

October 3, 2024

The Role of Geospatial Technology in Addressing Social Equity in Emergency Management

Panelists

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The Plan

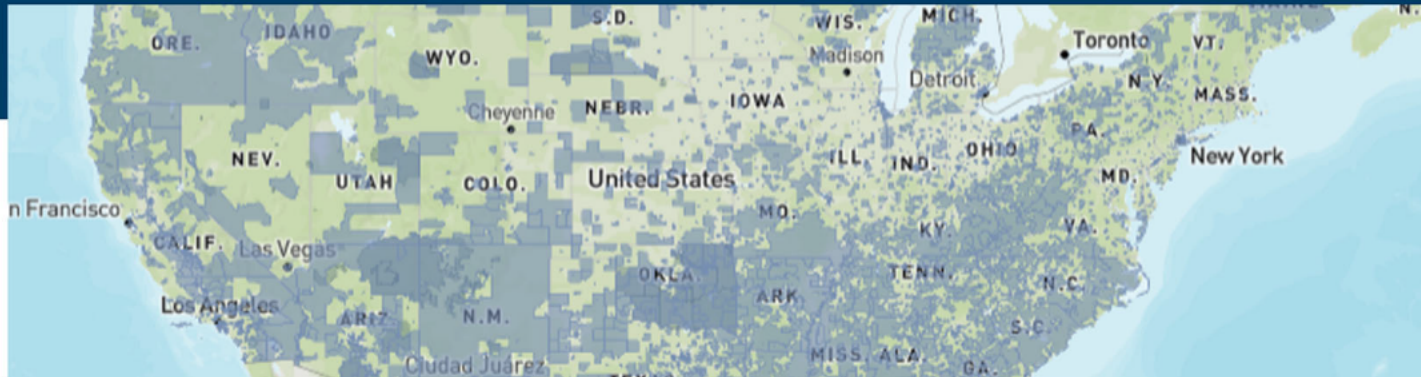
1. Part I: Federal and local perspectives on social equity
2. Part II: Moderated discussion (panelists and audience)

Social Equity and Resilience

Federal Government Support and
Collaboration on Social Equity

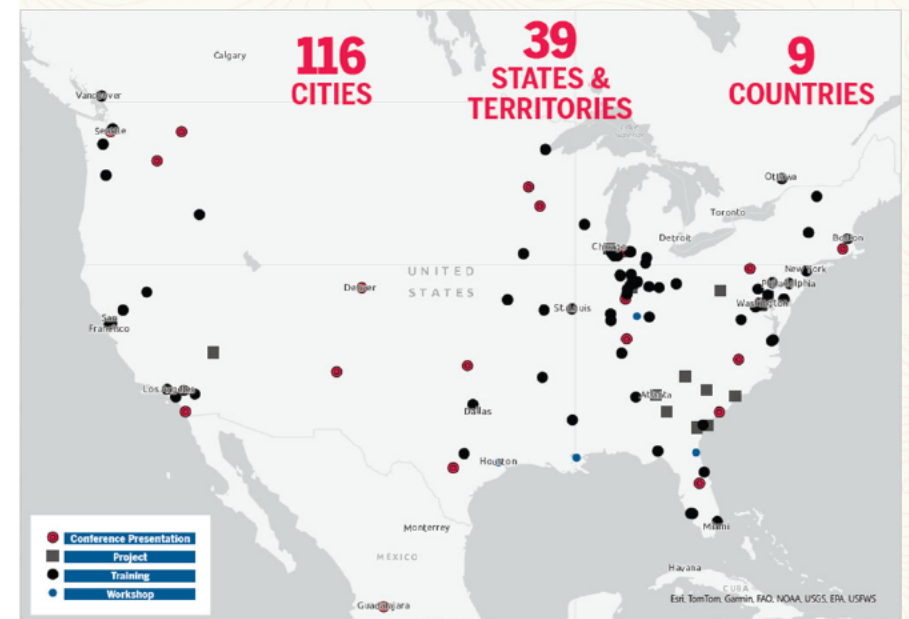


FEMA



- Project focused center started in 1989
- Over 1,000 projects to date
- Over 1,200 community partners
- Focus areas
 - crisis informatics
 - public health informatics
 - community informatics

