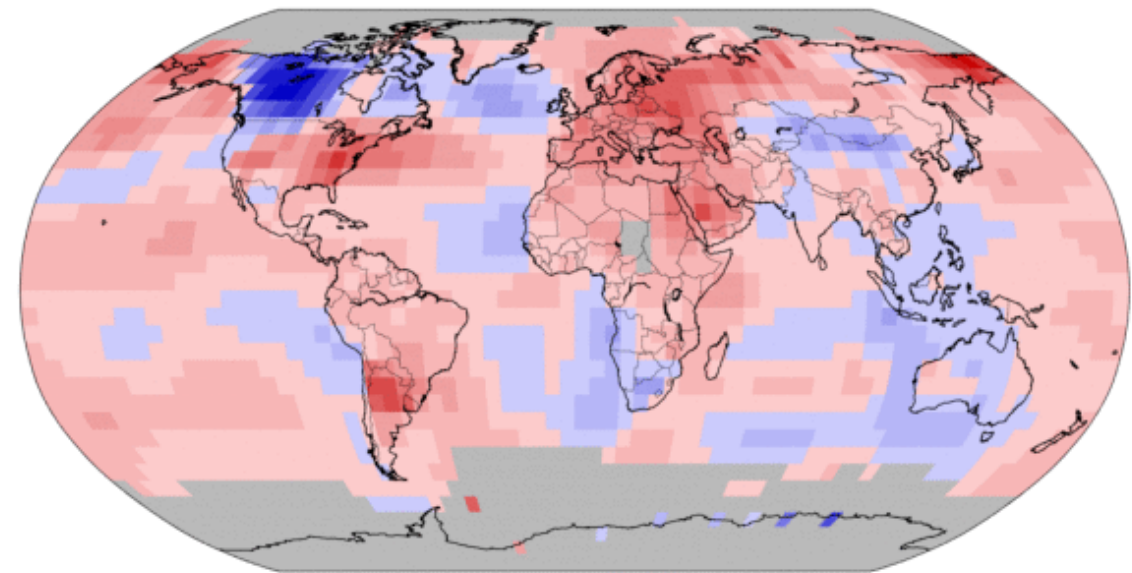
Statistical Grids Program at the Census Bureau

The Geographic Support Program will provide Census Bureau data in Grid format to enable:

- Standardized, stable geographic units for statistical interoperability
- Greater disaggregation of Census Data
- Easier sharing of data across federal government agencies and data stakeholders
- Improved disaster response and climate resilience
- Easier global statistical comparison and analysis

Land & Ocean Temperature Departure from Average Sep 2018
(with respect to a 1981–2010 base period)

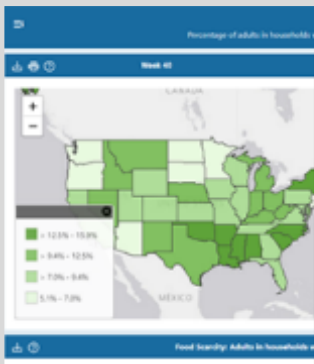
Data Source: GHCN-M version 3.3.0 & ERSST version 4.0.0



Supporting U.S. National Priorities

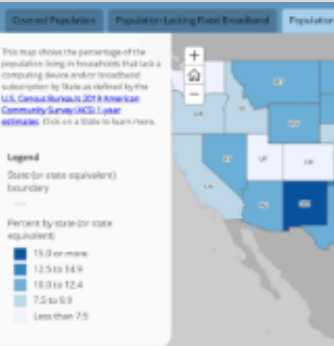


Data Visualizers



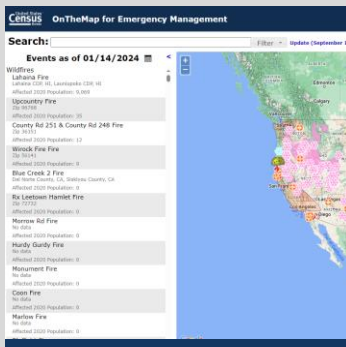
Household Pulse Interactive Tool

An interactive application for exploring data from the Household Pulse Survey.



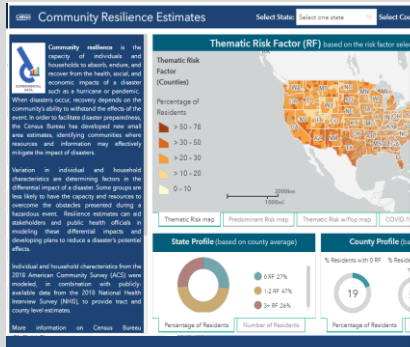
Digital Equity Act Viewer

An interactive collection of data highlighting various demographic groups and broadband internet adoption by state.



