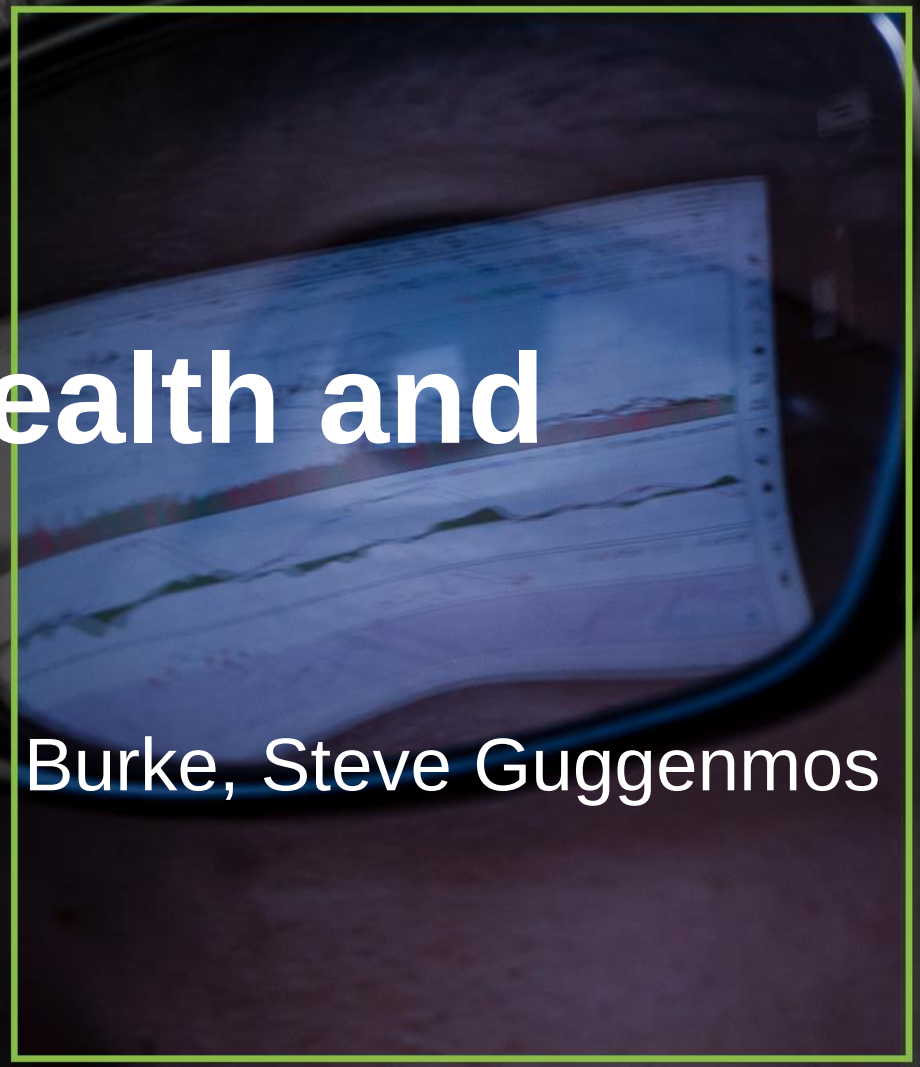
The Intersection of Health and Housing

Elizabeth Dobis, Lance George, Sarah Burke, Steve Guggenmos



Freddie Mac

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COVID-19 in Rural America

Elizabeth A. Dobis

USDA Economic Research Service

 This research was supported in part by the U.S. Department of Agriculture, Economic Research Service.

#RuralResearchSymposium

RURAL RESEARCH SYMPOSIUM November 8-9 | AN ALL FOR HOME EVENT

COVID-19 Surges

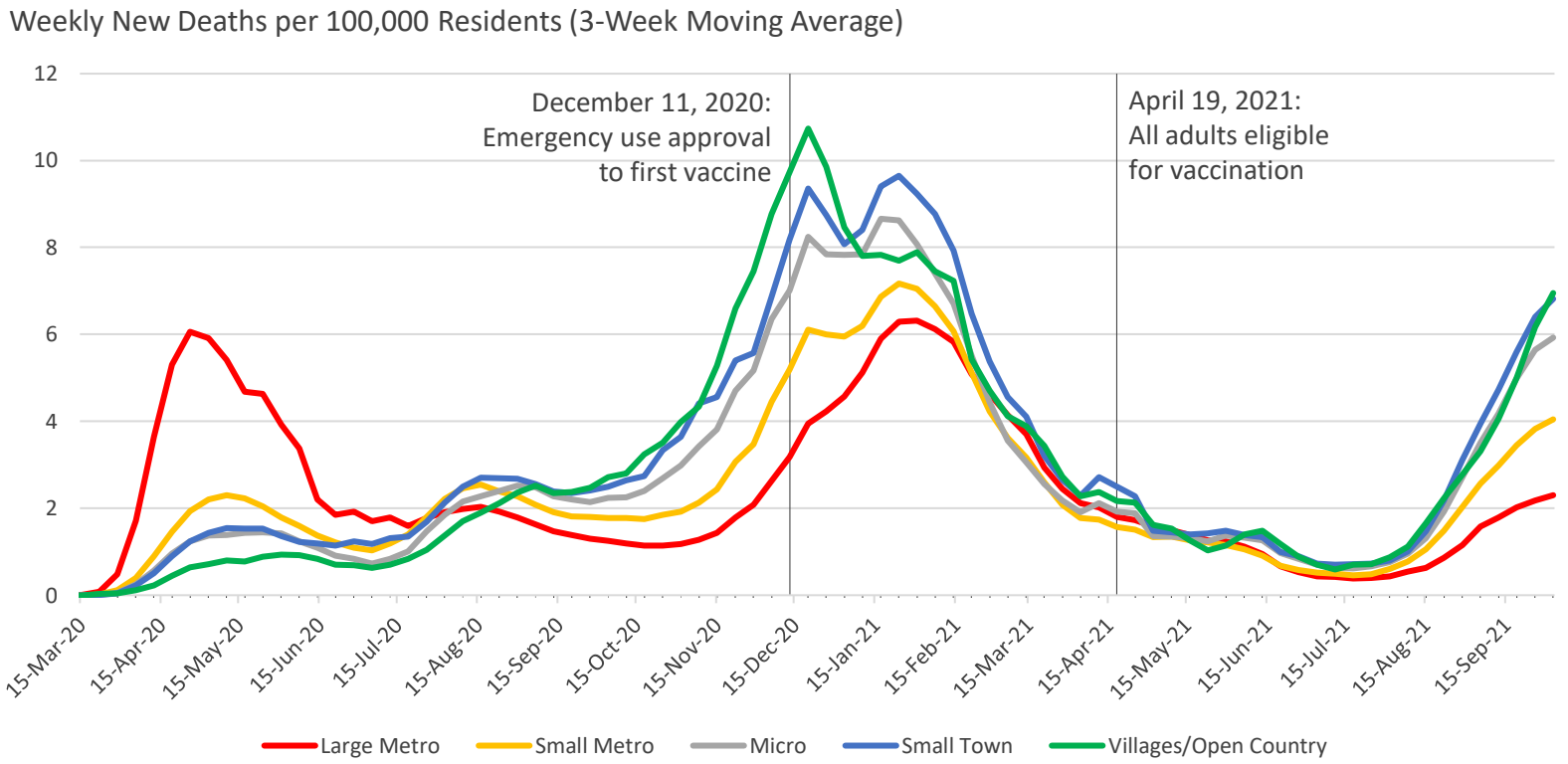
- Four distinct surges throughout the pandemic

Period	Dates
Surge 1	early March 2020 – mid-June 2020
Surge 2	mid-June 2020 – mid-September 2020
Surge 3	mid-September 2020 – late June 2021
Surge 4	late June 2021 – present

- There is spatial variation in COVID-19 cases and deaths throughout the pandemic
  - Prominent region or urban-rural category varies across surges
  - Illustrate with trends in COVID-19 deaths

Urban-Rural Differences: COVID Deaths

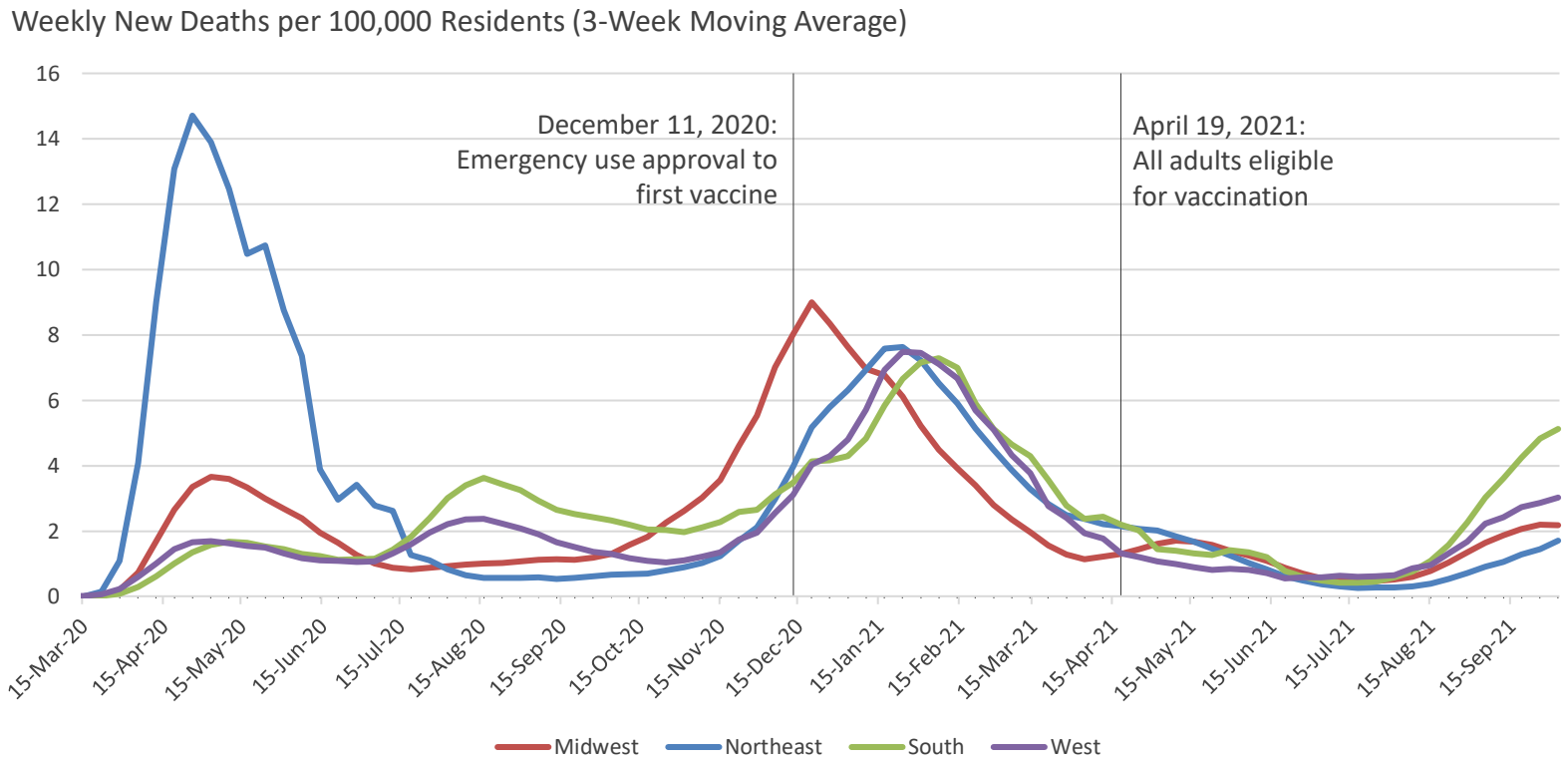
Three-week moving average of weekly deaths from COVID-19 per 100,000 adults by county urban-rural category, March 15, 2020 to October 3, 2021



Sources: USDA, Economic Research Service using 2015 County Typology Codes and data from Johns Hopkins University Center for System Science and Engineering, supplemented with data from the New York Times.

Regional Differences: COVID Deaths

Three-week moving average of weekly deaths from COVID-19 per 100,000 adults by census region, March 15, 2020 to October 3, 2021



Sources: USDA, Economic Research Service using 2015 County Typology Codes and data from Johns Hopkins University Center for System Science and Engineering, supplemented with data from the New York Times.

High Housing Costs and COVID-19

Variables	Rural-Urban Classification				
	Large Metro	Small Metro	Micro	Small Town	Villages/ Country
Household housing cost burden					
All households (%)	**34.6**	29.9	26.6	24.5	23.1
Low-income HH (%)	**87.6**	82.7	76.3	70.9	66.5
Moderate-income HH(%)	**63.7**	46.9	34.6	28.7	25.1
High-income HH (%)	**14.9**	8.7	5.8	4.6	4.5
COVID-19, cumulative numbers					
Cases per 100,000 residents	12,747	13,347	13,886	**14,124**	13,213
Deaths per 100,000 residents	199	198	232	**265**	249
Deaths per 100 cases	1.60	1.55	1.76	1.98	**2.00**

Variables	Census Region			
	Midwest	Northeast	South	West
Household housing cost burden				
All households (%)	27.1	35.2	30.3	**36.1**
Low-income HH (%)	83.6	**85.9**	80.7	**85.6**
Moderate-income HH (%)	43.7	**61.8**	48.5	**61.9**
High-income HH (%)	6.7	15.6	9.3	**17.2**
COVID-19, cumulative numbers				
Cases per 100,000 residents	12,669	11,777	**14,553**	12,195
Deaths per 100,000 residents	191	**259**	208	175
Deaths per 100 cases	1.57	**2.27**	1.49	1.48

Notes: Households are considered to have a housing cost burden when they spend 30% or more of their annual income on housing. Household income categories are: Low, less than $20,000; Moderate, $20,000 to $49,999; High, at least $50,000.
Sources: ACS 2014-19, ERS 2015 County Typology Codes, JHU Center for System Science & Engineering, NY Times.

- High housing costs and COVID-related financial hardship may affect personal well-being
- There is not a clear connection between housing cost burden and COVID-19 cases and deaths
- Look to other factors to explain trends

Factors Affecting COVID-19

Cases

- Transmission factors:
  - Connectivity among locations
  - Residential crowding
  - Crowded job conditions
  - Poor hygienic conditions
  - Inability to reduce interpersonal contact (e.g., no internet access)
  - Vaccination rate
- Behavioral factors:
  - Race/ethnicity
  - Educational attainment

Deaths

- Affected by severity of infection and access to medical care
- Population factors:
  - COVID-19 case prevalence
  - Vaccination rate
  - Population health
  - Older population
  - Larger uninsured population
  - Race/ethnicity
  - Income levels/poverty rate
- Location factors:
  - Distance to medical facilities/care
  - Medical staff and supplies

(e.g., number of hospital beds, medications)

Health Vulnerability Factors and COVID-19

Percentages of nonmetro and metro adult population in U.S. high vulnerability counties (in the top 20 percent) defined by each source of vulnerability

Vulnerability Source	Nonmetro	Metro
	Percent	
Underlying health problems (ages 20-84)	23.7	3.0
Older adult population scale	15.9	4.0
Lacking health insurance (ages 25-64)	20.2	10.5
Distance to hospital with intensive care unit (ICU)	11.3	0.3

Note: Underlying health problems are measured as the average yearly age-standardized mortality rate in 2014-18 from natural causes (excludes accidents, including overdoses; homicide; and suicide). The old adult population scale is measured by the percent of adult population ages 60 to 74 plus double the percent ages 75 and over. Distance is measured between county geographic population centers. Both nonmetro and metro population percentages can be under 20 when vulnerability is greater in counties with relatively small populations.
Source: USDA, Economic Research Service using National Center for Health Statistics Detailed Mortality file; the U.S. Department of Commerce, Bureau of the Census, American Community Survey 2018 5-year data; and the Kaiser News Foundation

- Rural-urban population differences in vulnerability to severe illness and death from COVID-19 help explain trends
- Larger shares of rural residents than urban ones are in high vulnerability counties
- The share of fully vaccinated people is lower in nonmetro areas
  - As of October 3, 2021: Nonmetro 42%, Metro 53%

Conclusions

- The prominent region or urban-rural category varies across surges, illustrating the spatial variation in COVID cases and deaths throughout the pandemic
- While high housing costs and COVID-related financial hardship may affect personal well-being, there is not a clear connection between housing cost burden and COVID-19 cases and deaths
- Behavioral, population, and location factors are correlated with COVID-19 case and death rates and help explain trends and surges

Thank You

elizabeth.dobis@usda.gov

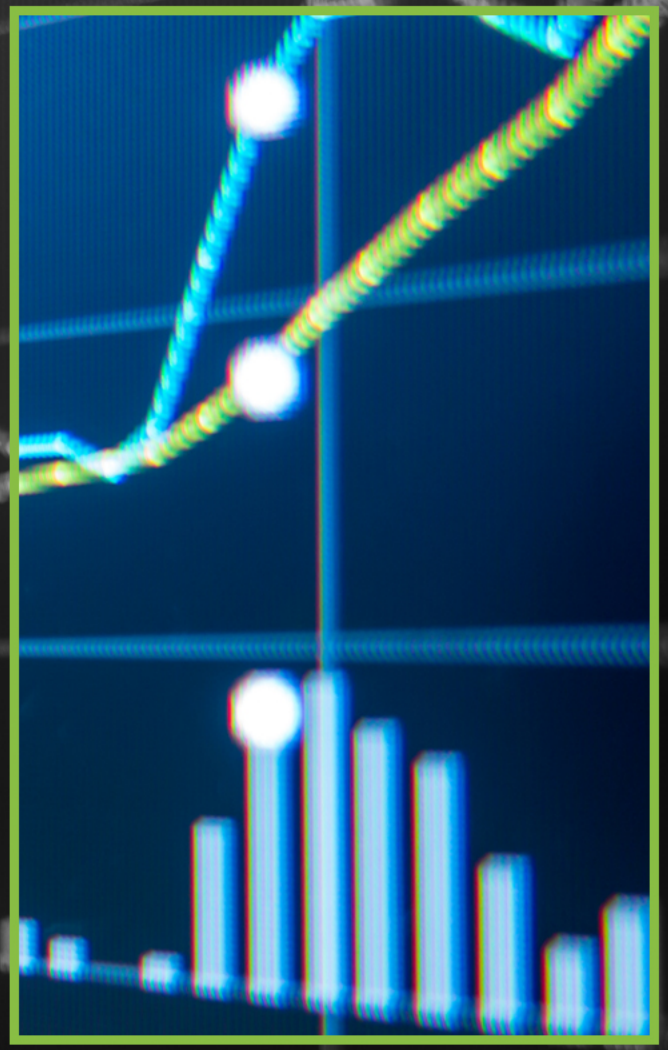
Freddie Mac

The "New Normal"

How has COVID-19 Changed The Provision of Housing in Rural America?