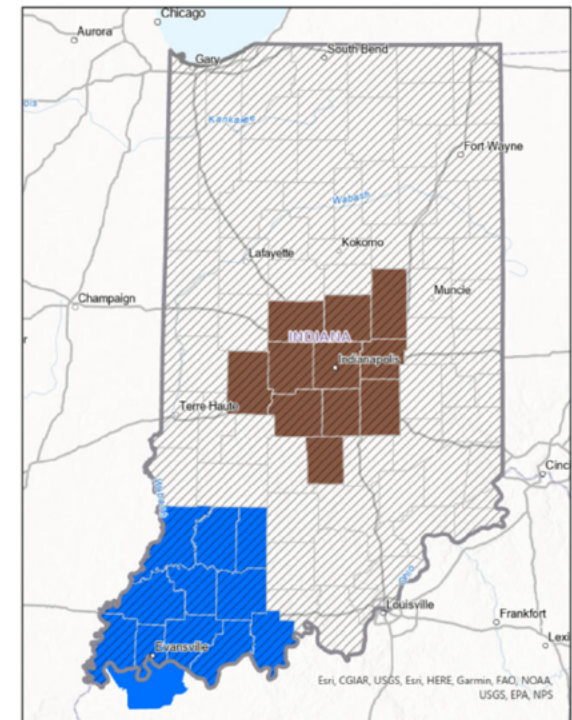
35 YEARS OF PROFESSIONAL EDUCATION





SAVI
what's trending in your community

- Extensive program of data, tools and other resources representing nearly three decades of effort.
- Processes 80+ data sources to create 13,000+ indicators as well as facilities describing communities in Central Indiana, 1,000+ indicators in southwest Indiana.
- Data include social determinants of health, education, public safety, quality of life, transportation access, natural hazard equity impact and more.



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SAVI

Data are packaged and visualized in meaningful ways based on the specific needs of partners and target audiences.

<https://www.savi.org/>



Use Topic Profiles

Choose a topic and view a curated dashboard.

- Pre-built geographic boundaries
- Pre-built dashboard
- Shareable link for dashboard
- Covers all of Central Indiana



Use Community Profiles

Choose your community and build a dashboard.

- Custom geographic boundaries
- Custom dashboard
- Save your work
- Shareable link for dashboard
- Covers all of Central Indiana



Use Population Profiles

Choose a population and view a dashboard with data specific to that group.

- Pre-built geographic boundaries
- Pre-built dashboard
- Shareable link for dashboard
- Covers all of Central Indiana



Use Community Assessment

Create a downloadable community needs assessment.

- Custom geographic boundaries
- Pre-built dashboard
- Save your work
- Printable, editable report
- Covers all of Central Indiana



Use IndyVitals

Choose an Indy neighborhood and explore a dashboard.

- Pre-built neighborhood boundaries
- Pre-built dashboard
- Shareable link for dashboard
- Covers Indianapolis



Use SAVI Classic

Explore thousands of indicators in maps and tables.

- Pre-built geographic boundaries
- Select individual indicators
- Save your work
- Covers all of Central Indiana



Use IndianaImpact

Choose an Indiana county and explore a dashboard

- Pre-built dashboard
- Shareable link for dashboard
- Covers all Indiana counties
- United Way service areas

140,000 visits to SAVI website in 2023

20,192 users of our data tools.



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SAVI Topic Profiles

Family Opportunity

Measures of educational success, social capital, workforce development, economic assets, and health and well-being.

[MORE INFO](#) [VIEW PROFILE](#)

Health

Social determinants of health, health care, and health outcomes.

[MORE INFO](#) [VIEW PROFILE](#)

Equity

Equity in education, health, housing, and economics.