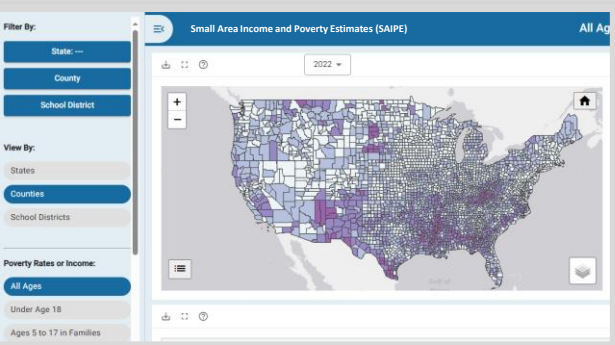
OnTheMap for Emergency Management

OnTheMap for Emergency Management combines analysis tools with data on events gathered from various federal agencies.



Community Resilience Estimates

The Community Resilience Estimates (CRE) provide an easy-to-understand metric for how at-risk every neighborhood in the United States is to the impacts of disasters, including COVID-19.



SAIPE Interactive Data Tool (Poverty)

The Small Area Income and Poverty Estimates (SAIPE) map viewer provides the ability to quickly and easily view small-area modeled data in map form.

Addressing National Issues and Concerns

Health Security and COVID-19



// Census.gov / Our Surveys & Programs / Household Pulse Survey / Data / Household Pulse Survey Interactive Tool

Household Pulse Survey

Feedback



Select an Estimate:

Received a COVID-19 Vacci...

Filter Map and Table By:

States: ---

Metro Areas: ---

Select Data Collection Range:

March 17-29, 2021

Show: States

Clear Selections

[Download all data](#)

Phase 3.10

The Household Pulse Survey is designed to deploy quickly and efficiently, collecting data on a range of ways in which people's lives have been impacted by the pandemic. Data will be disseminated in near real-time to inform federal and state response and recovery planning.

Notes:

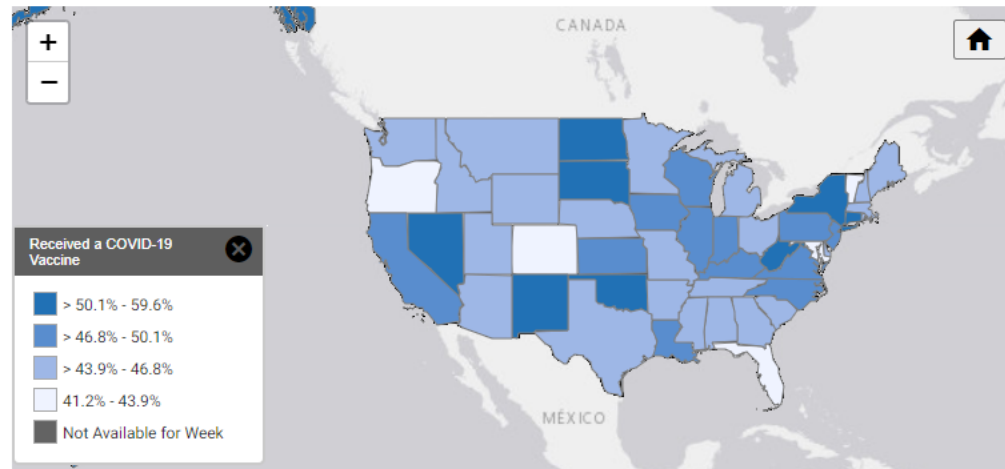


Received a COVID-19 Vaccine

Percentage of adults in households who have received a COVID-19 vaccine

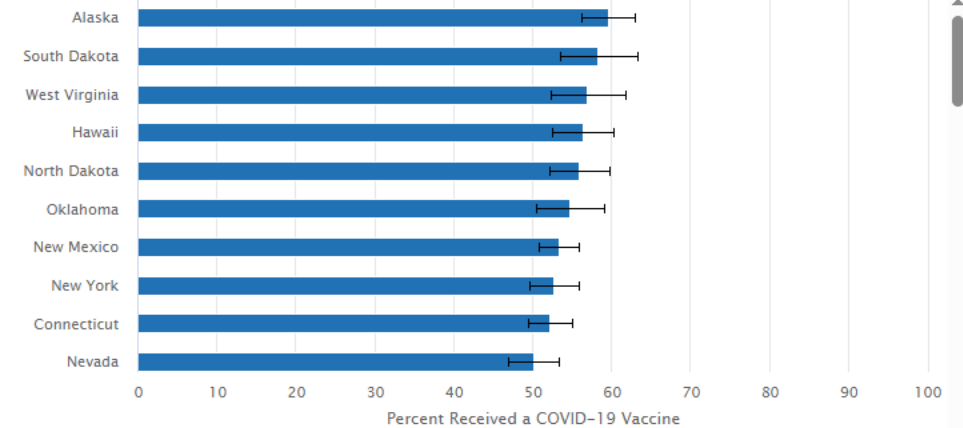
Download Help

Week 27 (March 17-29, 2021)



Download Help

Week 27 (March 17-29, 2021)