Lance George

Housing Assistance Council



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What We Know; What We Don't; and, What We Need to Know

01

COVID-19 in Rural America

02

The Rural Housing ecosystem is still uncertain

03

Where do we go from here?

HAC

UNFAIR AND UNEVEN COVID IN RURAL AMERICA

Photo: Rory Doyle *The I More Work to Be done*

AN UNEVEN AND UNFAIR PROGRESSION ACROSS RURAL AMERICA

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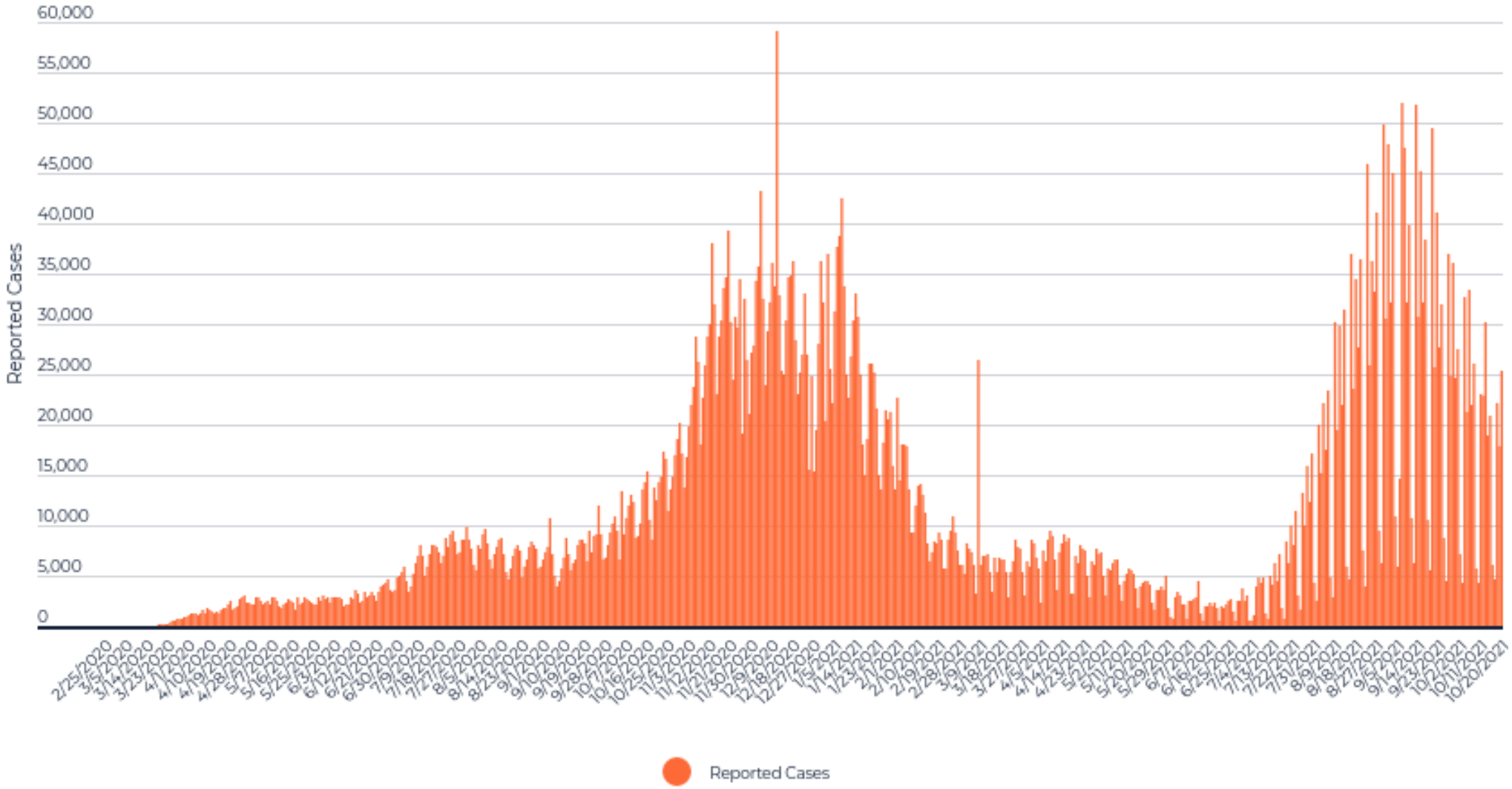
COVID-19 REPORTED CASES OUTSIDE OF METROPOLITAN AREAS

February 20, 2020 - October 20, 2021



Source: Housing Assistance Council Tabulations of Public Health Data from the New York Times

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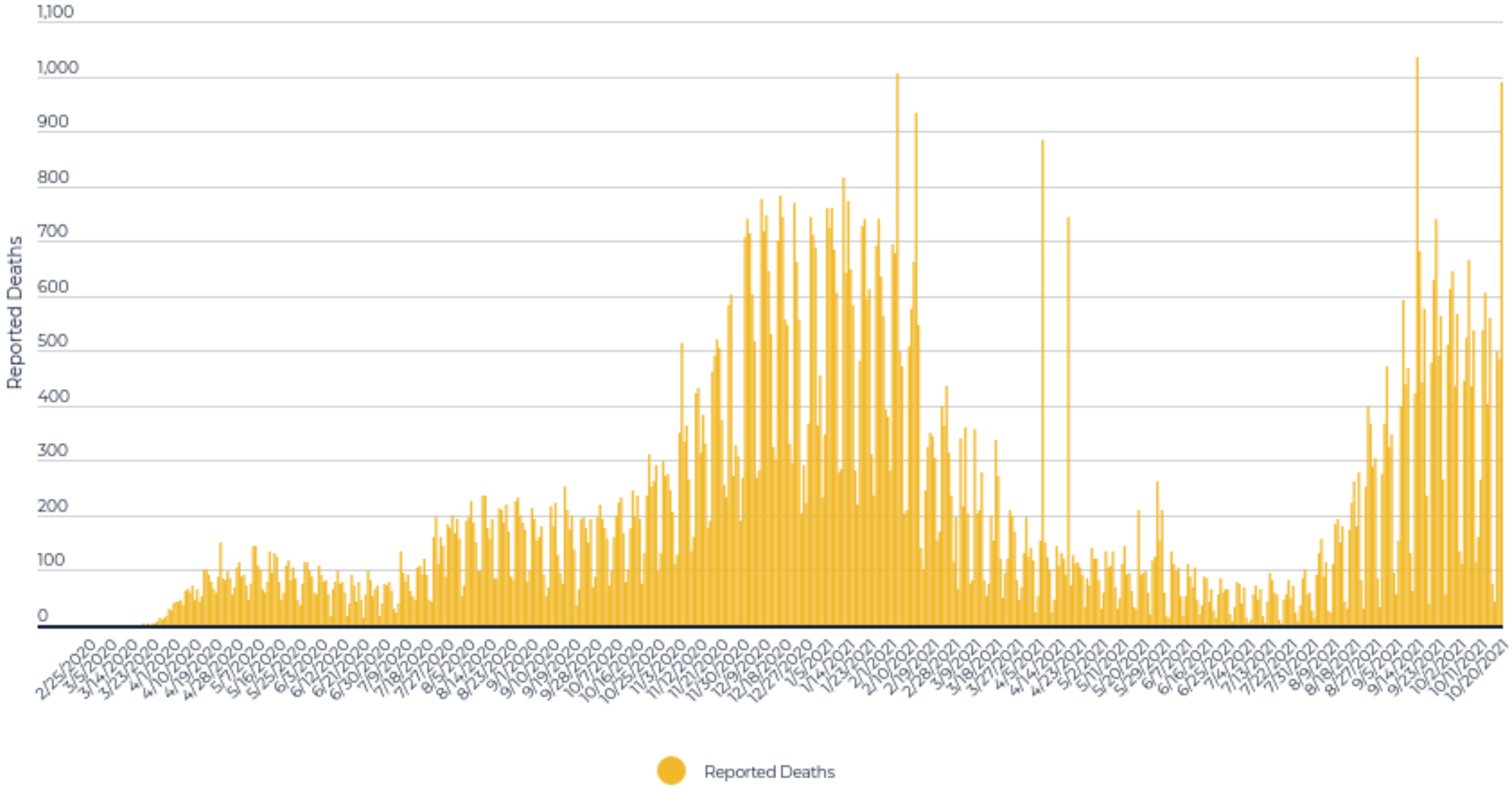
Housing Assistance Council

COVID-19 REPORTED DEATHS OUTSIDE OF METROPOLITAN AREAS

February 20, 2020 - October 20, 2021



Source: Housing Assistance Council Tabulations of Public Health Data from the New York Times

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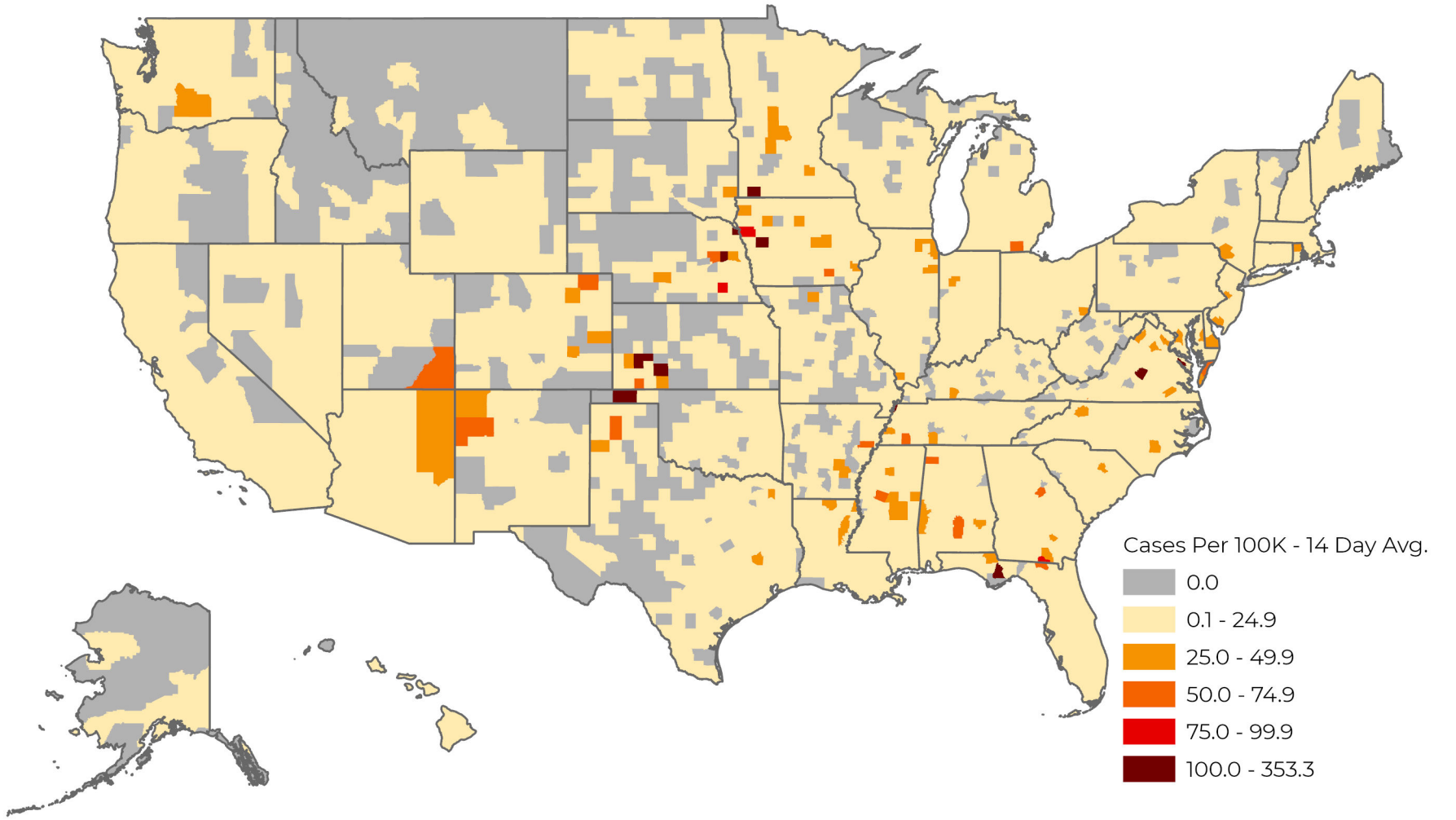
Housing Assistance Council

COVID-19 'HOT SPOTS' IN THE UNITED STATES
May 20, 2020



Source: Housing Assistance Council Tabulations of data from the New York Times

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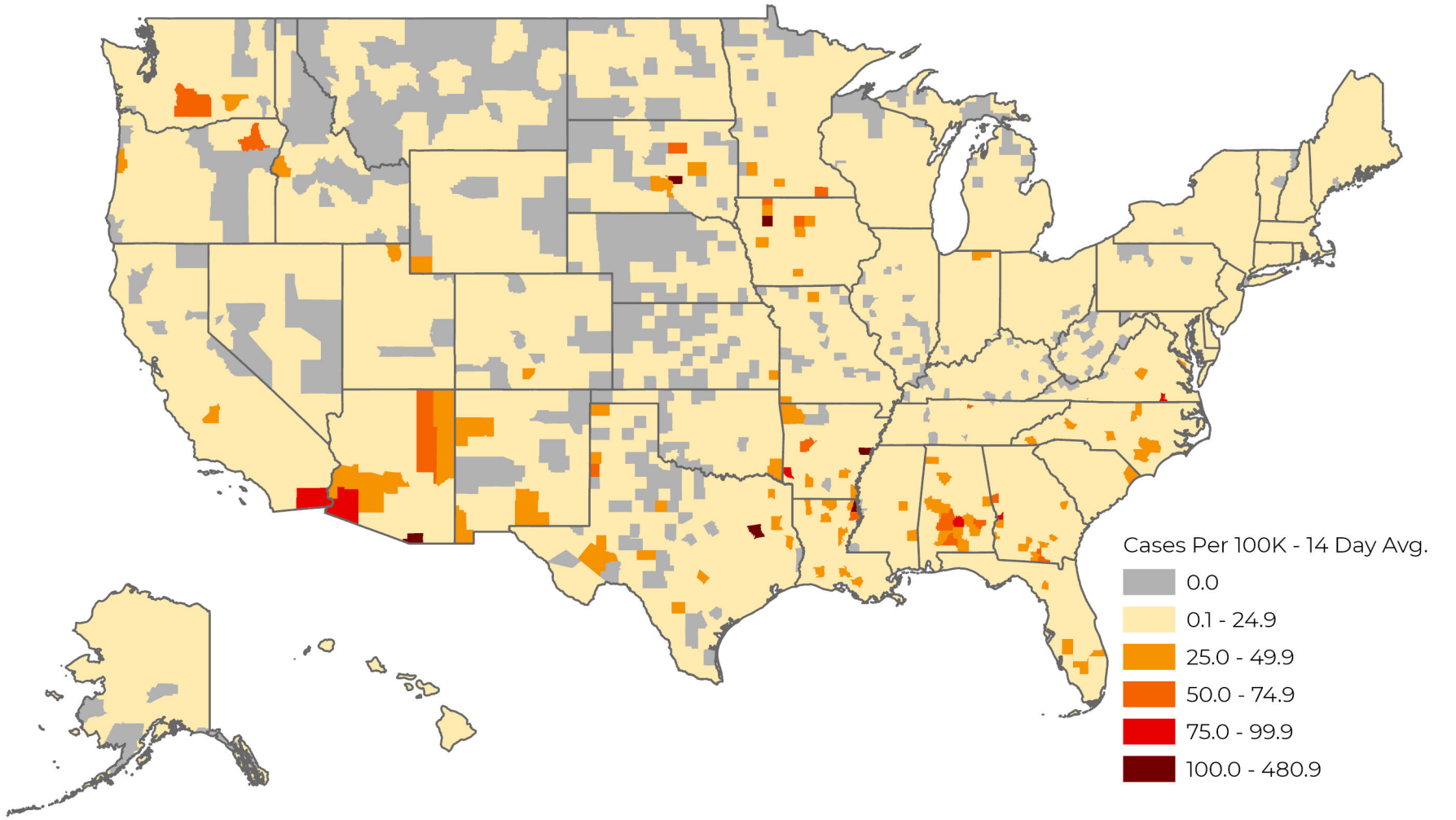
COVID-19 'HOT SPOTS' IN THE UNITED STATES
JUNE 20, 2020



Source: Housing Assistance Council Tabulations of data from the New York Times

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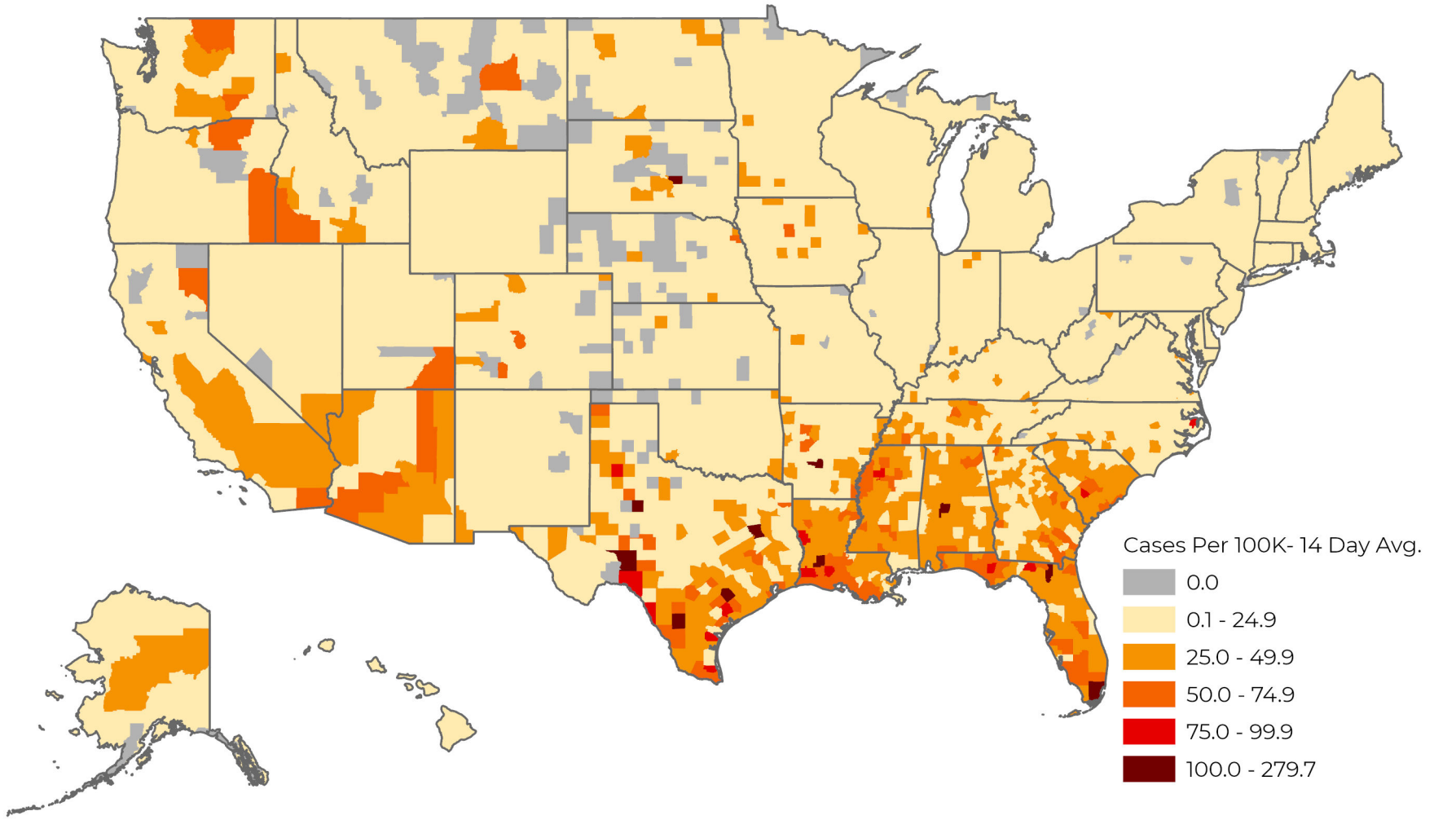
COVID-19 'HOT SPOTS' IN THE UNITED STATES
JULY 20, 2020