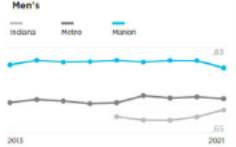
Gender Equity in Earnings

.80

Dollars of earnings for women per \$1 for men (2021)

This indicator is above average compared to similar geographies.

Ratio of Women's Median Earnings To Men's



[Map](#) [Download](#) [Share](#) [About](#)

Unemployment by Education

5.6%

Total unemployment rate (2021)

Unemployment Rate by Education

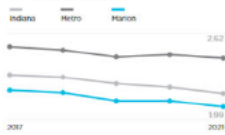


Racial Equity in Income

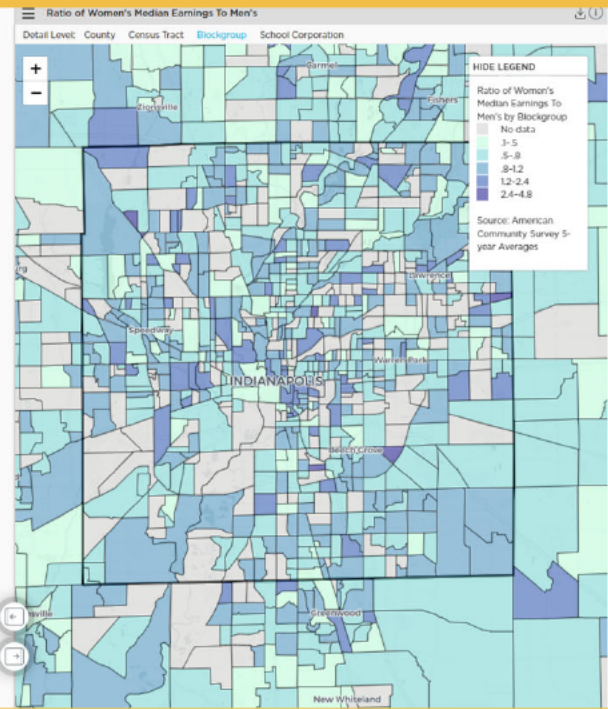
1.99

people of color in poverty per White person in poverty (2021)

Ratio of the Poverty Rate for People of Color to that of Whites



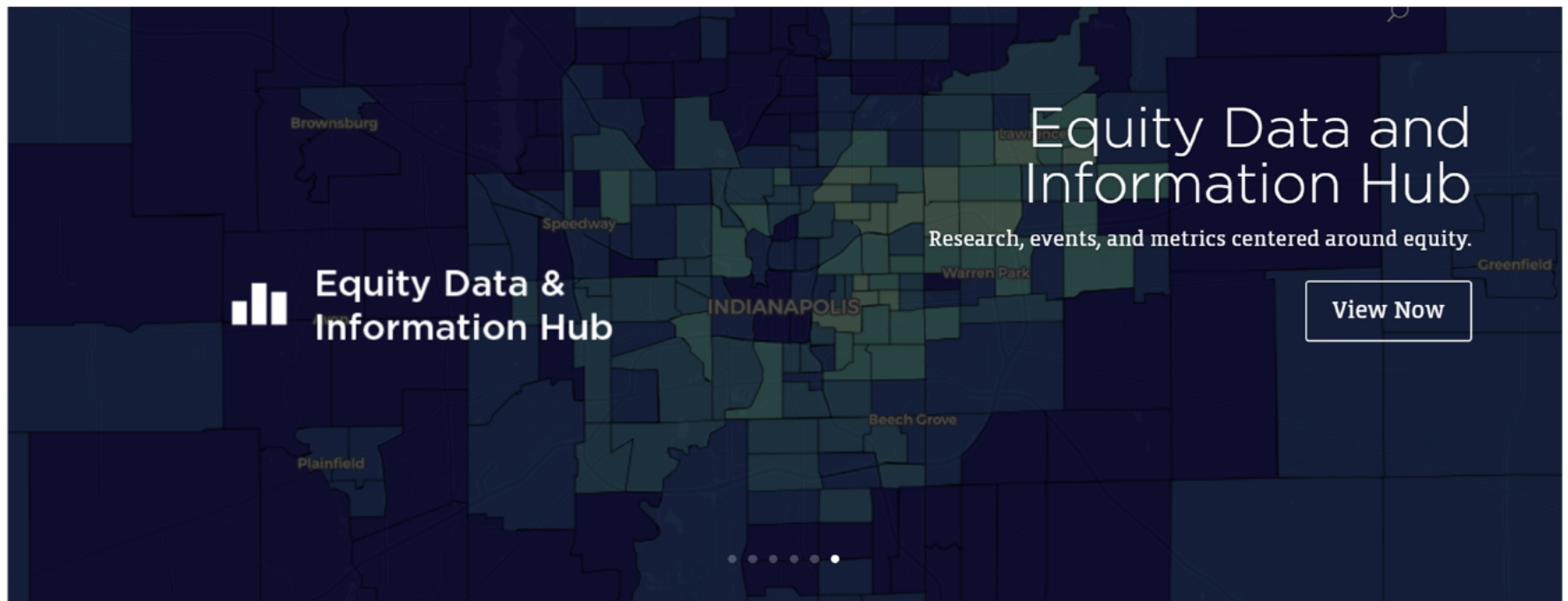
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Equity Data and Information Hub