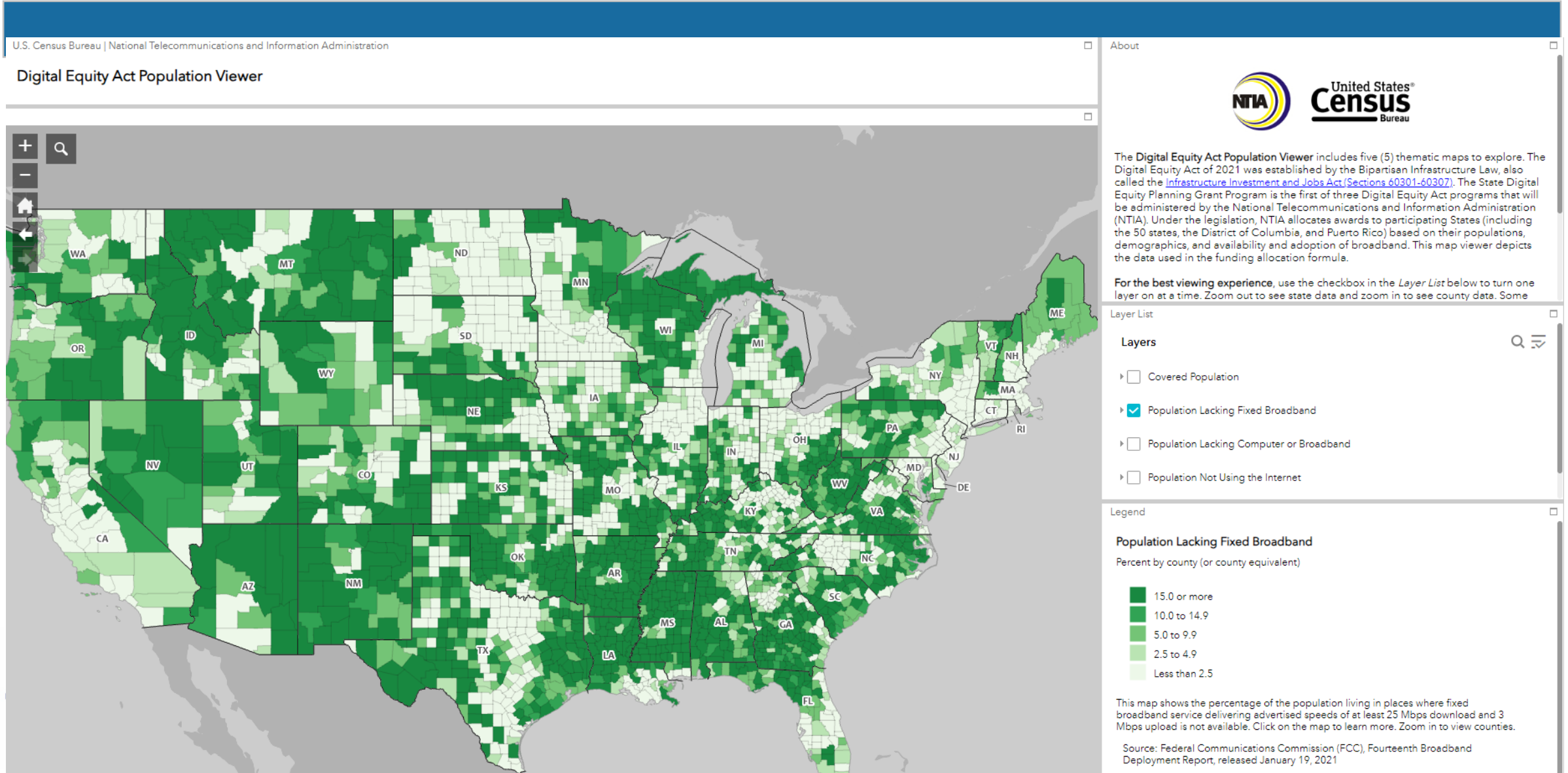
Download Help

Received a COVID-19 Vaccine: Adults in households who have received a COVID-19 vaccine

Area	Week	Total Received a COVID-19 Vaccine		Percent Received a COVID-19 Vaccine		Measure Universe	Total Population age 18+
		Number	Margin of Error +/-	Percent	Percent Margin of Error +/-		
United States	27 - March 17-29, 2021	116,537,740	1,197,708	47.0	0.5	247,872,564	249,170,916