Source: Housing Assistance Council Tabulations of data from the New York Times

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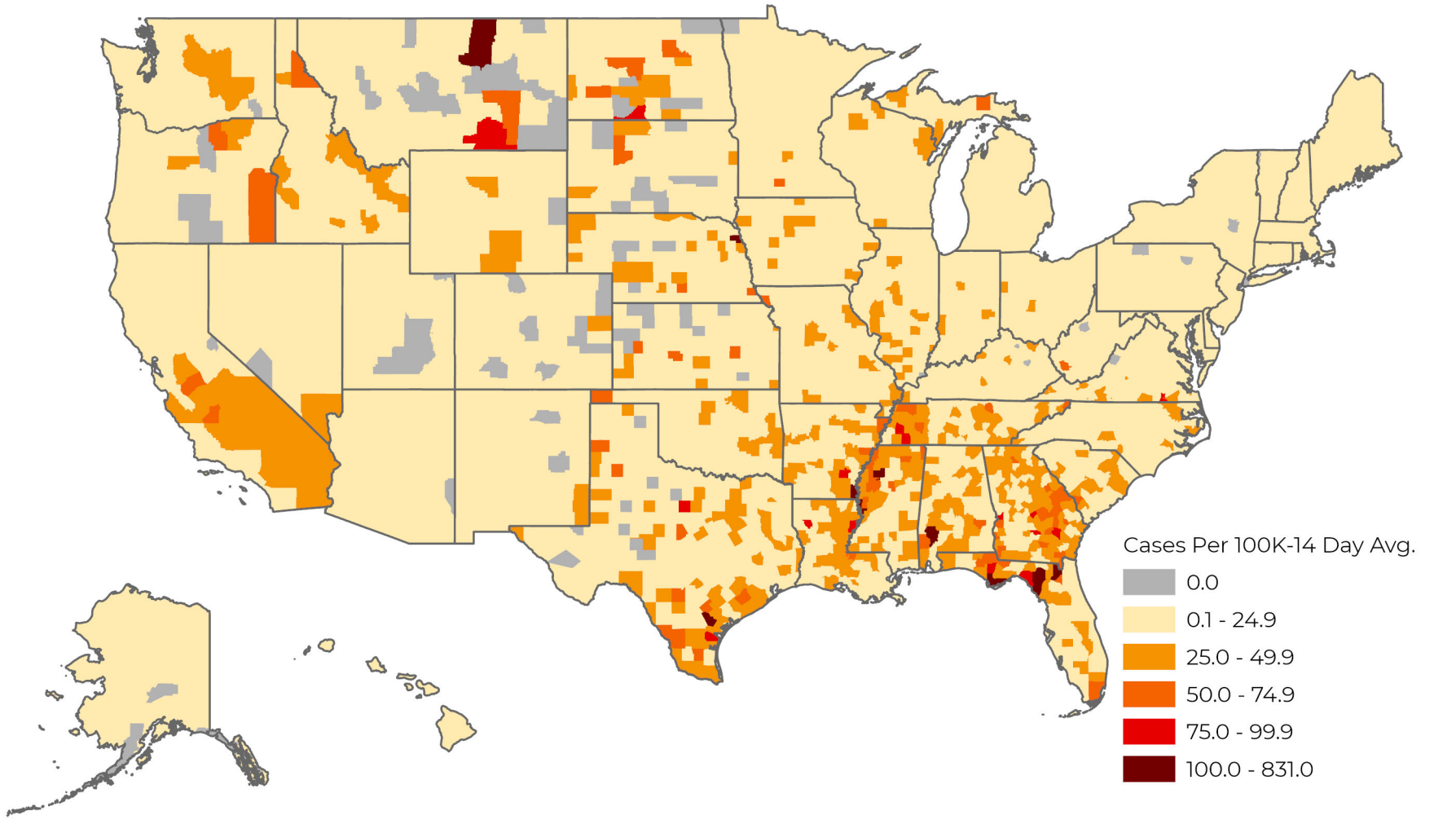
COVID-19 'HOT SPOTS' IN THE UNITED STATES
August 20, 2020



Source: Housing Assistance Council Tabulations of data from the New York Times

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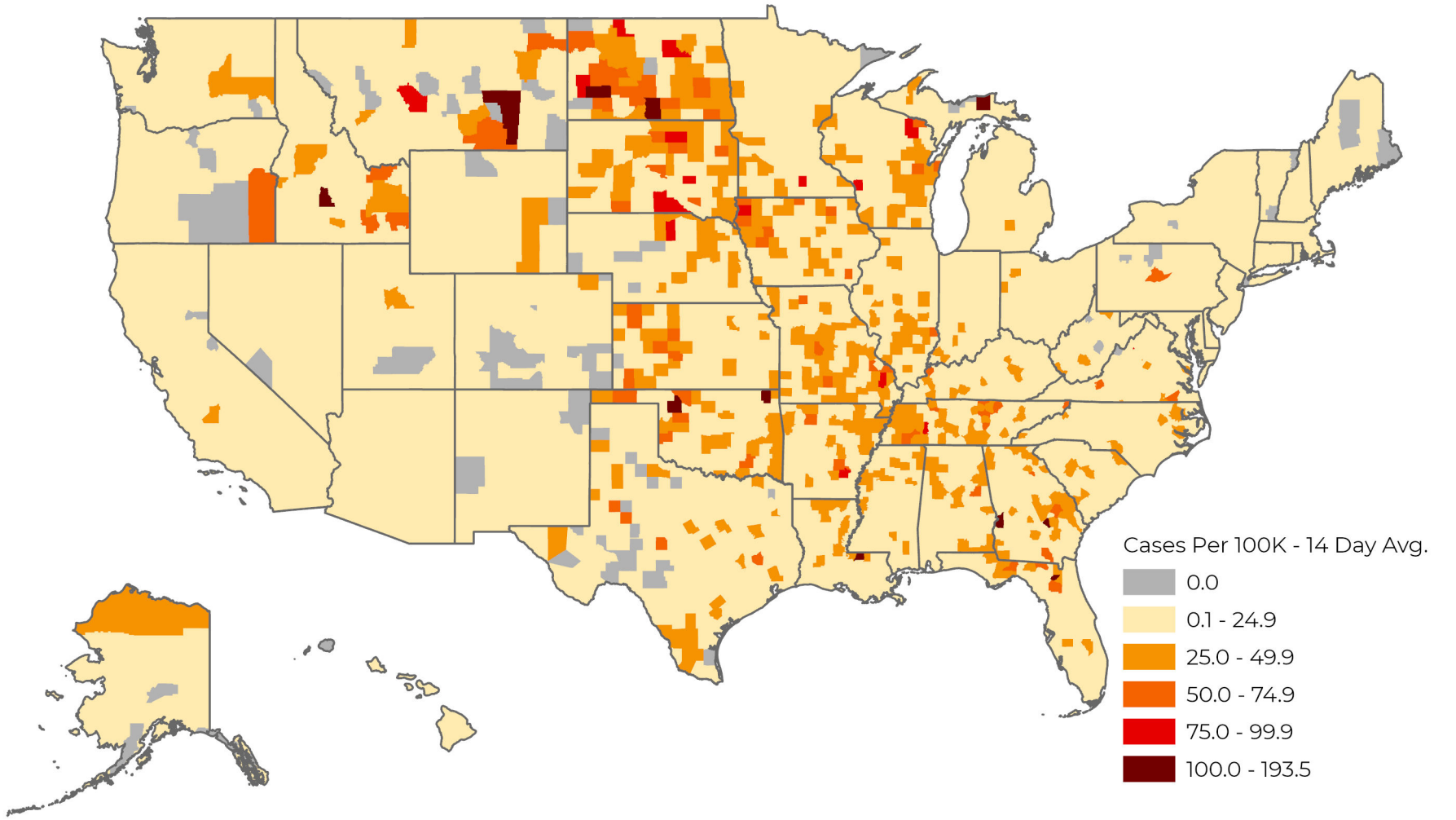
September 20, 2020



Source: Housing Assistance Council Tabulations of data from the New York Times

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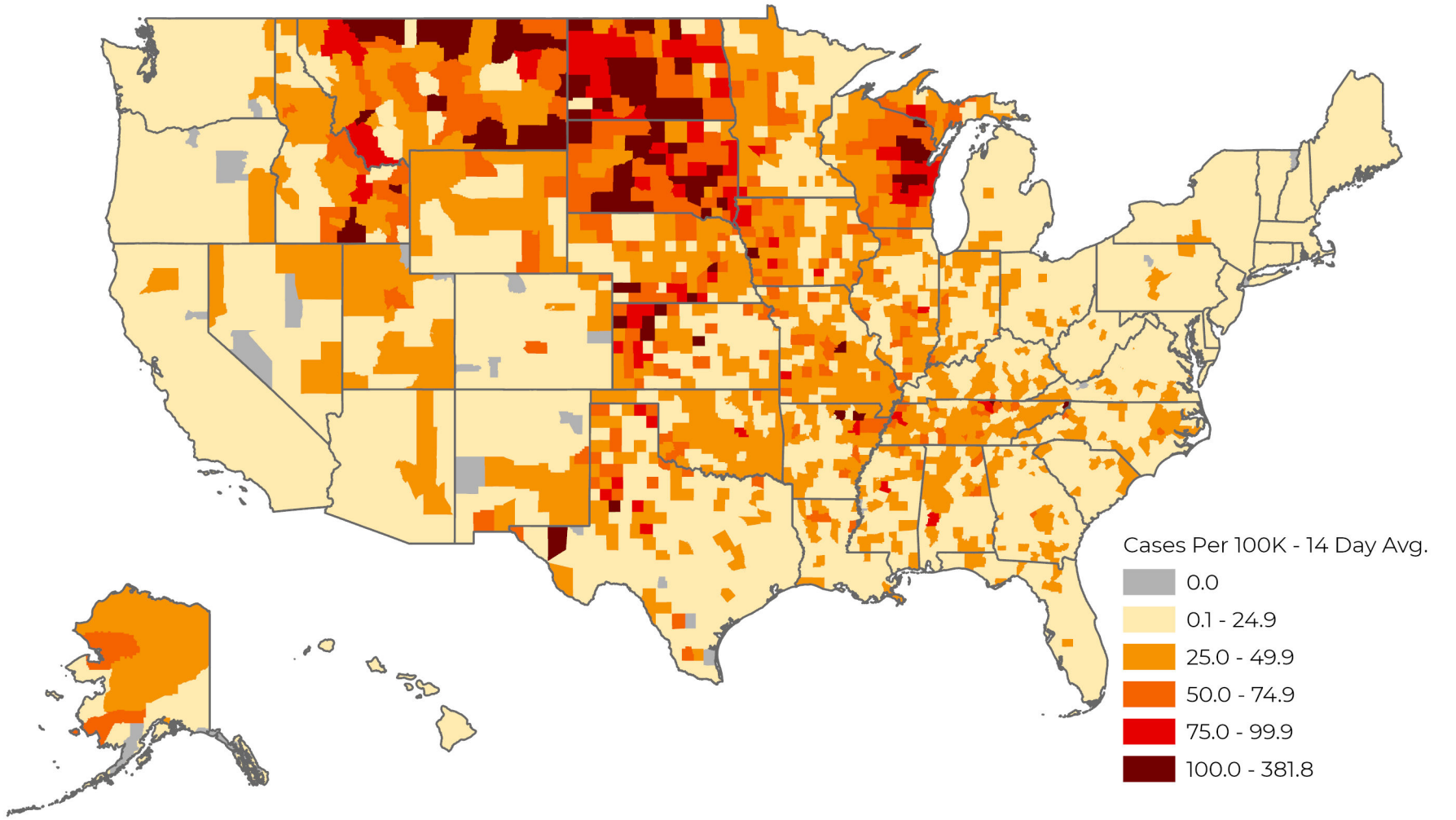
COVID-19 'HOT SPOTS' IN THE UNITED STATES
October 20, 2020



Source: Housing Assistance Council Tabulations of data from the New York Times

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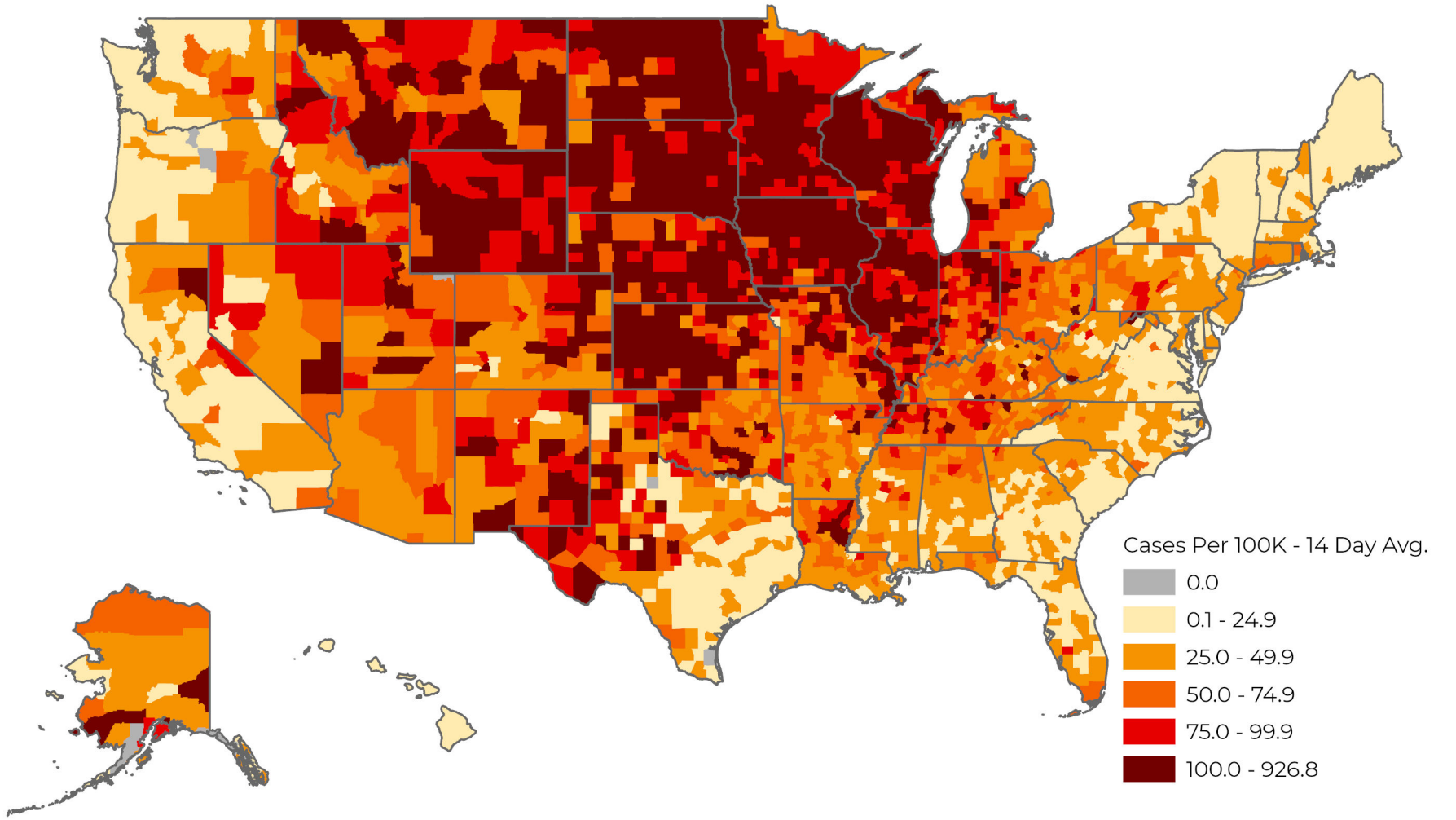
COVID-19 'HOT SPOTS' IN THE UNITED STATES
November 20, 2020