<https://www.savi.org/equity-data-hub/>



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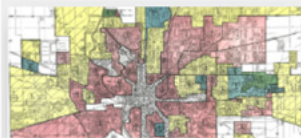
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Equity Hub



Modern Redlining in Indianapolis?

Our analysis of one million loan applications since 2007 shows that, even when income and debt are the same, Black applicants have 2-3X higher odds of being denied than White applicants, and applying for a loan in a historically redlined neighborhood increases the odds of denial by 50 percent.



The Lasting Impacts of Segregation and Redlining

80 years after the federal government encouraged lenders to consider "neighborhood characteristics" like race in their lending decisions, redlining and segregation have a measurable impact on economic opportunity, health outcomes, the environment, and violence.



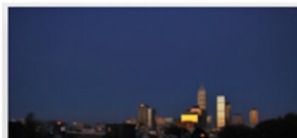
Follow the Money: Indianapolis Evictions in 2022

Eviction filings are on the rise compared to last year, but still lower than before the pandemic. Most evictions are from large owners of big apartment complexes. This article is part of our Data and Drafts series in partnership with WFYI and Indianapolis Public Library



The State of Tenants in Central Indiana

Indiana Senate Bill 230 would have required landlords to make necessary repairs to their properties. We examine the renters impacted by the bill's failure.



Equity in Economic Opportunity

How race, place, and class impact opportunity in Indianapolis

Children born to low-income families in Indianapolis have worse economic outcomes than almost any other large city, and there are stark disparities for Black children and children who grew up in low-income neighborhoods.