Addressing National Issues and Concerns

Digital Equity



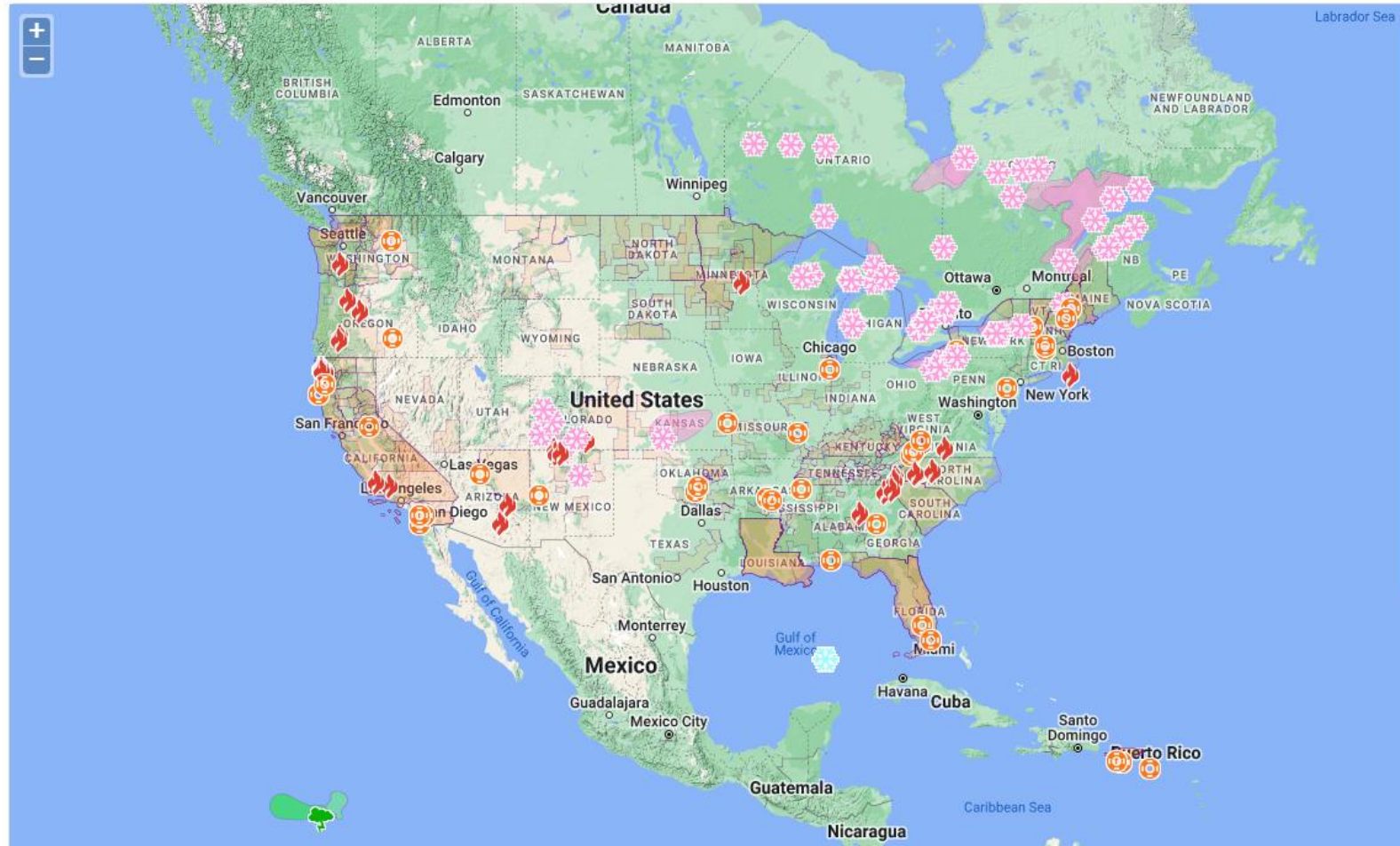
Addressing National Issues and Concerns

Emergency Management

Search: Filter [Update \(September 15, 2021\): Click here to read about application changes related to the COVID-19 Pandemic](#)

Events as of 11/28/2023

- Hurricanes**
 - Post-tropical
No data
Affected 2020 Population: 0
- Wildfires**
 - Elk Creek Fire
Zip 28618
Affected 2020 Population: 3
 - Fwa Wdp Rx Fire
No data
Affected 2020 Population: 0
 - East Fork Fire
No data
Affected 2020 Population: 0
 - Saint Charles Fire
No data
Affected 2020 Population: 0
 - Sauratown Mountain Fire
No data
Affected 2020 Population: 0
 - Chilcoot Fire
Douglas County, OR
Affected 2020 Population: 0
 - Road Fire
No data
Affected 2020 Population: 0
 - Fano Fire
No data
Affected 2020 Population: 0
 - Coon Fire
No data
Affected 2020 Population: 0



Legend & Map Controls

Event Types

- Tropical Storms
 - Current Wind Radii
 - Wind History (Cumulative Swath)
 - Forecast Area (Cone of Uncertainty)
- Wildfires
 - Perimeter
- Floods
 - Likely
 - Occurring or Imminent
- Winter Weather
 - Forecasted Snowfall
 - Forecasted Freezing Rain
- Disaster Declaration Areas
 - Emergency or Disaster Declaration
 - COVID-19 Pandemic
 - Emergency or Disaster Declaration

Basemap: Terrain


Zoom To: AK HI US

Addressing National Issues and Concerns

Measuring Community Resilience

Community Resilience Estimates

Select State: Select County: Select Risk Factor:



Community resilience is the capacity of individuals and households to absorb, endure, and recover from the health, social, and economic impacts of a disaster such as a hurricane or pandemic.

When disasters occur, recovery depends on the community's ability to withstand the effects of the event. In order to facilitate disaster preparedness, the Census Bureau has developed new small area estimates, identifying communities where resources and information may effectively mitigate the impact of disasters.