Source: Housing Assistance Council Tabulations of data from the New York Times

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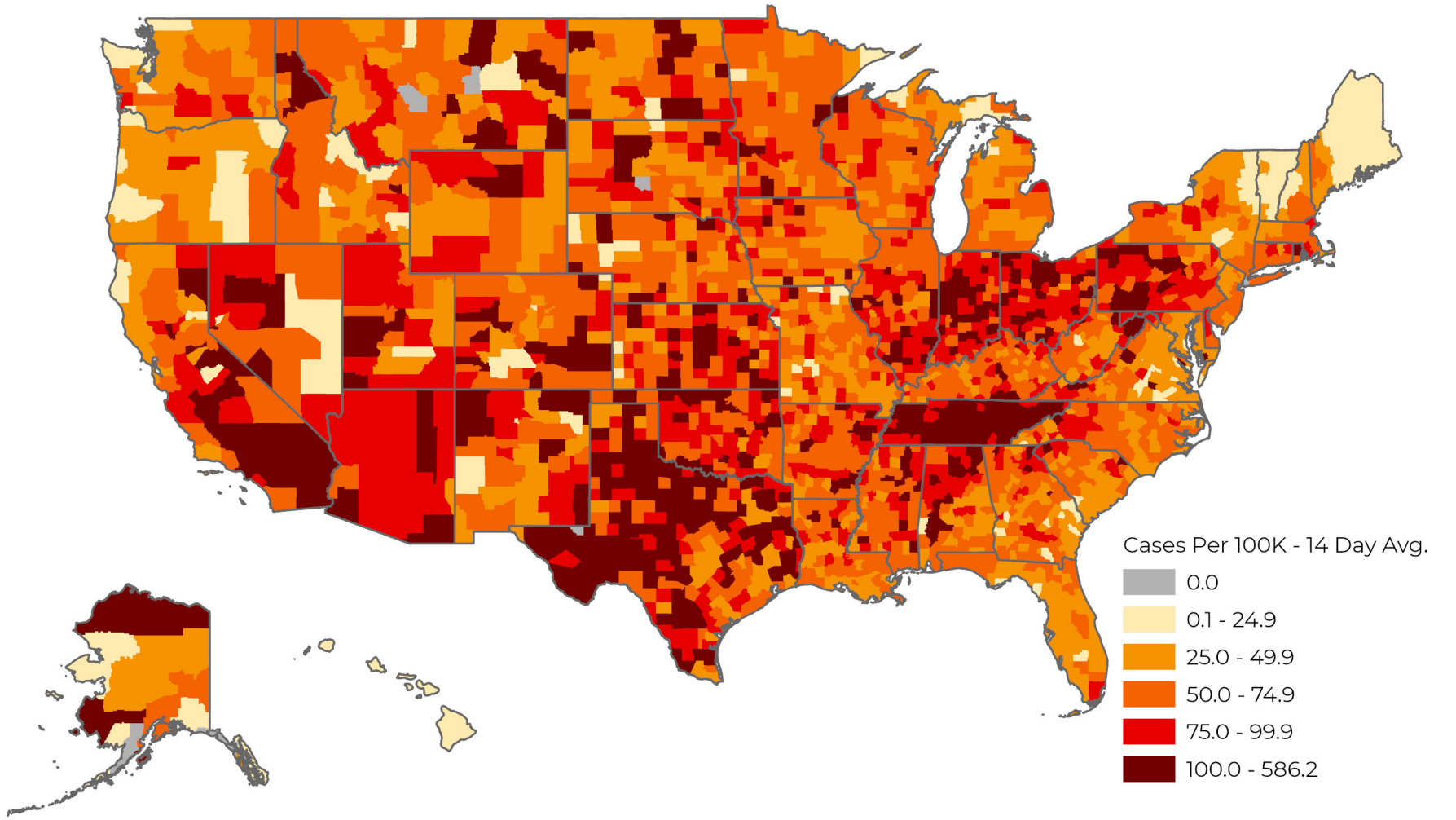
COVID-19 'HOT SPOTS' IN THE UNITED STATES
December 20, 2020



Source: Housing Assistance Council Tabulations of data from the New York Times

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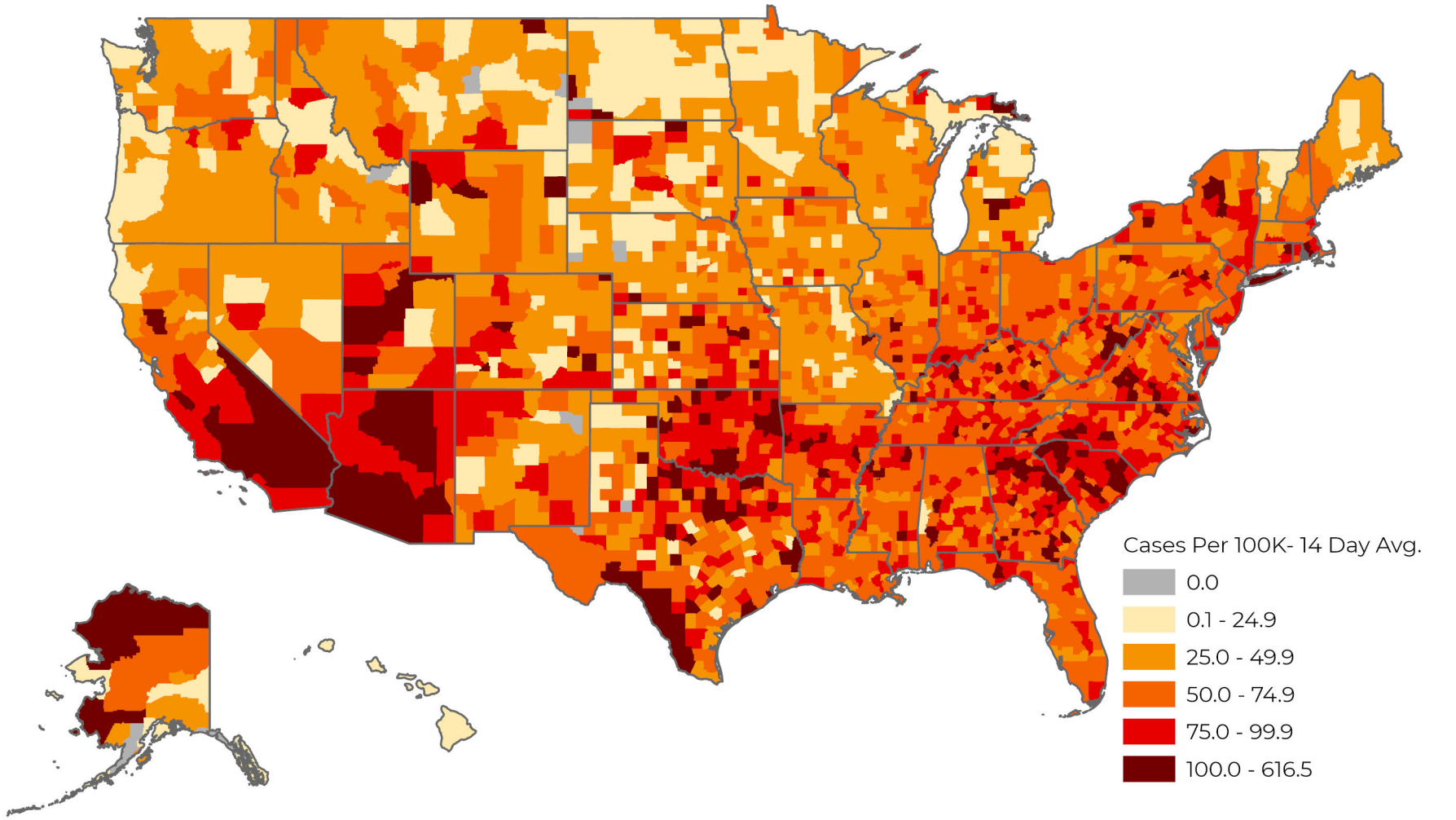
COVID-19 'HOT SPOTS' IN THE UNITED STATES
January 20, 2021



Source: Housing Assistance Council Tabulations of data from the New York Times

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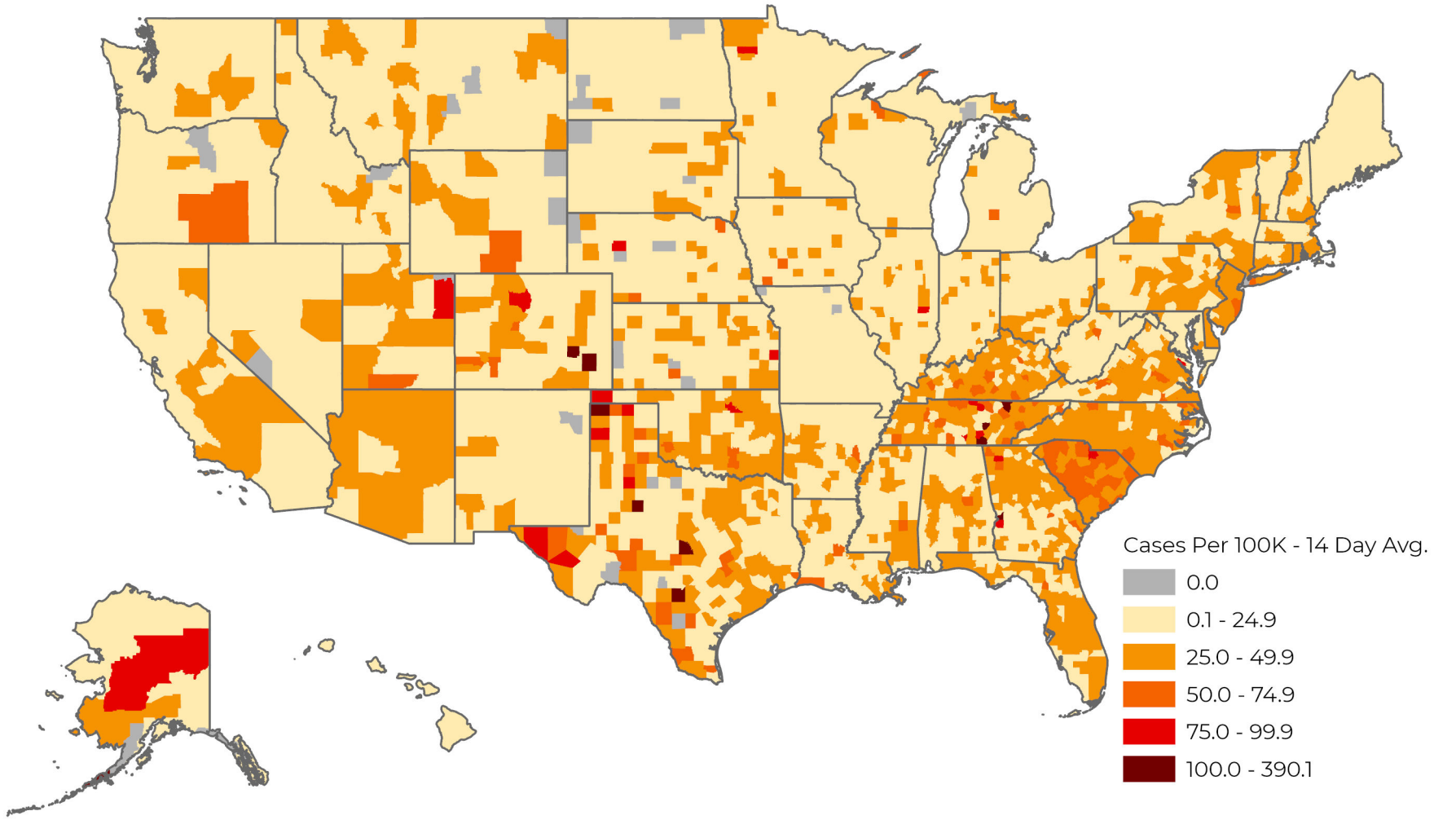
COVID-19 'HOT SPOTS' IN THE UNITED STATES
February 20, 2021



Source: Housing Assistance Council Tabulations of data from the New York Times

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COVID-19 'HOT SPOTS' IN THE UNITED STATES
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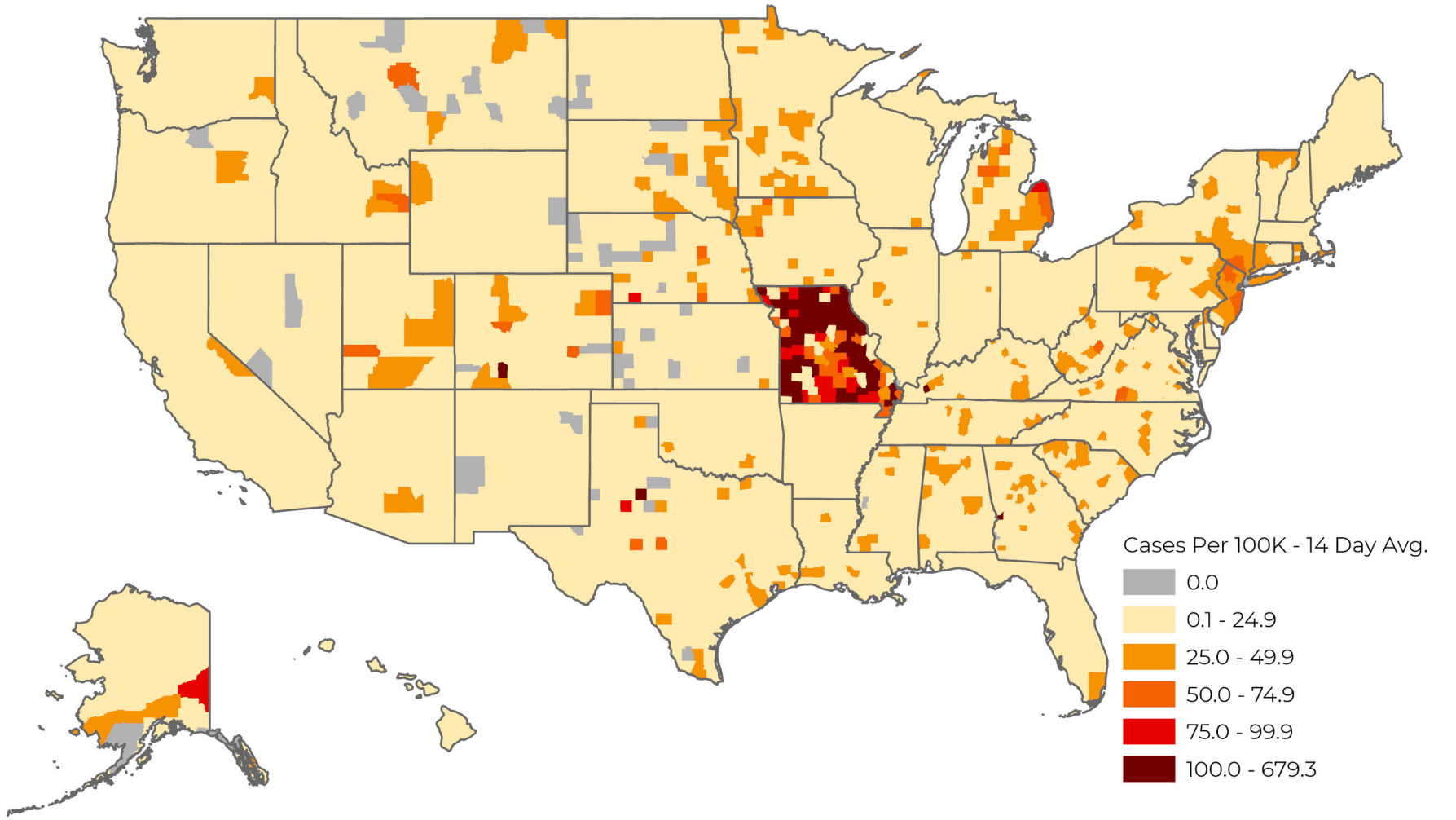

Source: Housing Assistance Council Tabulations of data from the New York Times

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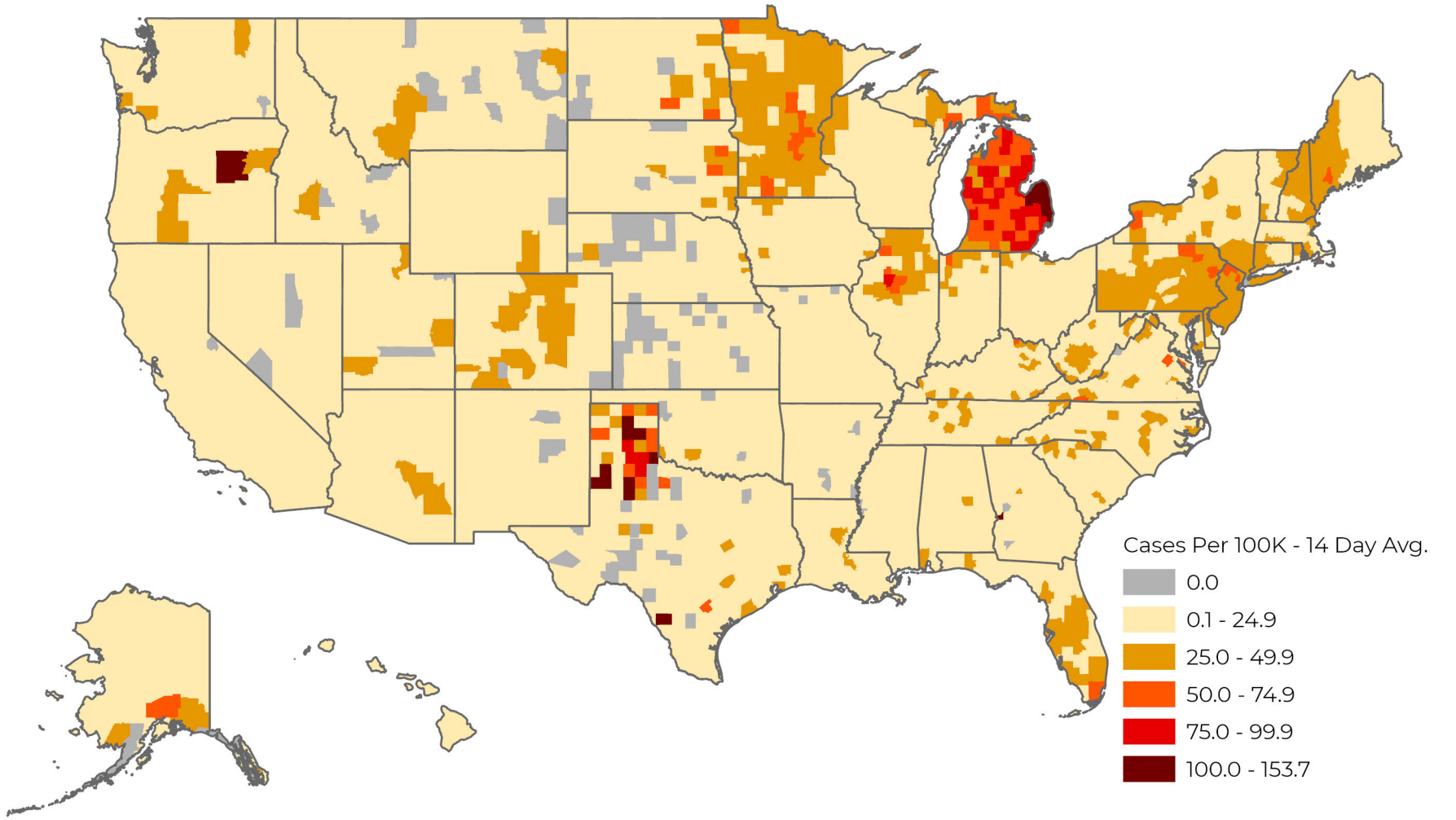
COVID-19 'HOT SPOTS' IN THE UNITED STATES
April 20, 2021