In 2022

62,000
Reads of community
trend reports

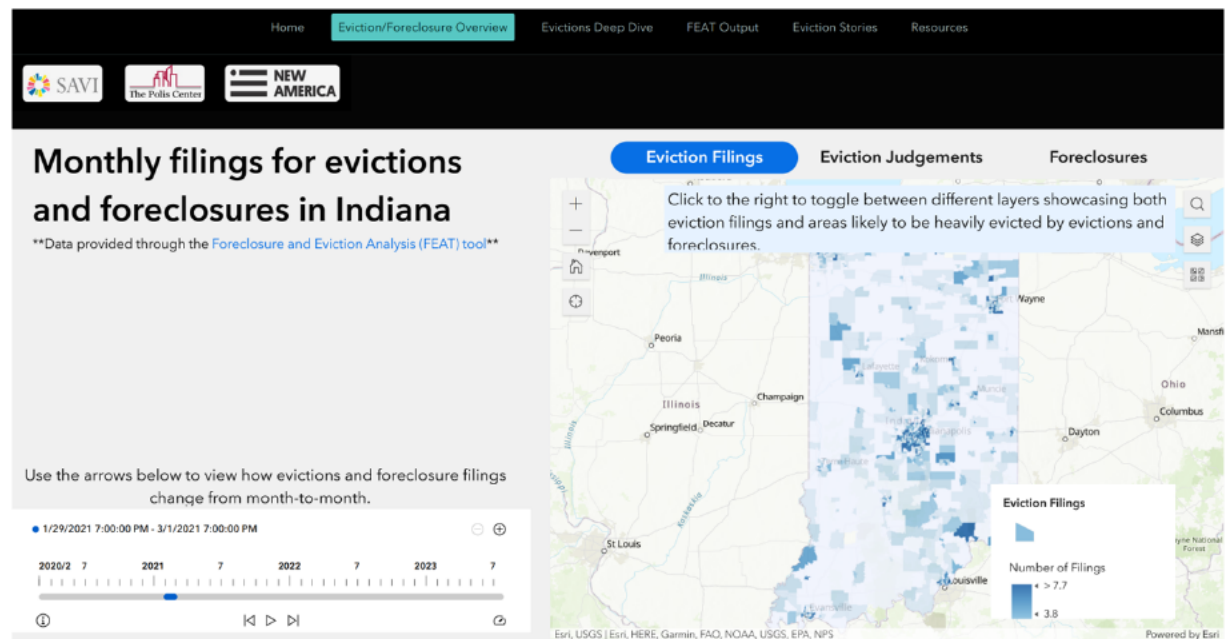


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Indiana Evictions and Foreclosure Dashboard

Analysis of eviction and foreclosure data to better understand trends at the state-level and relationships with demographics and poverty.



<https://www.savi.org/empowering-indiana-communities-with-evictions-foreclosure-data/>



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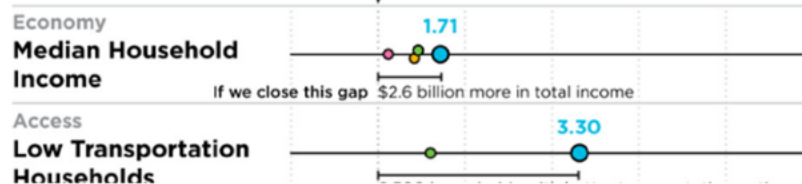
Racial Equity Report Card

Equity gaps

Ratio of statistic for White residents compared to those who identify as _____

● Black ● Hispanic or Latino ● Asian ● Two or more races

Better outcome compared to White ← Equal outcomes → Worse outcome compared to White



<https://www.savi.org/equity-report-card/>



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Indianapolis

City of Indianapolis Perspective

Ben Tapper

Chief Diversity & Equity Officer

Jacob Spence

Emergency Management Director

Metropolitan Emergency Services
Agency, Marion County
Emergency Management





Moderated Discussion

How are you currently applying geospatial tools to
inform processes that relate to social equity
and
are there gaps between what you are currently doing
and what you would like to do?

What (new) opportunities exist for collaboration between federal, state, and local government for using geospatial data, tools and methods to achieve social equity in public safety and emergency management?



So now what?

GUIDANCE ON RISK, RESILIENCE, AND VULNERABILITY INDICES

Understanding a community's risk, resilience, and vulnerability is vital for effective disaster management and resource planning. In recent years, there has been an increase in the number of available indices that measure these factors. While these indices provide valuable insights into our communities, they also prompt some confusion over which index to use, when to use it, and for what purpose.



NAPSG Foundation, in partnership with [URISA's Community Resilience Task Force](#), launched a study to understand available and emerging risk, resilience, and vulnerability indices as the basis for developing guidance to help the emergency management community match business needs with specific indices.

The goal of this guidance is to assist the emergency management/public safety community in quickly understanding which indices are available, the data and methodologies behind them, and their relevance for use in preparedness and response. The guidance currently includes the following indices:

- CDC Social Vulnerability Index (SVI)
- Social Vulnerability Index for the United States (SoVI®)
- FEMA Community Resilience Index (CRI)
- Baseline Resilience Indicators for Communities (BRIC)
- National Risk Index (NRI)

Goal: Assist the emergency management/public safety community in quickly understanding:

- which indices are available
- the data and methodologies behind them
- their relevance for use in preparedness and response

[ACCESS THE GUIDANCE](#)
[ONE-PAGER ON THE GUIDANCE](#)

All Categories

WORK WITH US

Do you have an interesting project and need support? We'd love to hear from you! Please take a look at our capabilities and email us to get started: comments@publicsafetygis.org

Our expertise is in public safety GIS, and as a non-profit, we are dedicated solely to your success. Download the brochure below for more information.