Variation in individual and household characteristics are determining factors in the differential impact of a disaster. Some groups are less likely to have the capacity and resources to overcome the obstacles presented during a hazardous event. Resilience estimates can aid stakeholders and public health officials in modeling these differential impacts and developing plans to reduce a disaster's potential effects.

Individual and household characteristics from the 2018 American Community Survey (ACS) were modeled, in combination with publicly-available data from the 2018 National Health Interview Survey (NHIS), to provide tract and county level estimates.

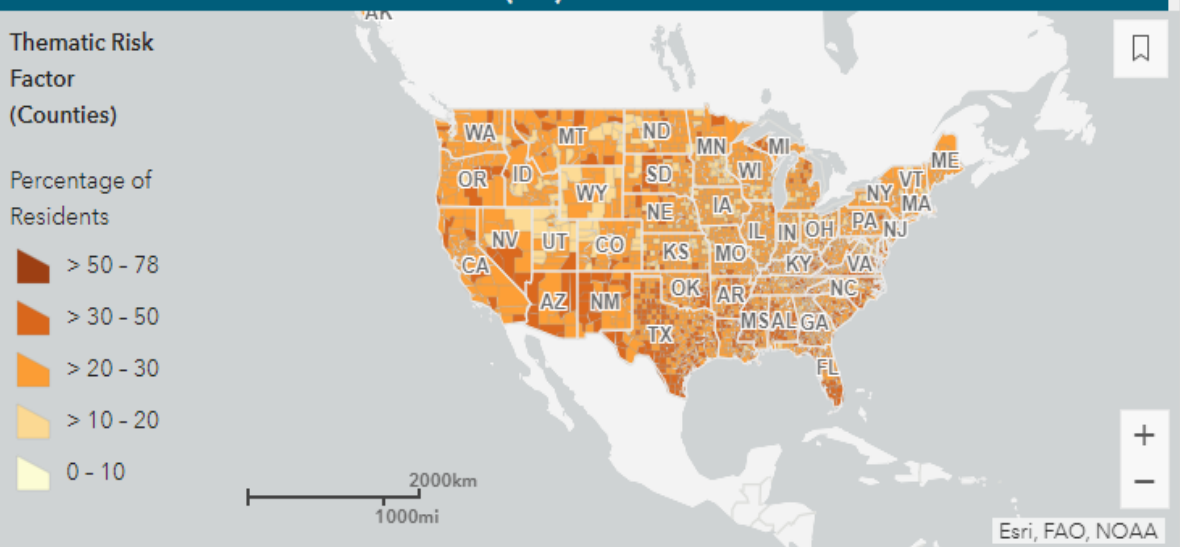
[More information on Census Bureau](#)

Thematic Risk Factor (RF) based on the risk factor selected above

Thematic Risk Factor (Counties)

Percentage of Residents

- > 50 - 78
- > 30 - 50
- > 20 - 30
- > 10 - 20
- 0 - 10

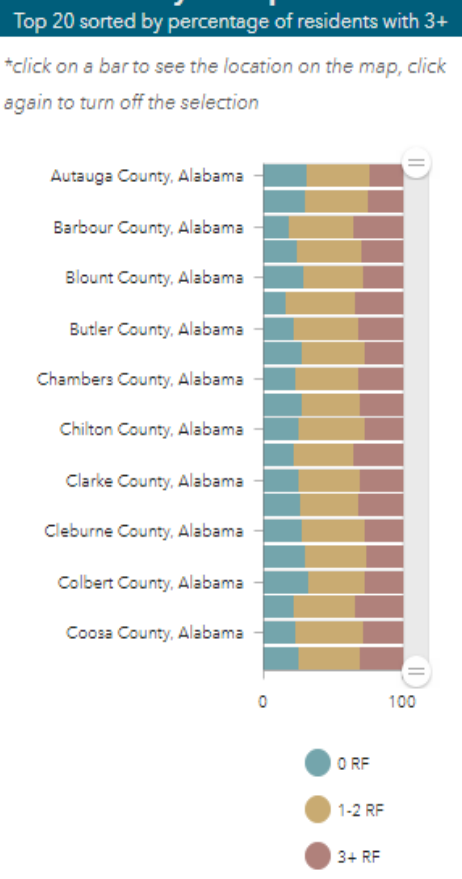


Thematic Risk map | Predominant Risk map | Thematic Risk w/Pop map | COVID-19 Impact Report

County Comparison

Top 20 sorted by percentage of residents with 3+ RF

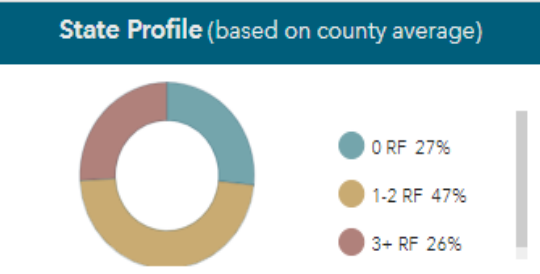
*click on a bar to see the location on the map, click again to turn off the selection