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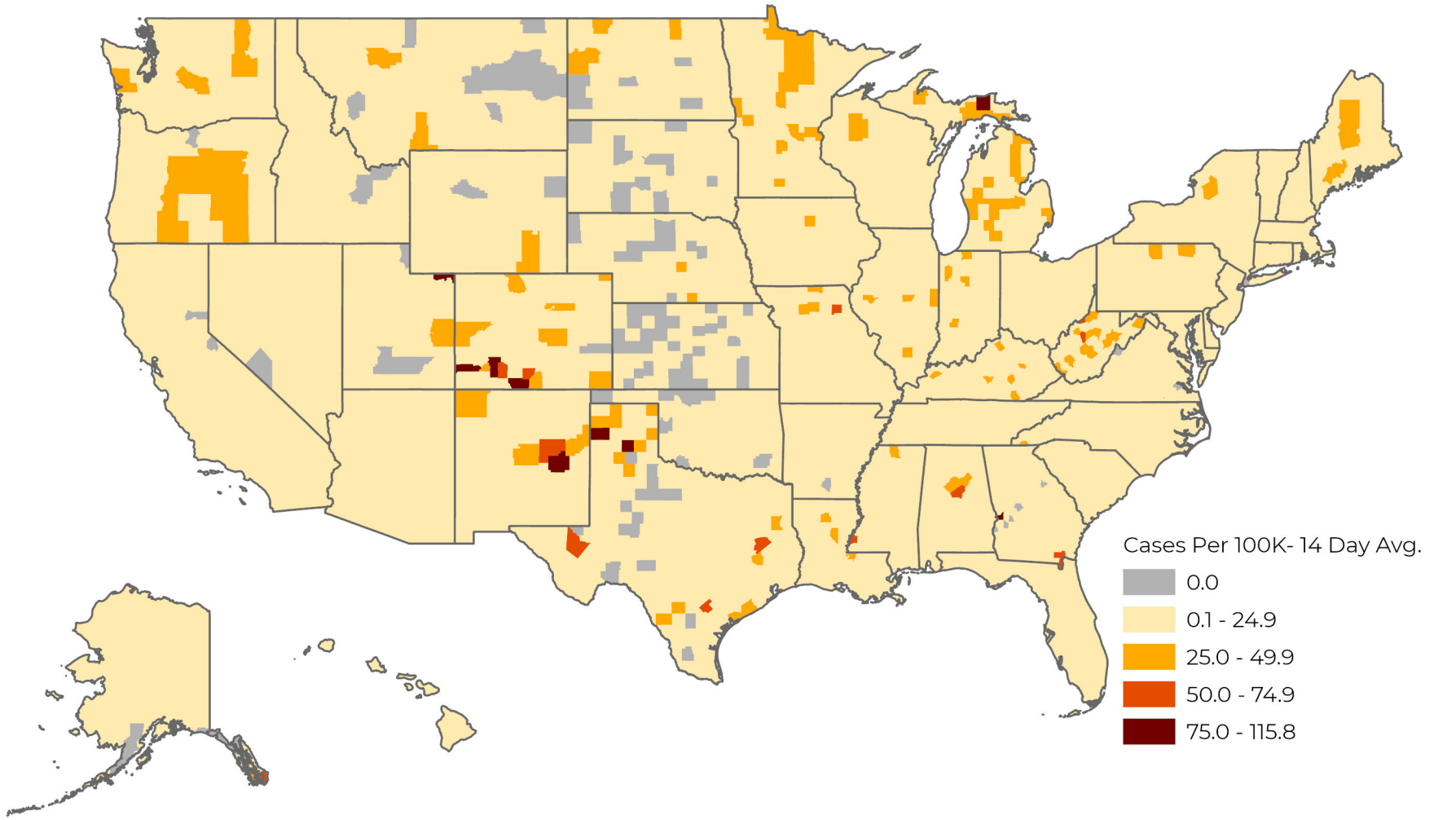

Source: Housing Assistance Council Tabulations of data from the New York Times

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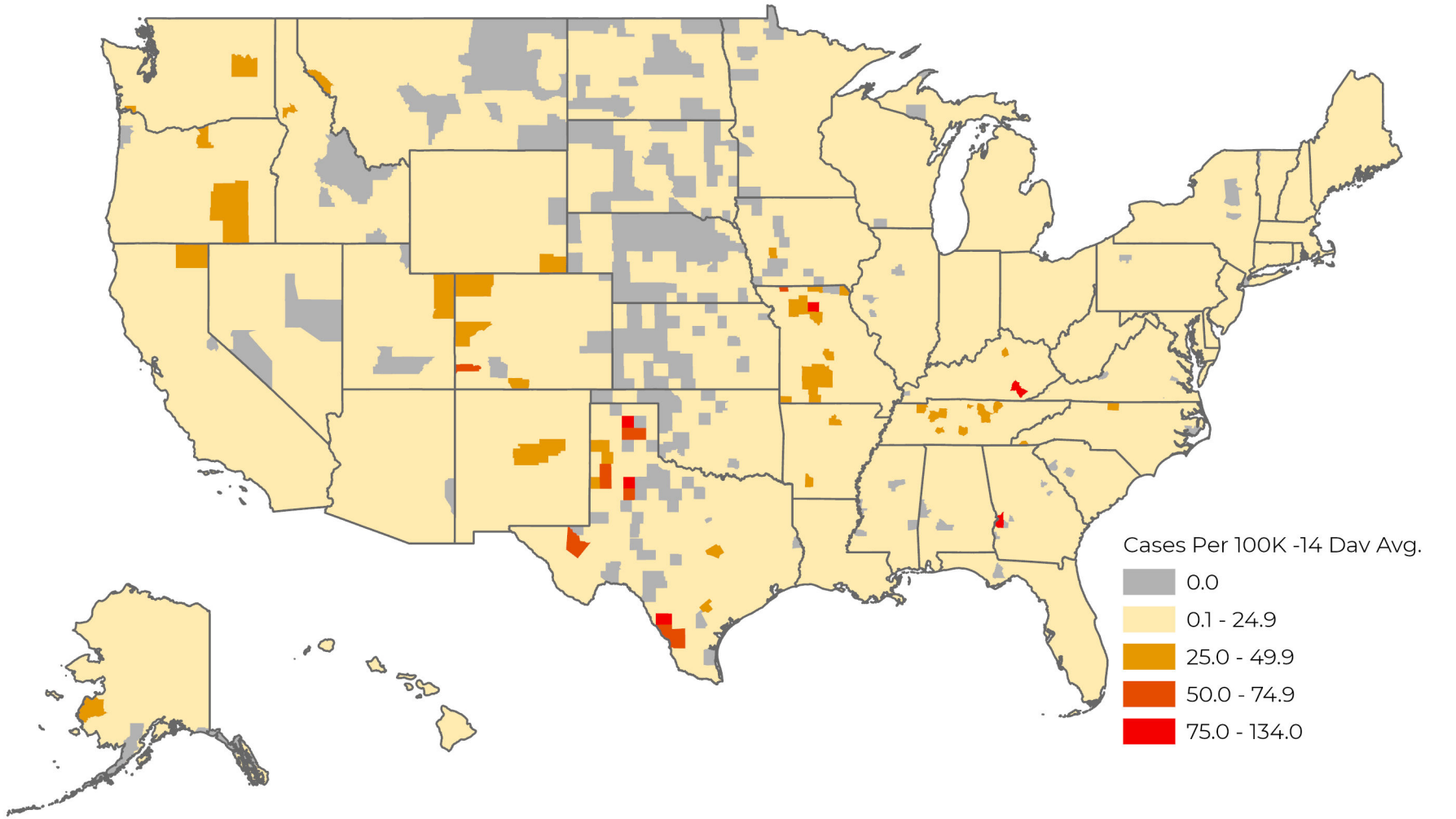
COVID-19 'HOT SPOTS' IN THE UNITED STATES
June 20, 2021



Source: Housing Assistance Council Tabulations of data from the New York Times

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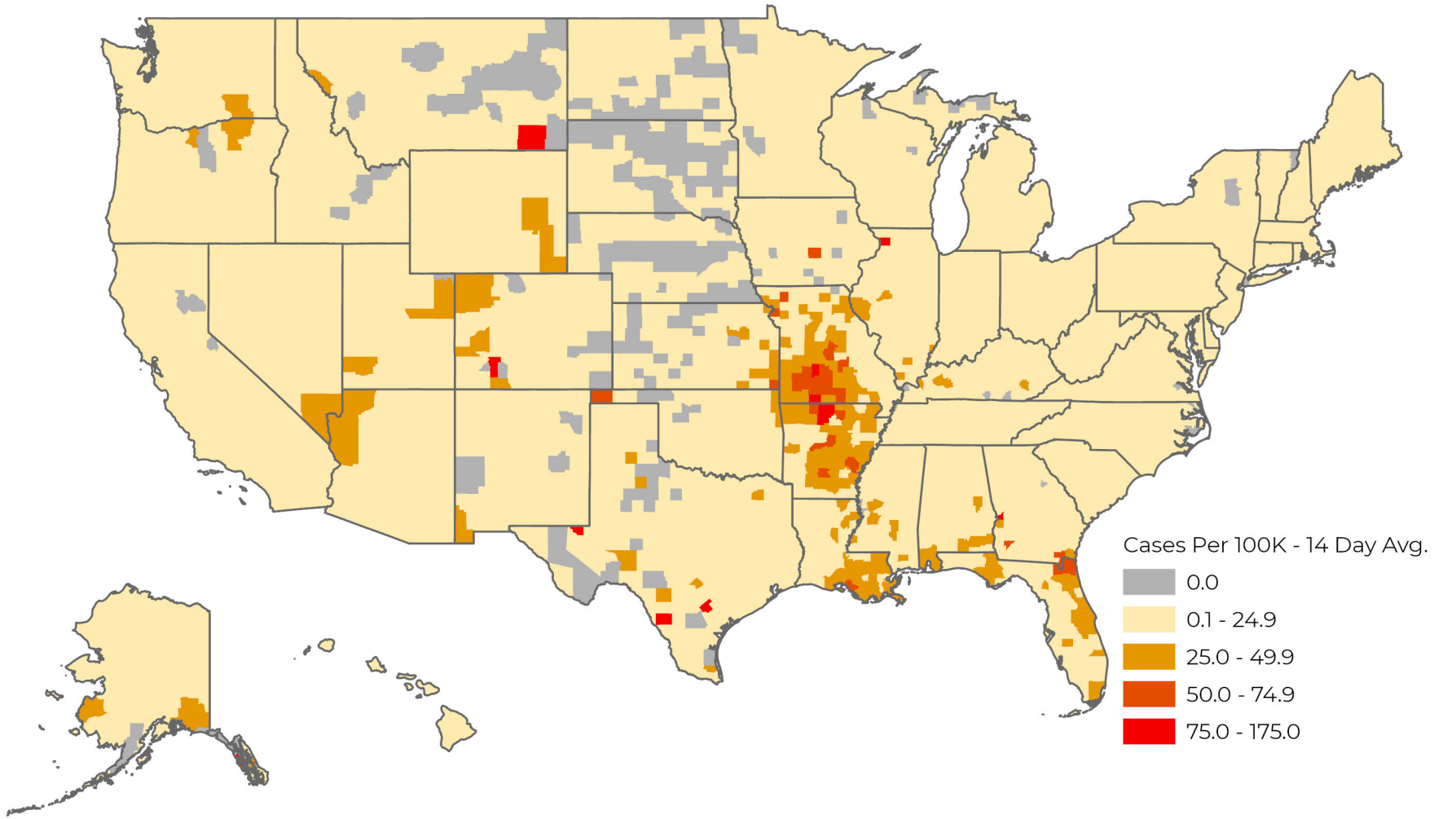
COVID-19 'HOT SPOTS' IN THE UNITED STATES
July 20, 2021



Source: Housing Assistance Council Tabulations of data from the New York Times

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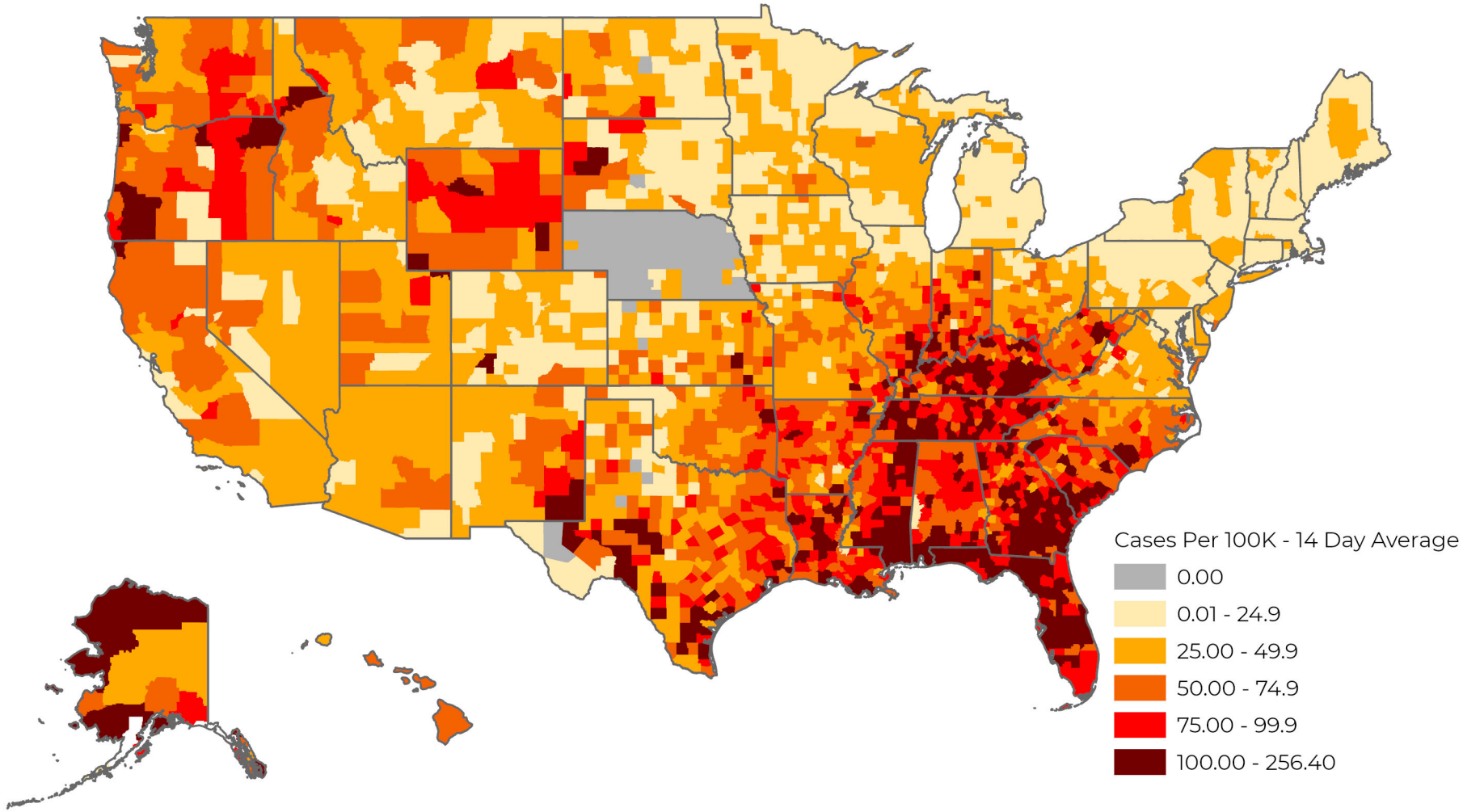
COVID-19 'HOT SPOTS' IN THE UNITED STATES
August 30, 2021



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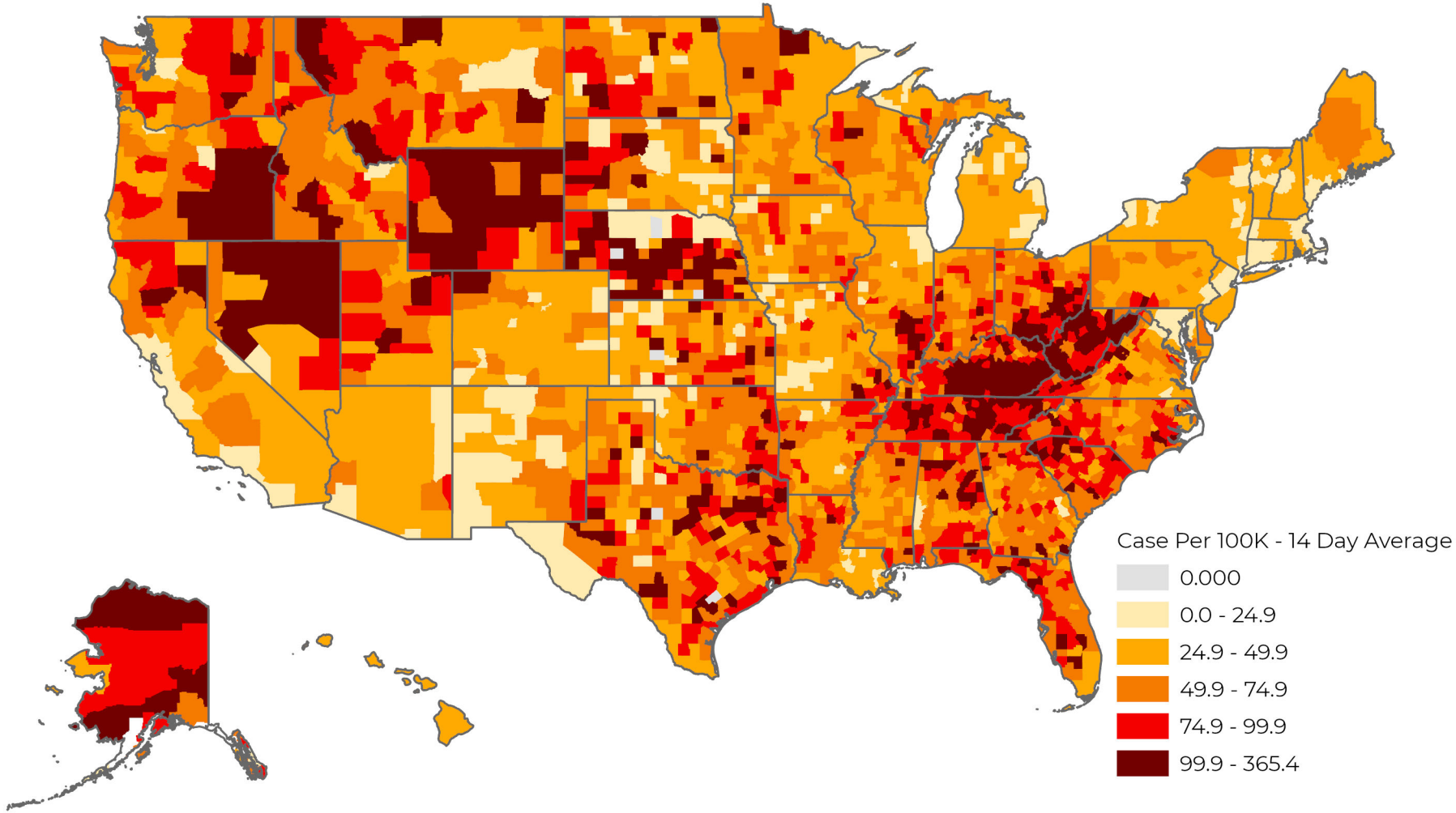
September 20, 2021