Geospatial Support
for Public Safety Organizations



Guidance on Risk, Resilience, & Vulnerability Indices

Challenge

In recent years, there has been an increase of available indices that measure risk, resilience, and vulnerability. Although these indices have provided valuable insights into our communities, they have also prompted some confusion over which index to use, when to use it, and for what purpose.

Guidance

The goal of this guidance is to assist the emergency management/public safety community in quickly understanding which indices are available, the data and methodologies behind them, and their relevance for use in preparedness and response.

Indices Included in this Guidance:

- CDC Social Vulnerability Index (SVI)
- Social Vulnerability Index for the United States (SoVI®)
- Community Resilience Indicator Analysis (CRIA)
- Baseline Resilience Indicators for Communities (BRIC)
- National Risk Index (NRI)



Overview Comparison Chart

View the Social Indices Overview Chart to see a side-by-side comparison of the 5 indices.

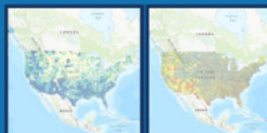
Index	Stated Objective	Full Title	Owner	Granularity	Coverage	Hazards Included in Analysis	Description	Output	Variables Overview	Index Release Date	Index Access	Target Audience
CDC SVI	...	...	...	...	...	...	...	...	...	...	...	...
SoVI	...	...	...	...	...	...	...	...	...	...	...	...
CRIA	...	...	...	...	...	...	...	...	...	...	...	...
BRIC	...	...	...	...	...	...	...	...	...	...	...	...
NRI	...	...	...	...	...	...	...	...	...	...	...	...

Variables Comparison Chart

View the Variables Comparison Chart to take a deep dive into the individual variables (or inputs) that make up each of the 5 indices.

Index	Demographic	Economic	Household	Composition	Employment	Transportation	Community	Health	Government/Infrastructure	Environment/Energy
CDC SVI	...	...	...	...	...	...	...	...	...	...
SoVI	...	...	...	...	...	...	...	...	...	...
CRIA	...	...	...	...	...	...	...	...	...	...
BRIC	...	...	...	...	...	...	...	...	...	...
NRI	...	...	...	...	...	...	...	...	...	...

Compare and Explore Indices



Compare vulnerability and resilience within communities with CDC SVI and CRIA interactive maps.

Now What?