County	0 RF	1-2 RF	3+ RF
Autauga County, Alabama	~15%	~45%	~40%
Barbour County, Alabama	~10%	~40%	~50%
Blount County, Alabama	~10%	~40%	~50%
Butler County, Alabama	~10%	~40%	~50%
Chambers County, Alabama	~10%	~40%	~50%
Chilton County, Alabama	~10%	~40%	~50%
Clarke County, Alabama	~10%	~40%	~50%
Cleburne County, Alabama	~10%	~40%	~50%
Colbert County, Alabama	~10%	~40%	~50%
Coosa County, Alabama	~10%	~40%	~50%

County Comparison | Tract Comparison

State Profile (based on county average)



Risk Factor	Percentage of Residents
0 RF	27%
1-2 RF	47%
3+ RF	26%

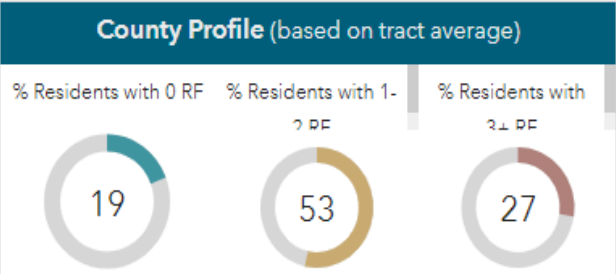
Percentage of Residents | Number of Residents

County Profile (based on tract average)

% Residents with 0 RF: 19

% Residents with 1-2 RF: 53

% Residents with 3+ RF: 27



Percentage of Residents | Number of Residents

Addressing National Issues and Concerns

Measuring Poverty



// Census.gov / Our Surveys & Programs / Small Area Income and Poverty Estimates (SAIPE) Program / Data / SAIPE Data Tools / SAIPE Interactive Tool

Small Area Income and Poverty Estimates (SAIPE)

Filter By:

State: Minnesota

County

School District

View By:

States

Counties

School Districts

Poverty Rates or Income:

All Ages

Under Age 18

Ages 5 to 17 in Families

Under Age 5

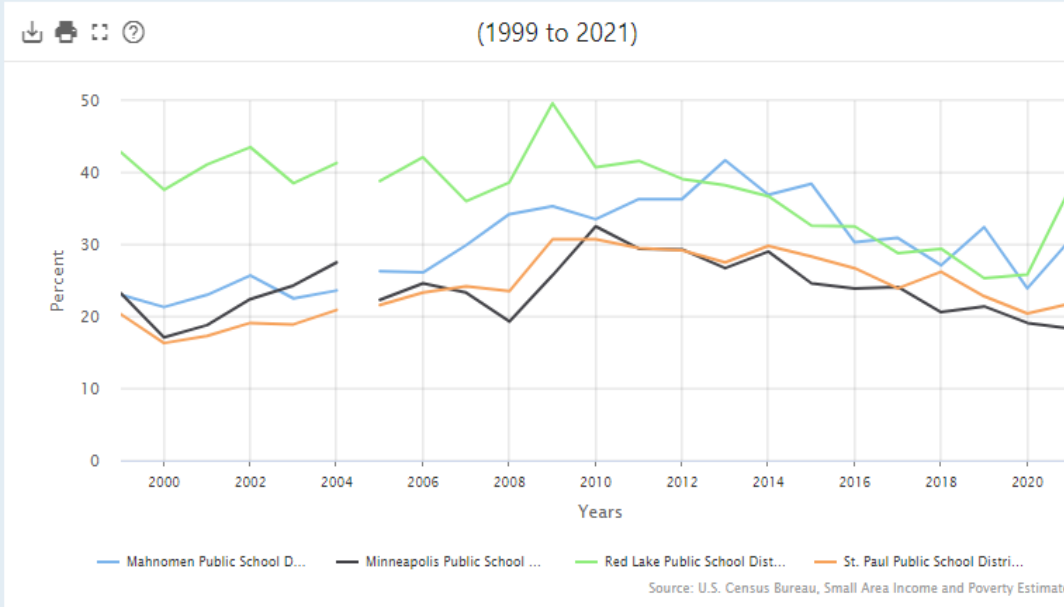
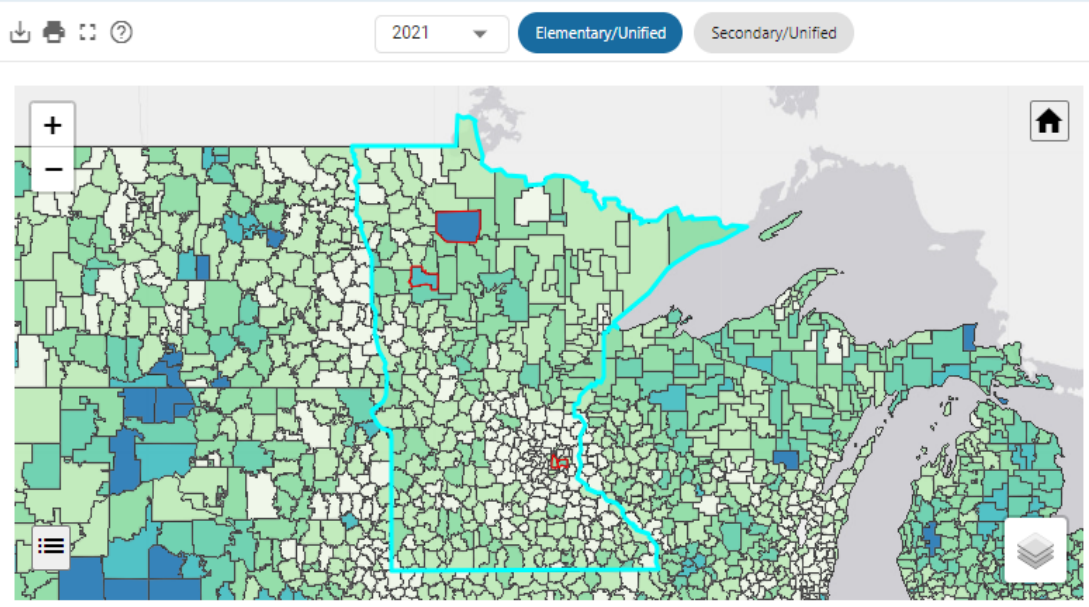
Median Household Income