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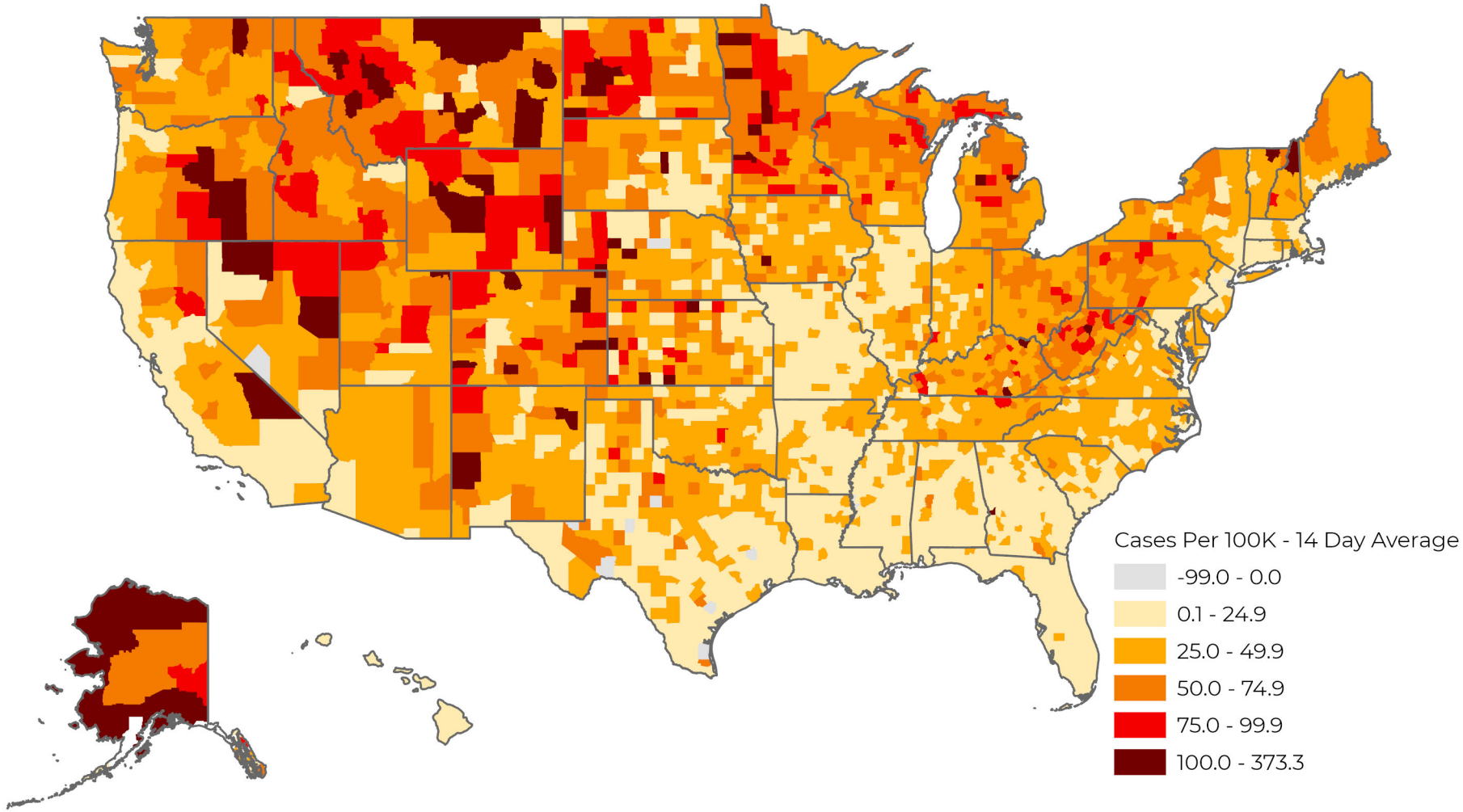

How has (or Will) COVID-19 Changed The Provision of Housing in Rural America?

Photo: Jen *The I More Work to Be done*

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The Rural Housing Ecosystem is Still Uncertain

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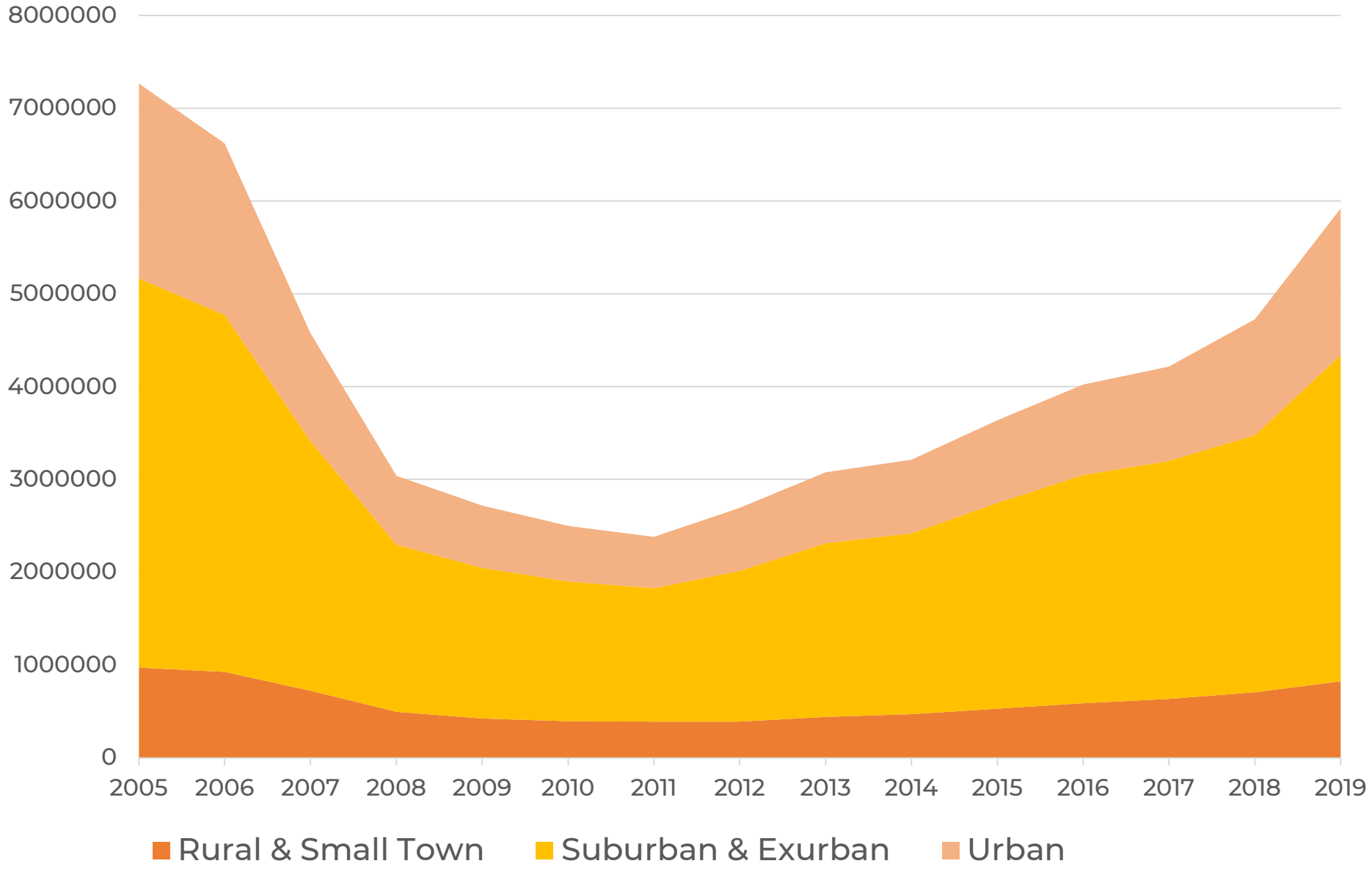
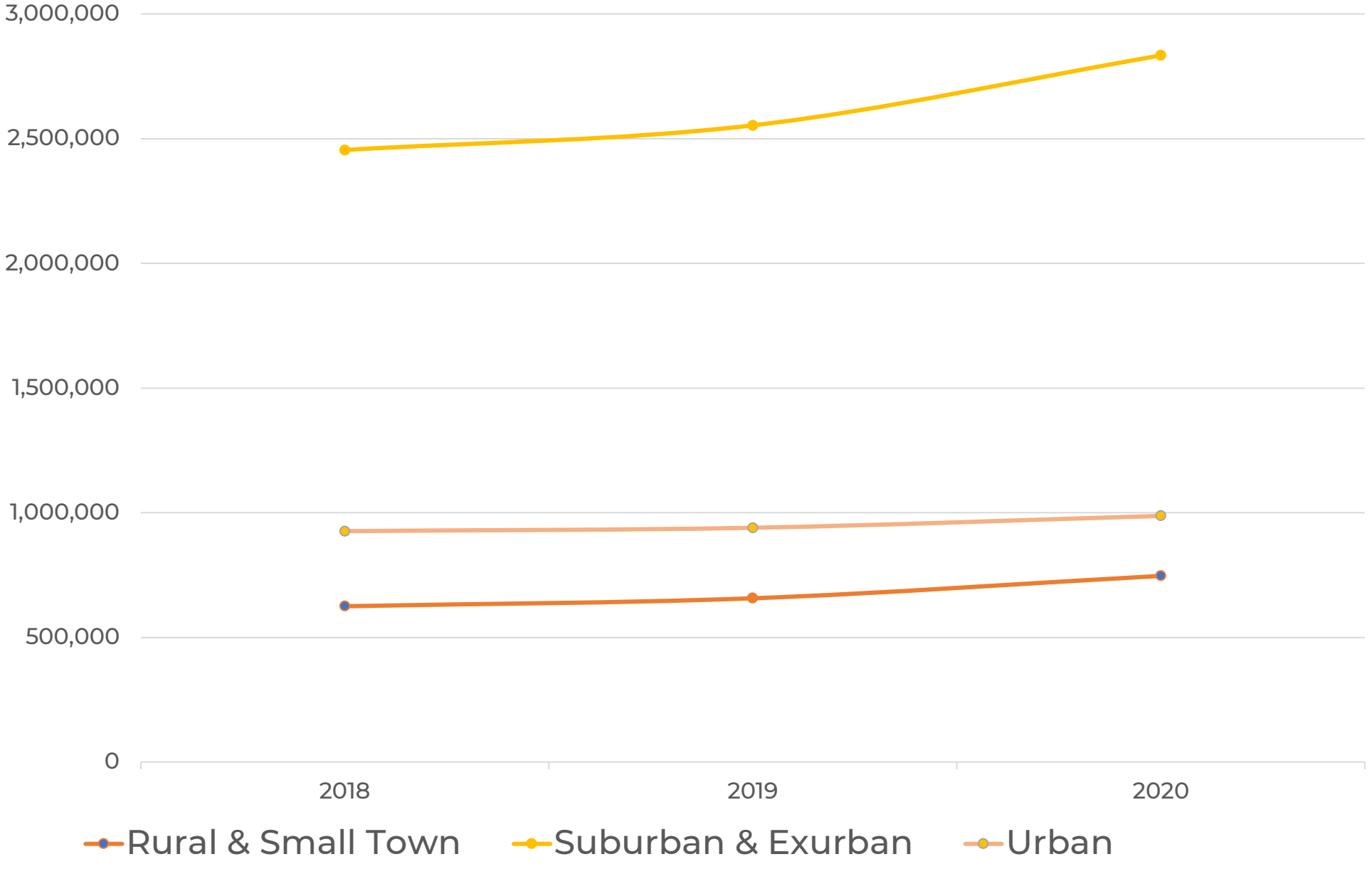
HOME PURCHASE LOAN ORIGINATIONS, 2005-2019

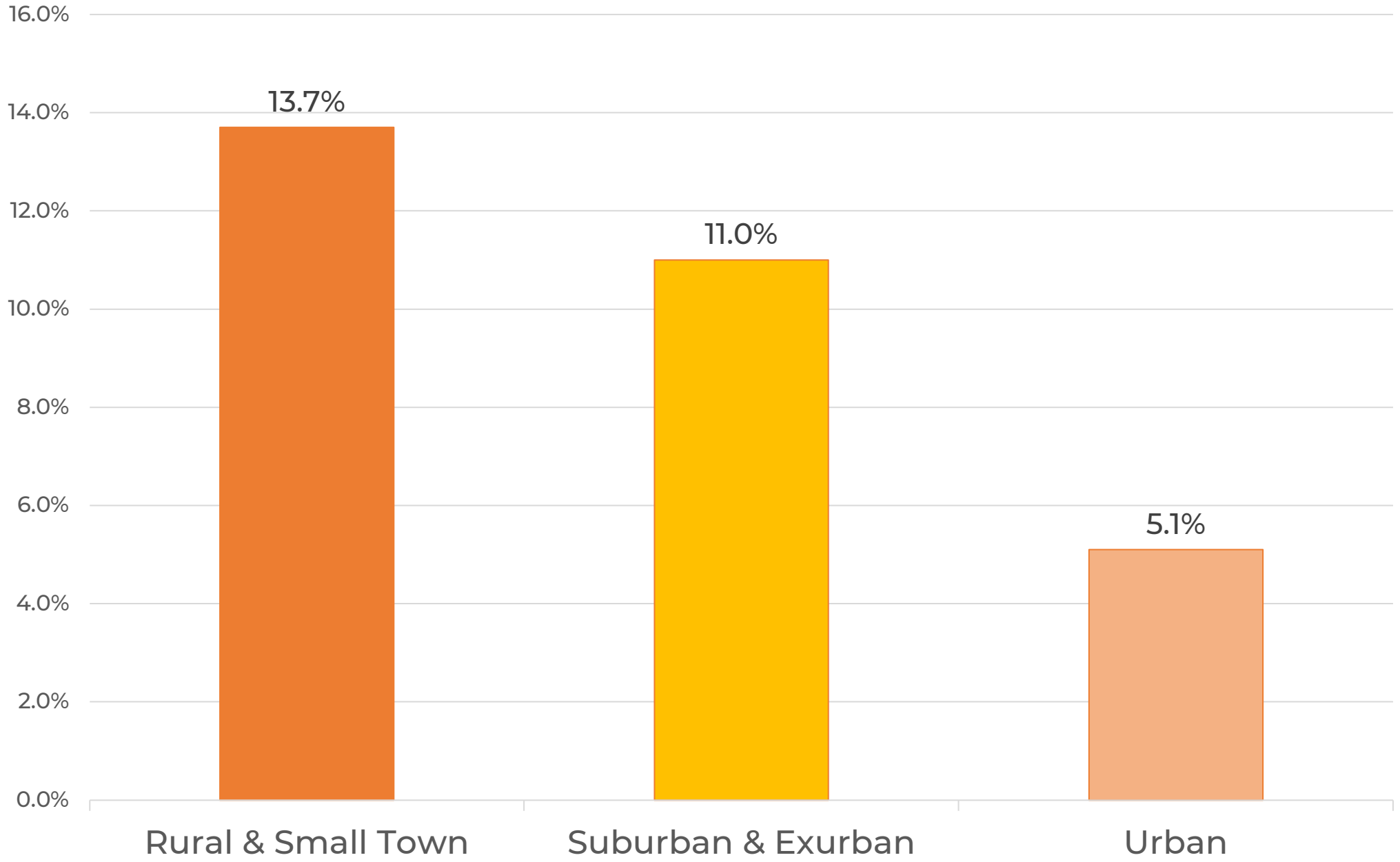


Source: Housing Assistance Council Tabulations of CFPB's 2005-2019 Home Mortgage Disclosure Data