Access the full guidance at <https://arcp.is/qbT9a>

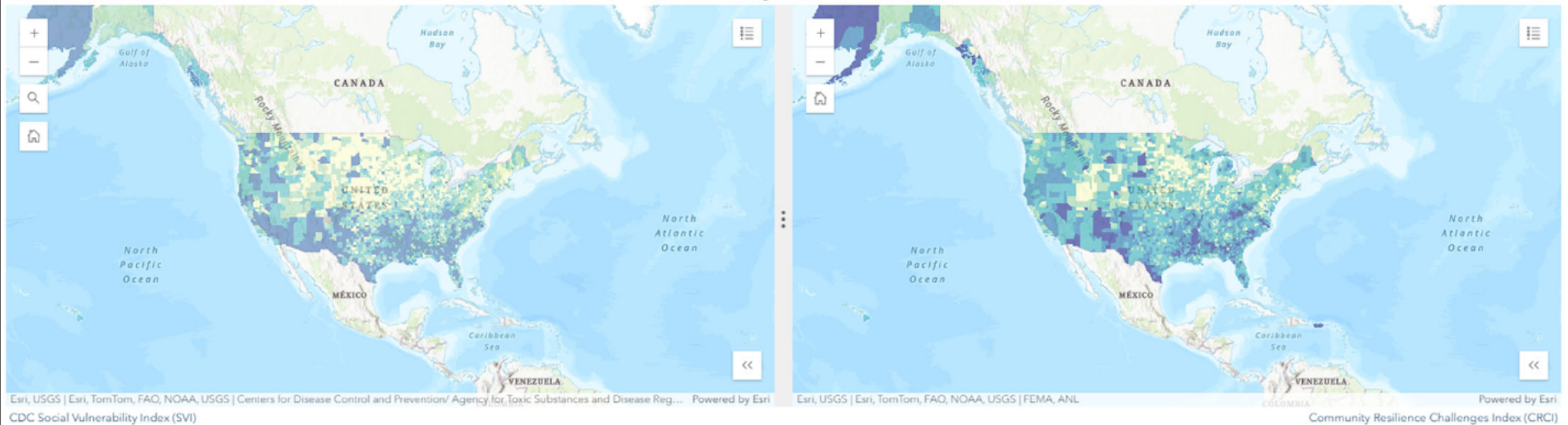


Help to further inform this guidance by filling out our survey! Go to <https://arcp.is/11T75W> or scan the QR code with your mobile device.

<https://www.napsgfoundation.org/resources/indices-guidance/>

Compare and Explore Indices

Vulnerability or Resilience?



The side-by-side maps displayed above serve as an example view of vulnerability and resilience indices available today. CDC SVI illustrates areas in which the community is most socially *vulnerable* to disasters. The FEMA CRCI provides a relative indication of a community's potential challenges to resilience. By design, these indices tell different stories and are suitable for answering different questions. Use the maps above to compare vulnerability (CDC SVI) versus resilience (CRCI), and ask yourself: **Which one is best suited for the questions I am trying to answer?**

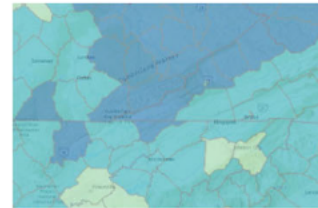
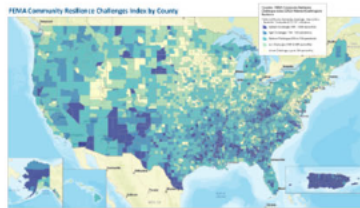
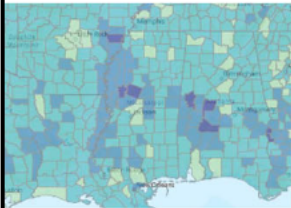
Index Overviews*

Overview Comparison

View the Social Indices Overview Chart to see a side-by-side comparison of the 5 indices.

Variables Comparison

View the Variables Comparison Chart to take a deep dive into the individual variables (or inputs) that make up each of the 5 indices.



FEMA Community Resilience Challenges Index (FEMA CRCI)

Overview

Stated Objective: Challenges to Community Resilience

Owner: FEMA

URL: <https://fema.gov/rapt>

Index Release Date: May 2023

Last Update: July 2024

Coverage: Continental US, Alaska, Hawaii, & Puerto Rico

Granularity: County, Census Tract

Does the index incorporate hazard data? No

Description

The FEMA Community Resilience Challenges Index (CRCI) is a composite index of 22 indicators commonly used across 14 peer-reviewed community resilience methodologies (used in 5 or more methodologies). This index provides a relative composite value by county and by census tract, measured as an average of counts of standard deviations from the national mean for each indicator. FEMA CRI and each individual indicator are included as a GIS data layer in the Resilience Analysis and Planning Tool (RAPT).

Analysis

FEMA and Argonne National Laboratory document the Community Resilience Challenges Index (CRCI) in a report available online. The analysis begins with a literature review of published peer-reviewed research; the current analysis is from research published between 2003 and 2021. The research team then selects the methodologies that are quantitative, have public methodology and public data, are at least at the county level, with generalized hazard risk, and examine pre-disaster conditions. Next, the research team determines the indicators used in multiple methodologies. Selecting commonly used indicators produces an index (FEMA CRCI). The index benefits from multiple research perspectives rather than choosing one methodology among many. The research team identified 22 commonly used indicators. Finally, the research team then bins the data for each indicator and creates a GIS layer to be included in RAPT and produces the FEMA CRCI for counties and census tracts.