Ages 5 to 17 in Families in Poverty

2021

Elementary/Unified

Secondary/Unified



Year ↓	ID	Name	Grades	Total Population	Relevant Ages 5 to 17	Relevant Ages 5 to 17 in Families in Poverty	Relevant Ages 5 to 17 Poverty Ratio	Reference Map
2021	2718660	Mahnomen Public School ...	PK-12	3,786	889	273	30.7	Map

Census Bureau Leadership

National Leadership

- Federal Geographic Data Committee
- National Geospatial Data Assets
- National Spatial Data Infrastructure Strategic Plan
- National issues and concerns

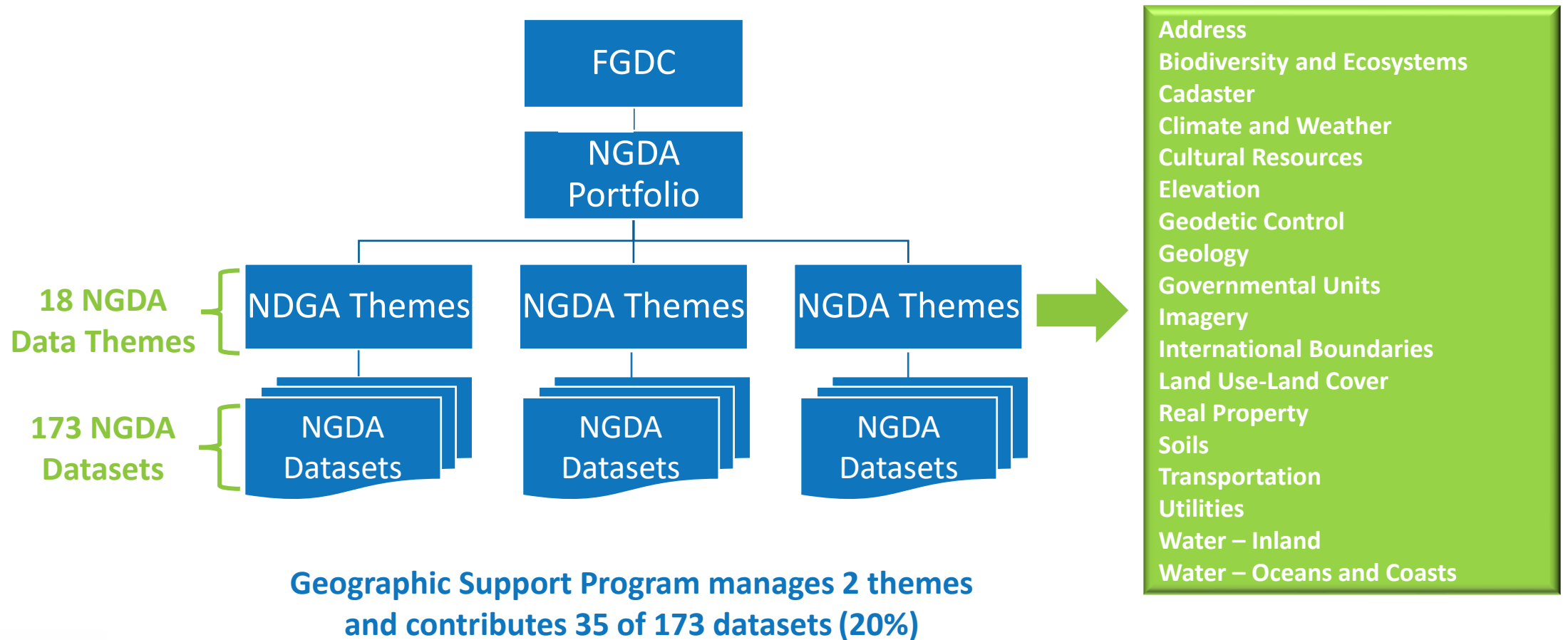
International Leadership

- United Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM)
- High-level Group of the Integrated Geospatial Information Framework (HLG-IGIF)
- 2030 Agenda for Sustainable Development - SDGs