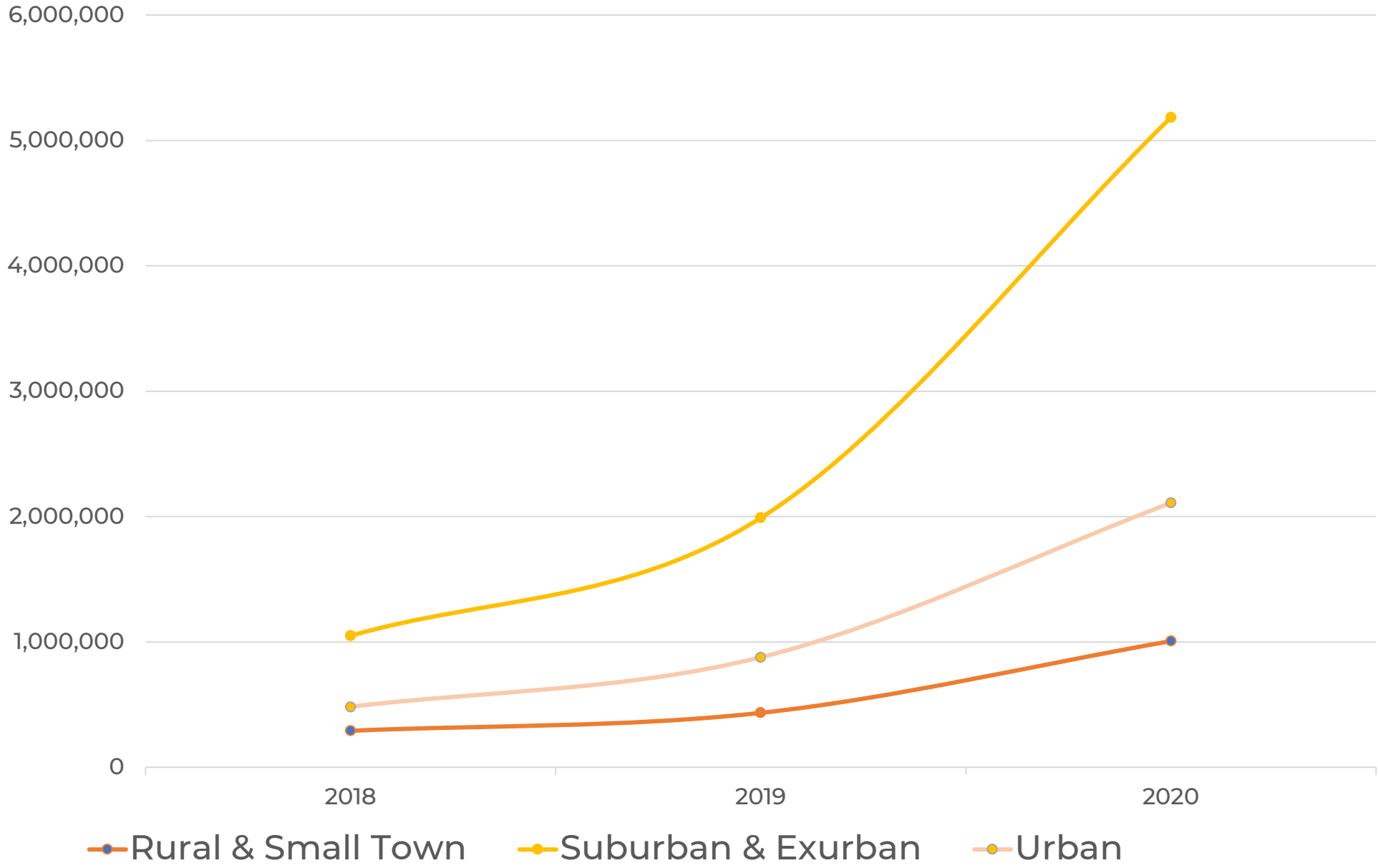
HOME PURCHASE ORIGINATIONS 2018-2020



PERCENT CHANGE IN HOME PURCHASE ORIGINATIONS, 2019-2020

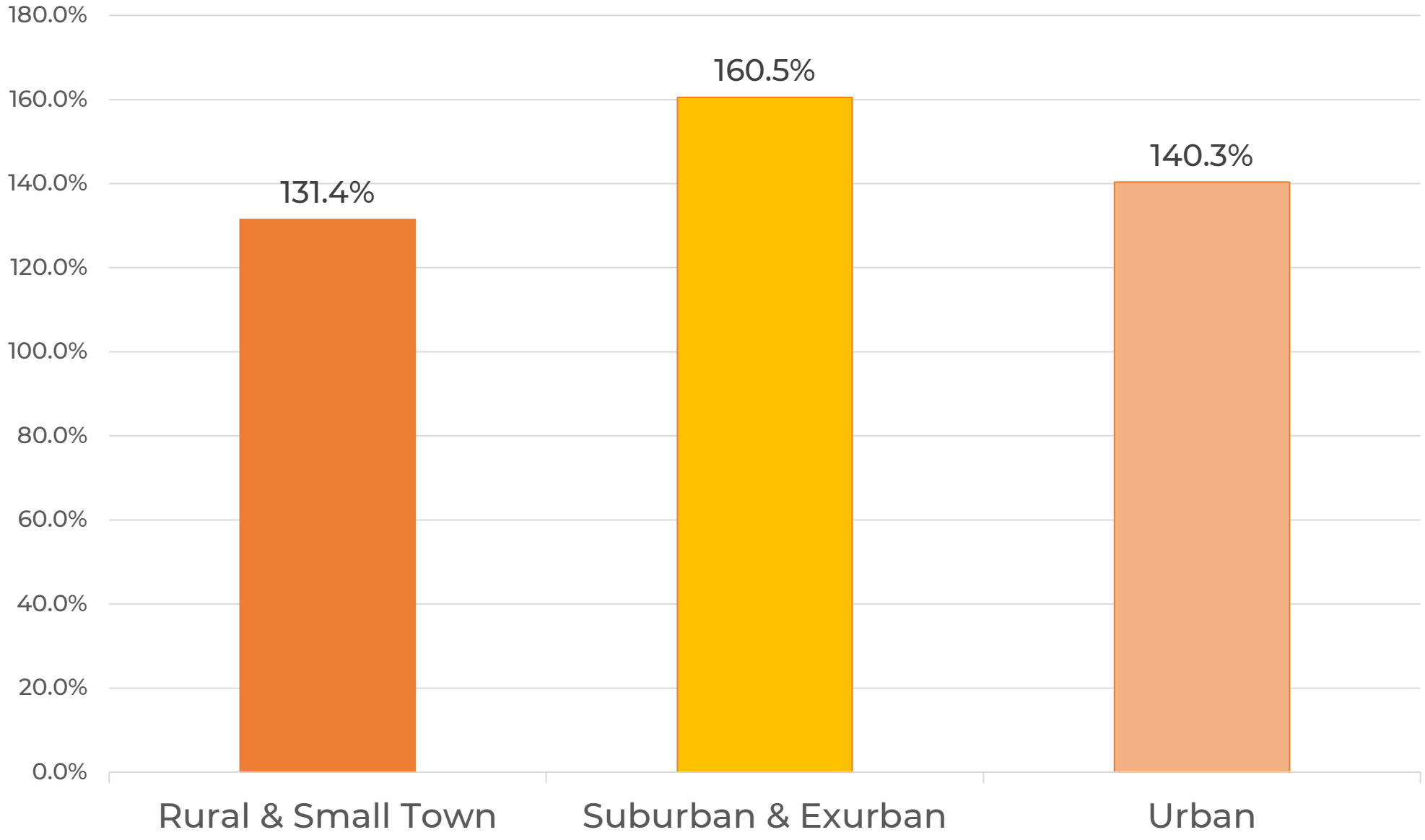


HOME REFINANCE ORIGINATIONS 2018-2020



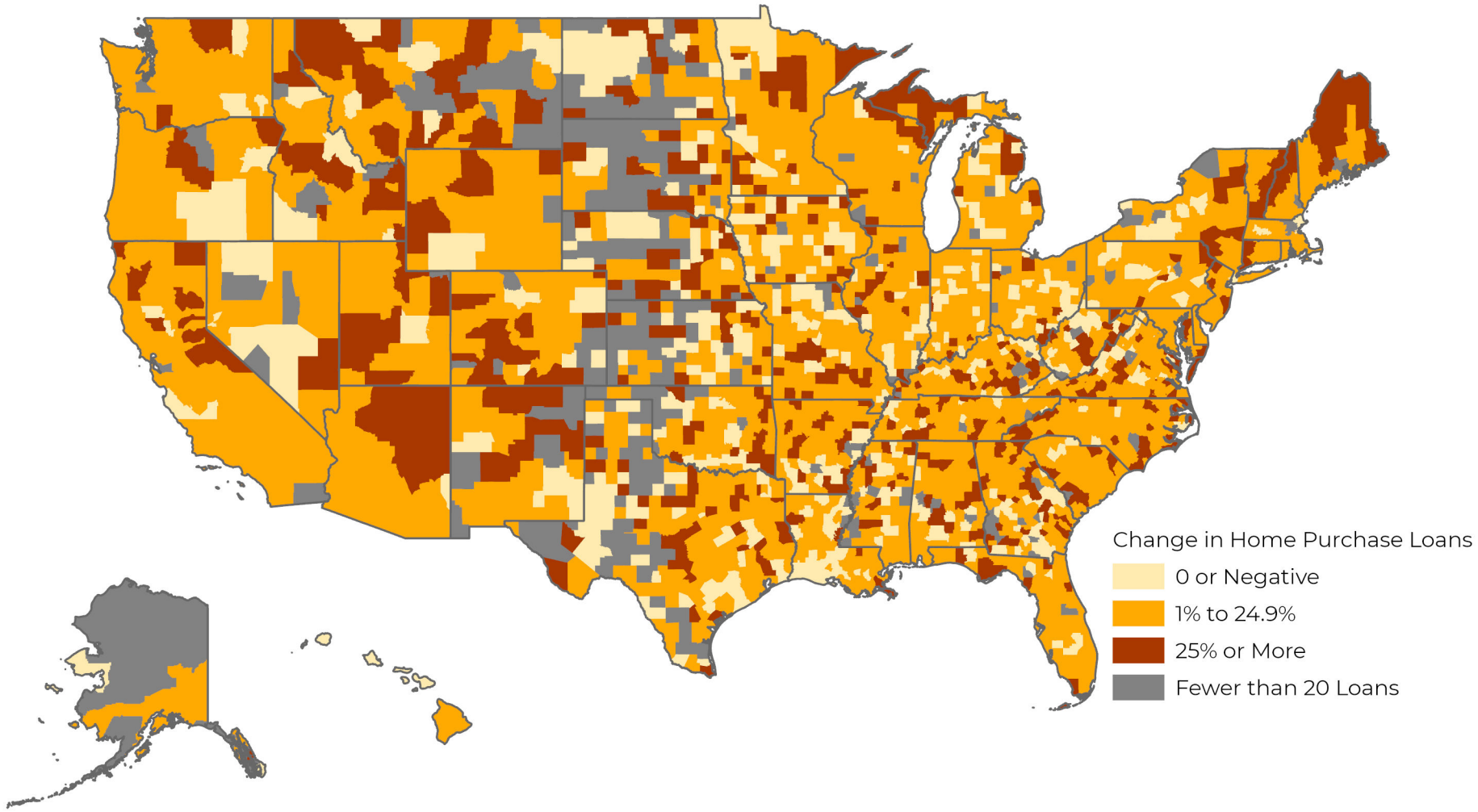
Source: Housing Assistance Council Tabulations of CFPB's 2018-2020 Home Mortgage Disclosure Data

PERCENT CHANGE IN HOME REFINANCE ORIGINATIONS, 2019-2020



Source: Housing Assistance Council Tabulations of CFPB's 2019-2020 Home Mortgage Disclosure Data

CHANGE IN HOME PURCHASE ORIGINATIONS 2019-2020



Source: Housing Assistance Council Tabulations of 2019-2020 Home Mortgage Disclosure Act Data

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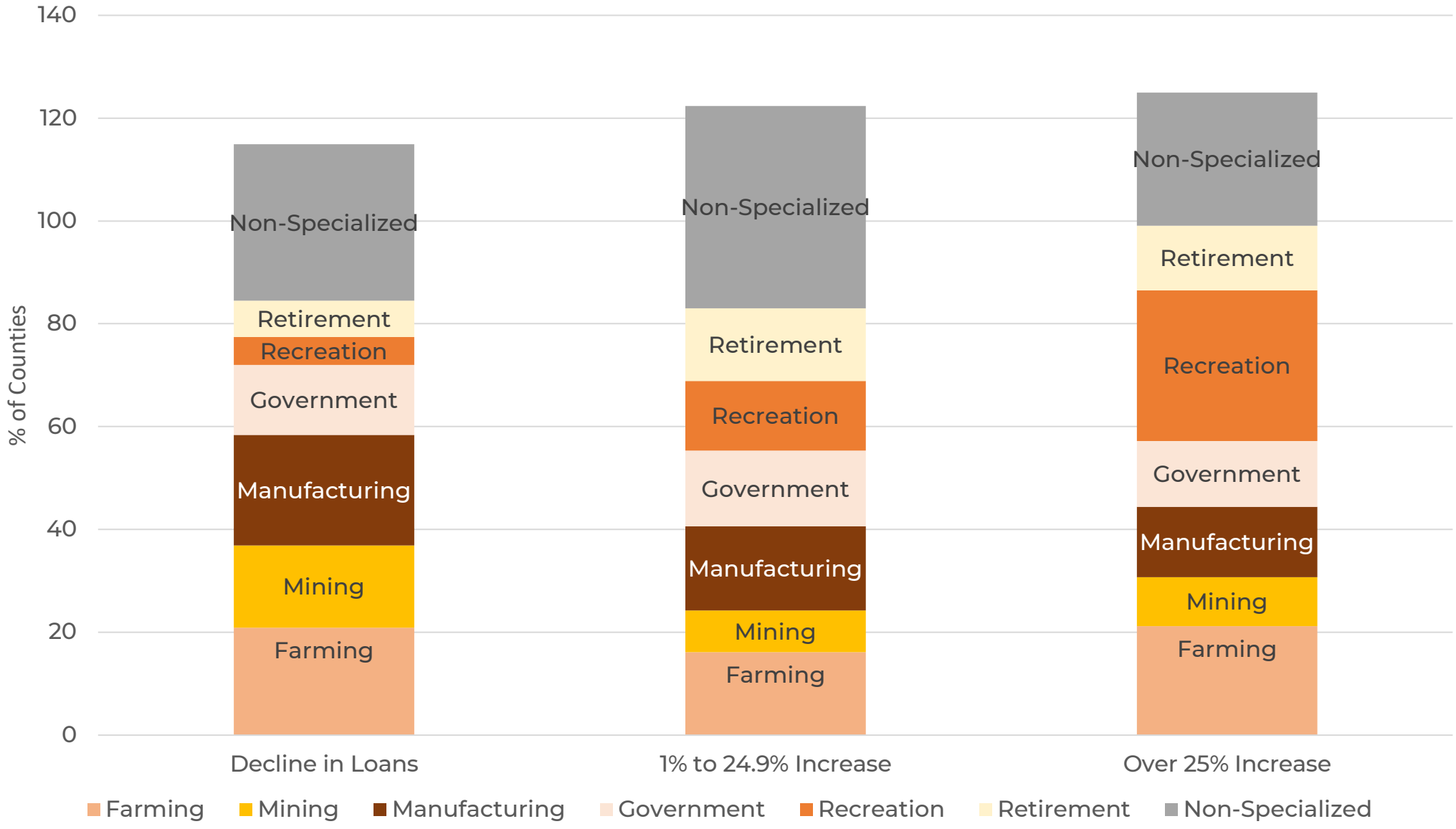
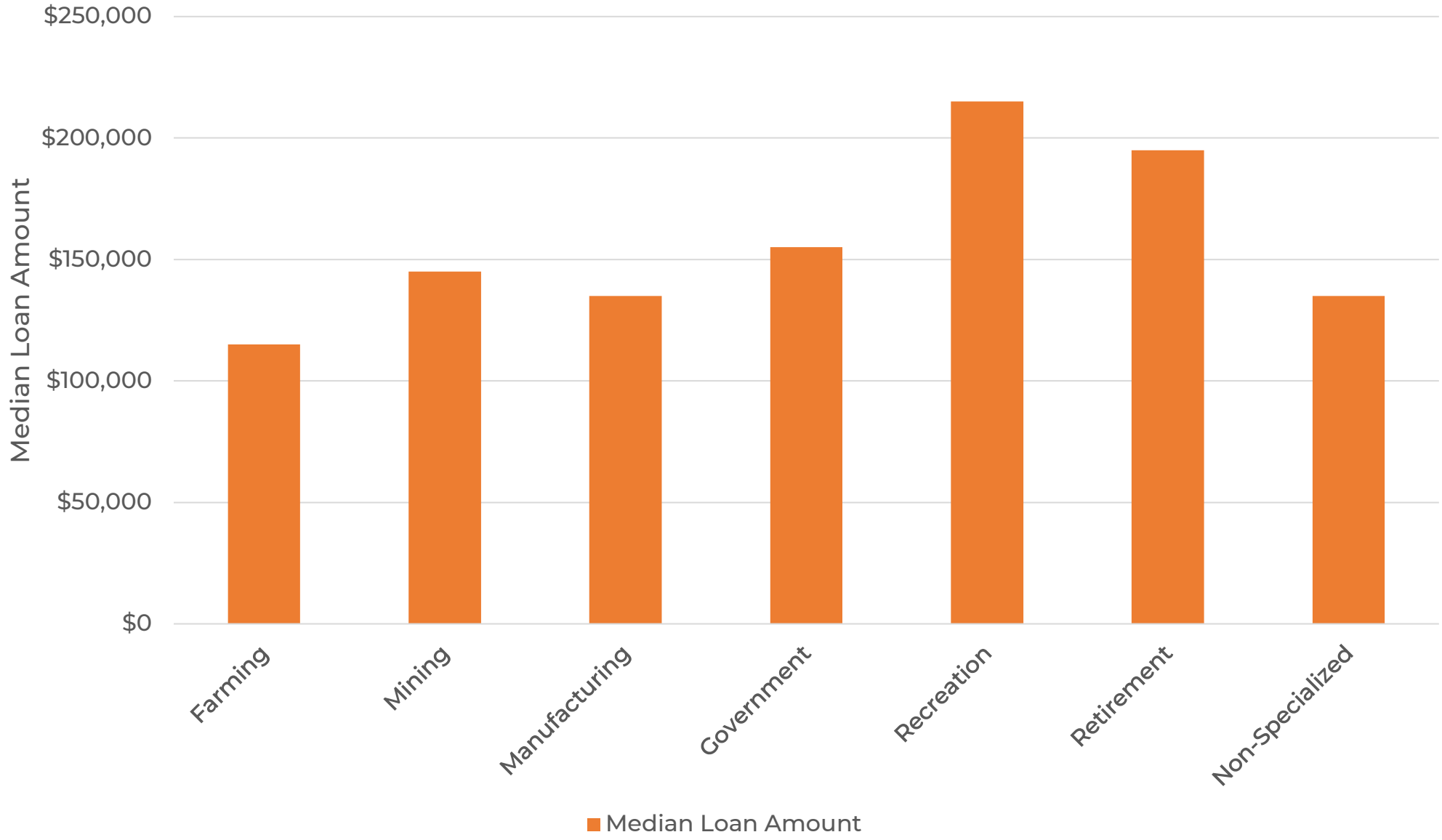
CHANGE IN OUTSIDE METROPOLITAN MORTGAGE ORIGINATIONS BY ERS COUNTY TYPOLOGY, 2019-2020



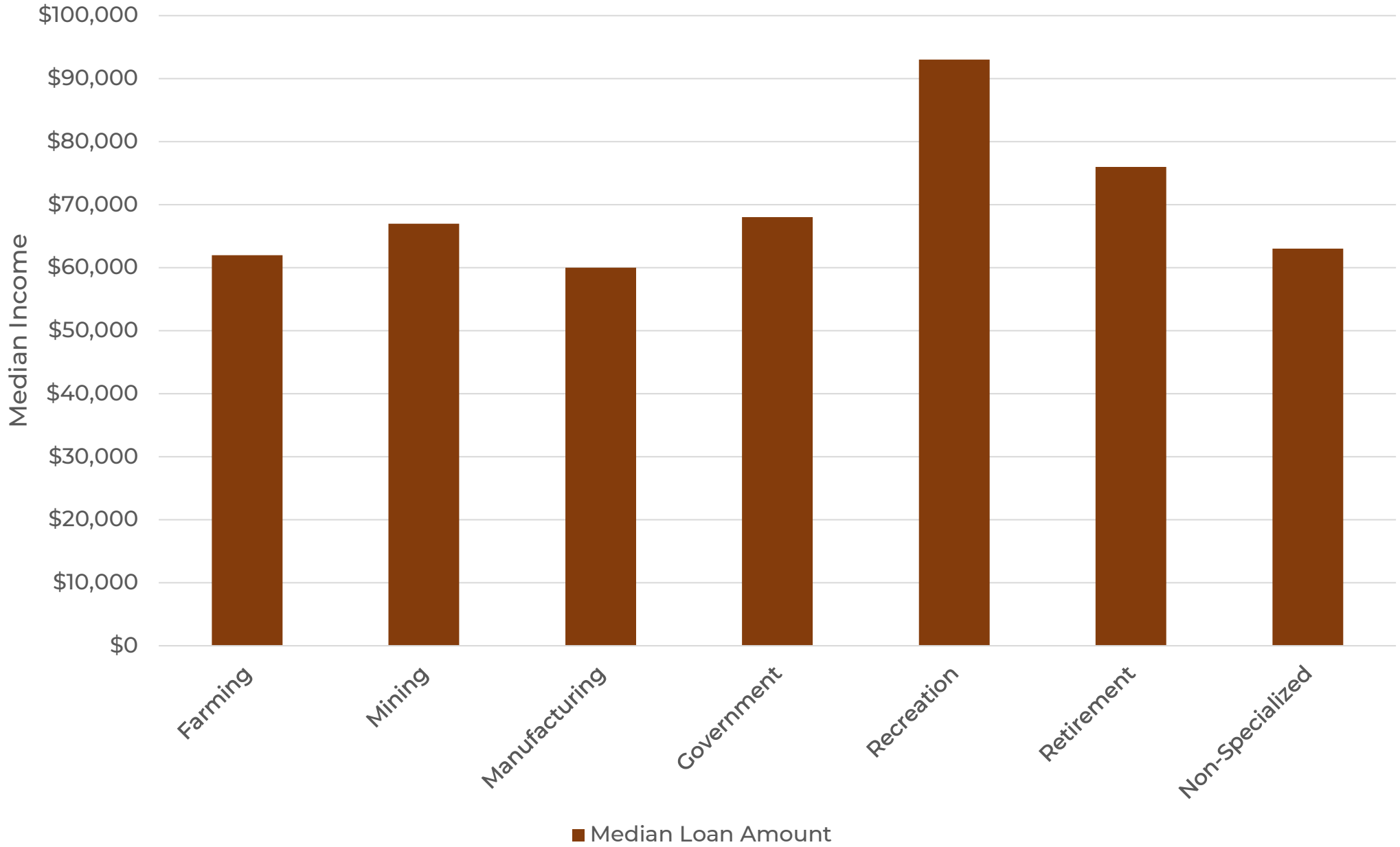
Source: Housing Assistance Council Tabulations of CFPB's 2019-2020 Home Mortgage Disclosure Data

MEDIAN LOAN AMOUNT BY OUTSIDE METROPOLITAN USDA ERS COUNTY TYPOLOGY, 2020



Source: Housing Assistance Council Tabulations of CFPB's 2020 Home Mortgage Disclosure Data

MEDIAN INCOME BY OUTSIDE METROPOLITAN USDA ERS COUNTY TYPOLOGY, 2020



RURAL RENTERS REMAIN MOST AT RISK

Where Do We Go From Here?