What does this index provide?

The FEMA Community Resilience Challenges Index (CRCI) provides a relative assessment of a community's potential resilience and gives insights into population and community characteristics from which to build emergency operations plans and targeted outreach strategies. In addition to the FEMA CRCI value, RAPT includes the top three drivers for the FEMA CRCI value for counties (available in the pop-up window). RAPT also provides data ranges and data points for all 22 indicators used to produce the FEMA CRI. This data, combined with the infrastructure and hazard data layers in RAPT, gives emergency managers the ability to visualize and analyze critical community information for all phases of emergency management.

Social Indices Overview Chart



[Access PDF Version](#)

	CDC SVI	SoVI®	FEMA CRCI	BRIC	FEMA NRI
Stated Objective	Social Vulnerability	Social Vulnerability	Community Resilience	Community Resilience	Natural Hazard Community Risk
Full Title	CDC Social Vulnerability Index	Social Vulnerability Index for the United States	FEMA Community Resilience Challenges Index	Baseline Resilience Indicators for Communities	National Risk Index
Owner	Centers For Disease Control and Prevention (CDC)	University of SC Hazards & Vulnerability Research Institute (HVRI)	FEMA National Integration Center (NIC), Argonne National Laboratory	University of SC Hazards & Vulnerability Research Institute (HVRI)	Federal Emergency Management Agency (FEMA)
Granularity	- County - Census Tract	County	- County - Census Tract	County	- County - Census Tract
Coverage	- Continental US - Alaska - Hawaii	- Continental US - Alaska - Hawaii	- Continental US - Alaska - Hawaii - Puerto Rico	- Continental US - Alaska - Hawaii	- Continental US - Alaska - Hawaii
Hazards Included in Analysis	No	No	No	No	Yes
Description	CDC SVI measures community vulnerability to help emergency response planners and public health officials identify and map communities that will most likely need support before, during, and after a hazardous event.	SoVI® measures a county's ability to prepare for, respond to, and recover from hazards in relation to other counties in that state and across the nation.	FEMA CRI aggregate indicator provides a relative assessment of a community's potential challenges to resilience.	BRIC describes the differences in community resilience among counties within the state and within the nation.	FEMA NRI illustrates a community's potential vulnerability and resilience based on exposure (expected annual loss) to 18 natural hazards.
Output	CDC SVI provides a vulnerability score between 0 (least vulnerable) to 1 (most vulnerable): - Describes areas in which the community is most socially vulnerable to disasters - Easily drill down into variables behind the social vulnerability scoring	SoVI® provides a comparative social vulnerability score that enables users to: - Compare the social vulnerability among counties within the state and within the nation - Compare or track social vulnerability changes over time	FEMA CRCI provides a relative assessment of a community's potential resilience and gives insights into community characteristics from which to build emergency operations plans and targeted outreach strategies.	BRIC provides a comparative community resilience score that enables users to: - Compare the community resilience among counties within the state and within the nation - Compare or track community resilience changes over time	FEMA NRI provides an overall risk percentage as well as individual risk percentages for 18 of the USA's most common natural hazards.
Variables Overview (for more detailed analysis of variables, please visit the Variables Comparison Chart)	16 social factors from four main types of variables: - Socioeconomic Status - Household Characteristics - Race & Ethnic Minority Status - Housing Type & Transportation	29 socioeconomic variables that contribute to a reduction in a community's ability to prepare for, respond to, and recover from hazards.	22 indicators: 11 that are population-focused 9 that are community-focused	6 broad categories of community disaster resilience: - Social - Economic - Community Capital - Institutional - Infrastructural	FEMA NRI incorporates three datasets: - CDC SVI - BRIC - Expected Annual Loss

Thanks for coming!