National Leadership

Federal Geographic Data Committee (FGDC) and National Geospatial Data Assets (NGDA)



National Leadership

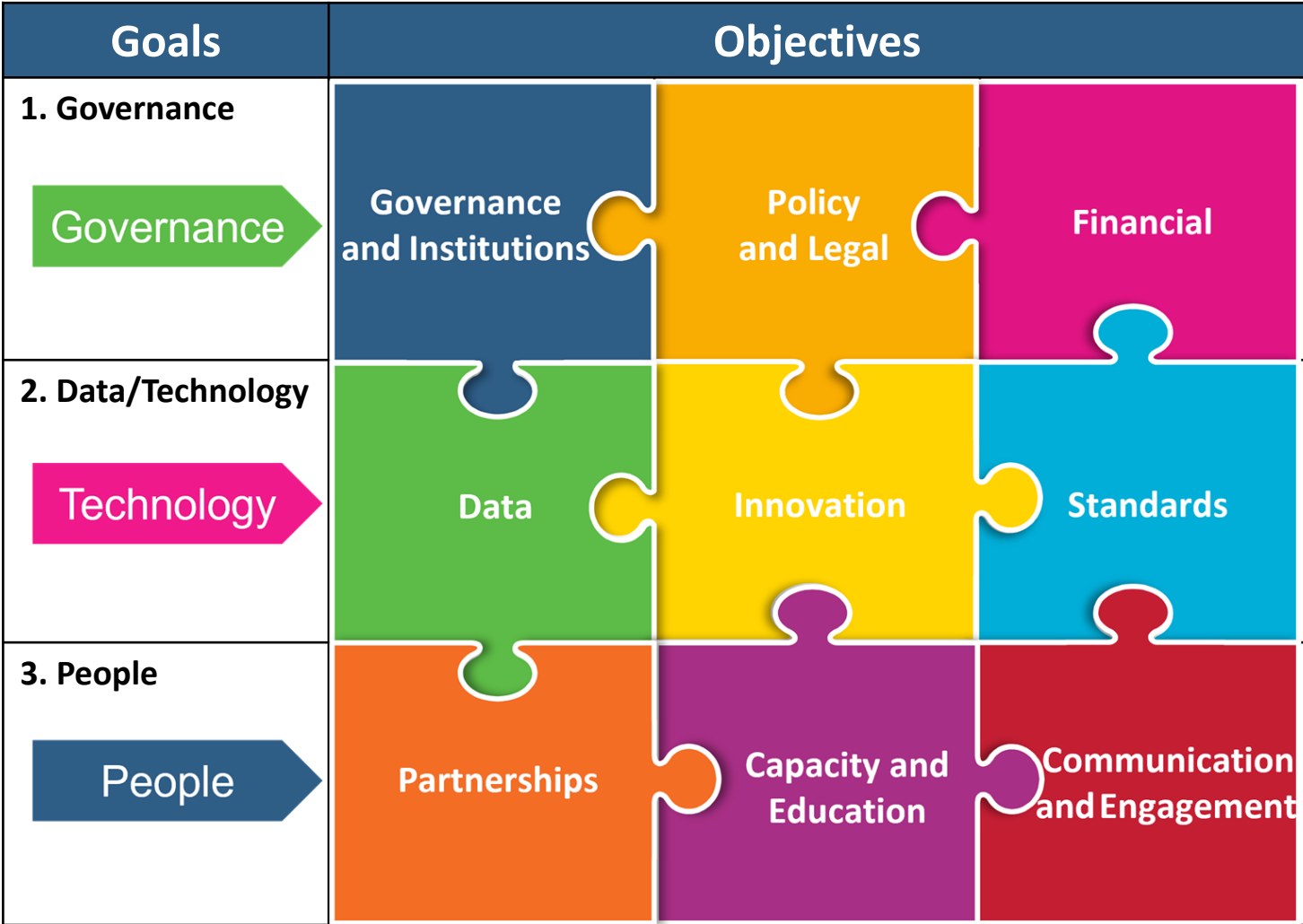
Building the NSDI Strategic Plan of the Future

The Census Bureau is championing the development of a new National Spatial Data Infrastructure Strategic Plan and engaging with leaders across all of government, the United Nations, Private Sector, and Academia.



National Leadership

Building the NSDI Strategic Plan of the Future



Thank You

Deirdre Dalpiaz Bishop
Chief of Geography Division

U.S. Department of Commerce
U.S. Census Bureau
4600 Silver Hill Rd.
Suitland, Maryland 20746

Office: 301-763-1696
deirdre.dalpiaz.bishop@census.gov