HAC

The Rural Housing Ecosystem Remails Uncertain

- Clarity, time, and attention are still needed

- Support for continued assessment and analysis

Housing Assistance Council
Washington, DC

www.ruralhome.org

September 1, 2021

RURAL RESEARCH NOTE

RURAL AMERICA NOW HAS MORE THAN 5 MILLION REPORTED CASES AND OVER 100,000 DEATHS FROM COVID-19

COVID-19 in Rural America
September 1, 2021

Thank You

www.ruralhome.org

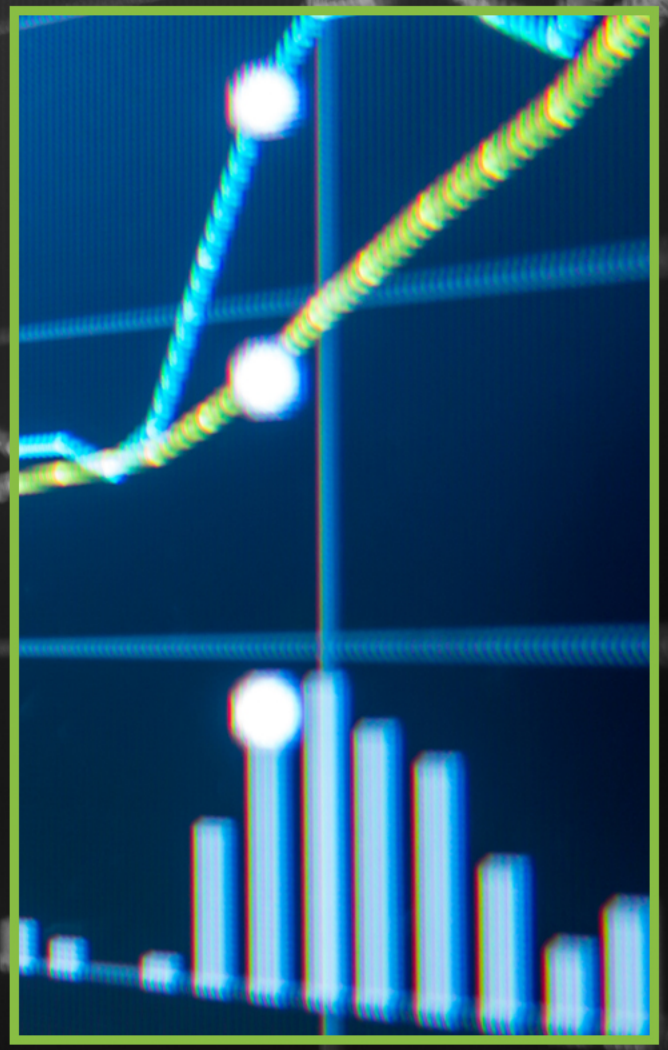
Freddie Mac

Health & Housing Across Rural Communities

A Quantitative Exploration of the Impacts of Housing on the Health & Well-Being of Rural Homeowners & Renters

Sarah Burke

Freddie Mac



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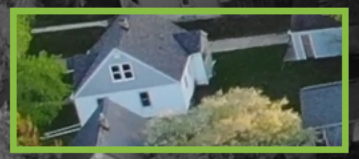


Research Objective & Methodology

Freddie Mac

Objective:

Freddie Mac's Market Insights team conducted this research to explore the potential impacts of the supply, cost and design of housing on the long-term health and well-being of Americans. This research was conducted among American households to understand what future housing initiatives could be implemented to prioritize community health and well-being.

Methodology:

SURVEY

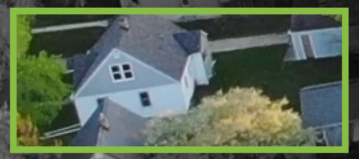
National survey conducted August 20-25, 2021.

FOCUS POPULATION

Sample of 2,001 Americans aged 25 to 56. 25% of respondents are rural residents.

DATA ANALYSIS

Results have a margin of error of +/- 2 percentage points. Data was weighted to approximate a target sample of adults.



Research Focus

Freddie Mac

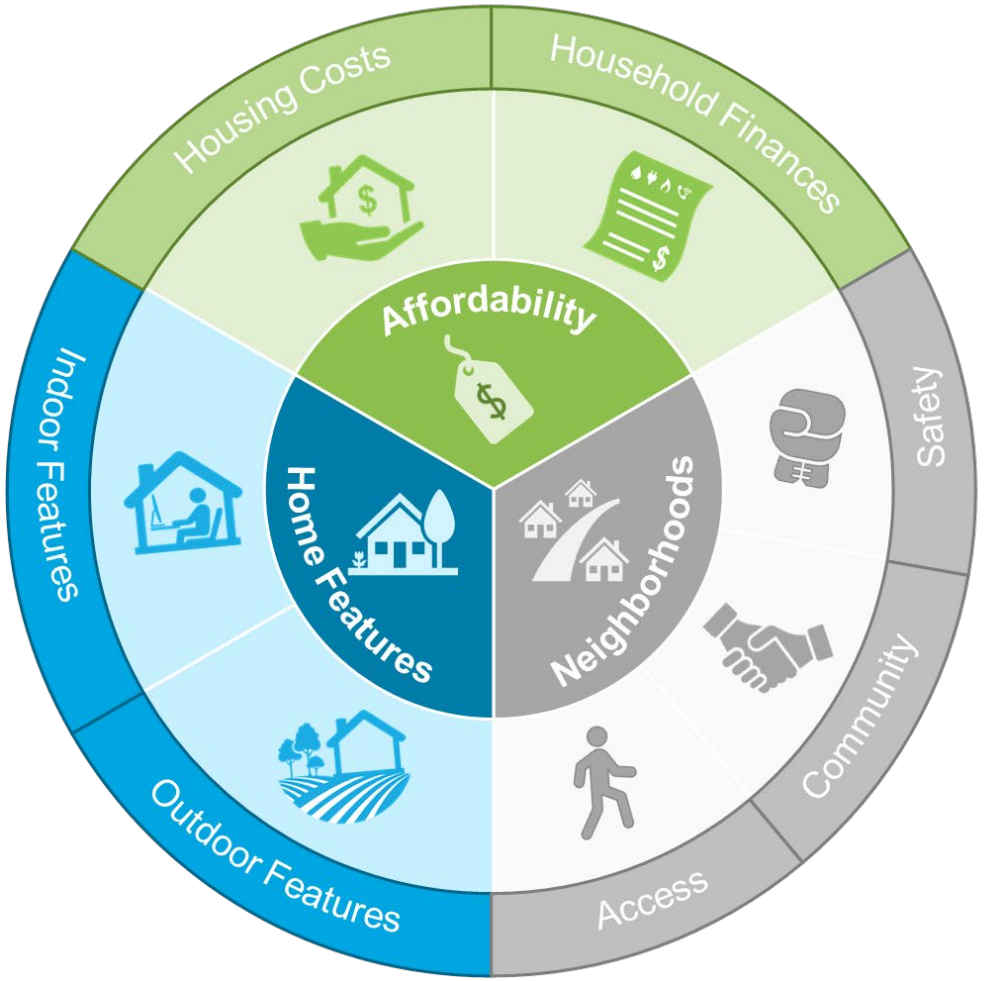
Rural Population:

498 Respondents

54%
Homeowners

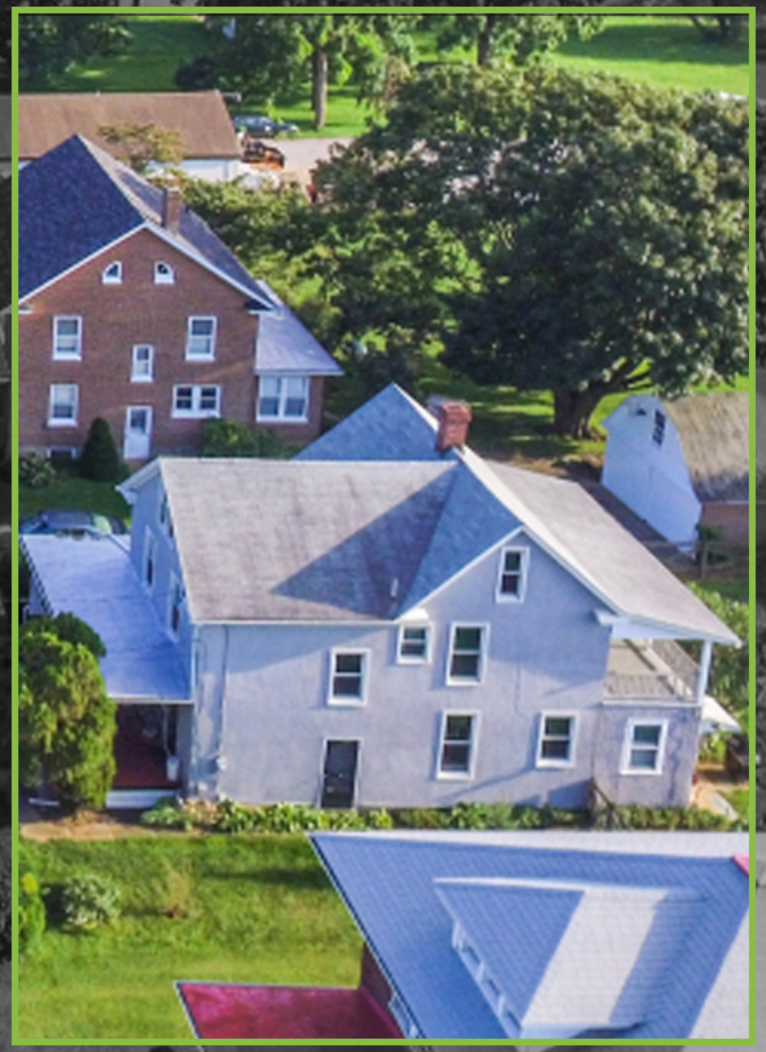
34%
Renters

The remaining rural population occupies a residence without payment.



Base: Adults (n=2000) Q: Which of the following best represents your current housing situation?

Health & Housing Perceptions



RURAL RESEARCH SYMPOSIUM

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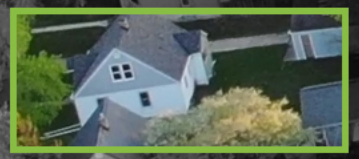

Health Status Among Americans

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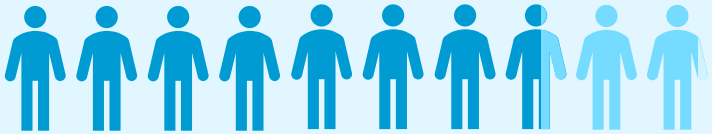
Physical Health Status

78%: *Excellent/Very Good/Good*

22%: *Fair/Poor*

84% believe housing impacts their **physical health**

Stress Level

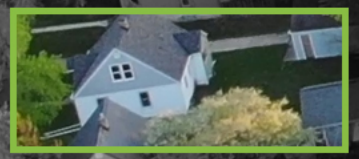


76%: *Extremely/Very/Somewhat*

22%: *Not At All*

83% believe housing impacts their **stress level**

Base: Adults (n=2000) Q: How would you define your overall physical health?; What is your current level of stress?; To what extent do you believe your housing has an impact on your overall physical health/current level of stress?



Health Status Among Rural Residents

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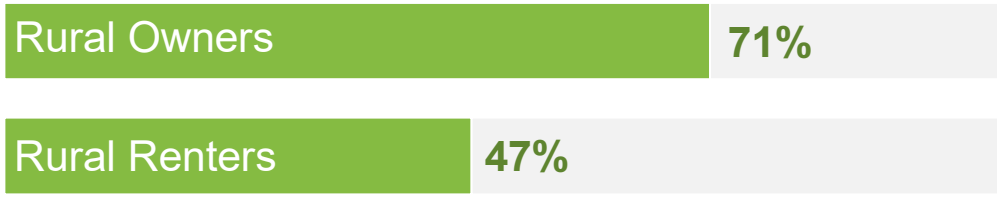
Physical Health Status
(% Excellent/Very Good/Good)

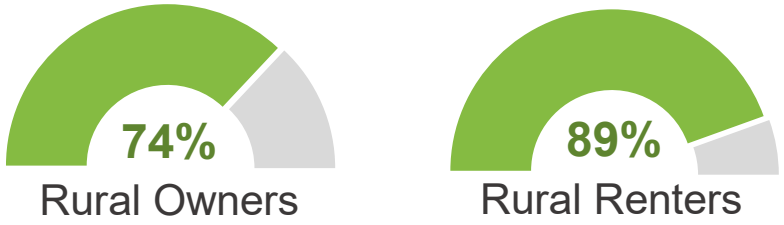


Compared to 87% total owners & 66% total renters

Stress Level
(% Extremely/Very/Somewhat)

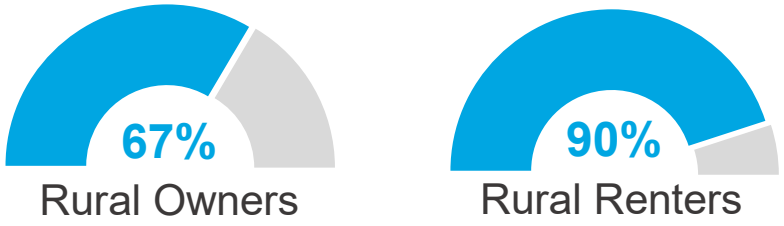
Compared to 75% total owners & 80% total renters

Perceived Housing Impact on Health
(% Great/Some/Small Impact)



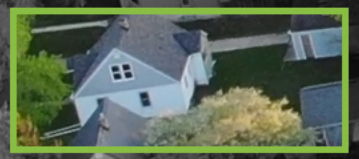
Compared to 84% total owners & 88% total renters

Perceived Housing Impact on Stress
(% Great/Some/Small Impact)



Compared to 81% total owners & 84% total renters

Base: 809 Total Renters; 268 Rural Homeowners; 170 Rural Renters Q: How would you define your overall physical health?; To what extent do you believe your housing has an impact on your overall physical health?; To what extent do you believe your housing has an impact on your current level of stress?



Perceived Health Impacts Among Americans

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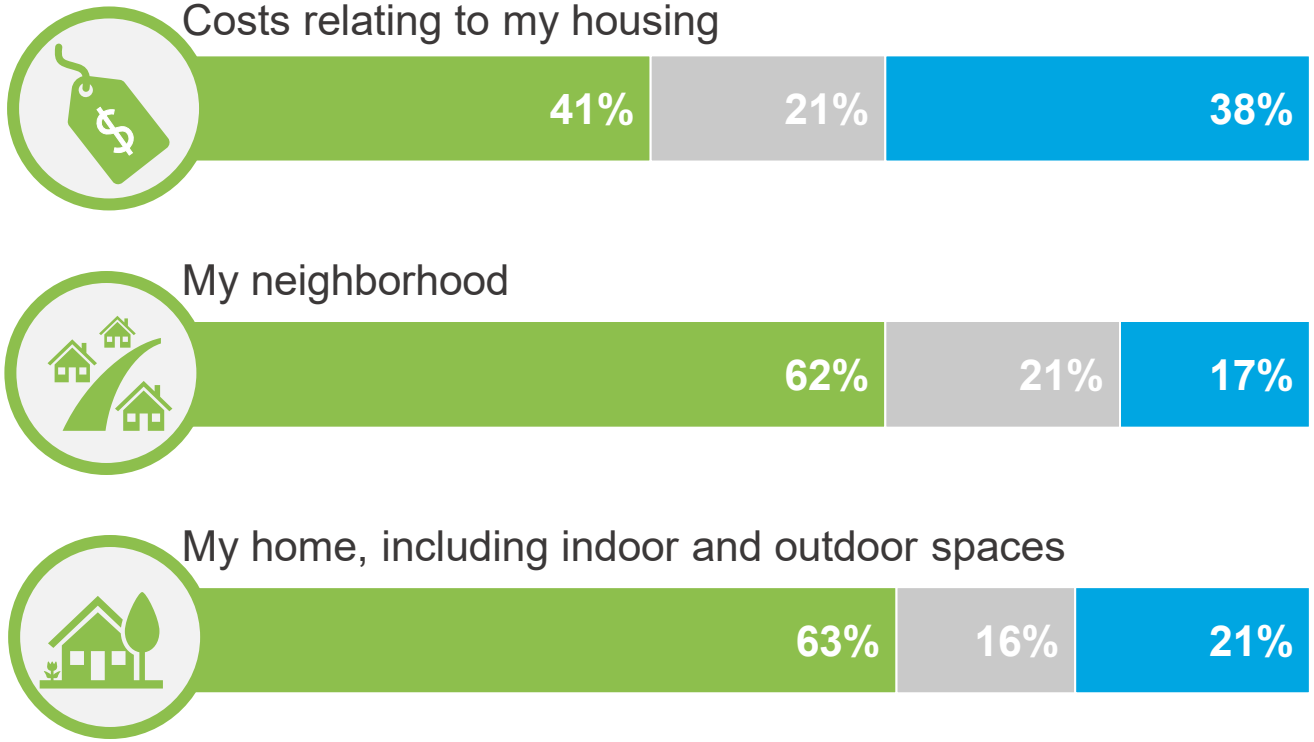
Perceived Health Impacts of Housing Elements

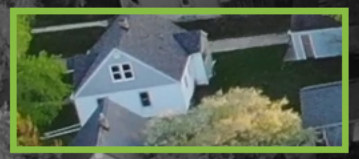
Positive Impact *No Impact* *Negative Impact*



40%

of Americans think it is healthier to live in a rural area, than a suburban or urban area

Base: Adults (n=2000) Q: What elements of your housing do you think have the greatest positive or negative impact on your overall health, including your physical health and stress levels? The costs relating to my housing, including maintenance and repair of my housing; My home, including any indoor and outdoor spaces; My neighborhood; Which of the following do you think would be healthiest to live in?



Perceived Health Impacts Among Rural Residents

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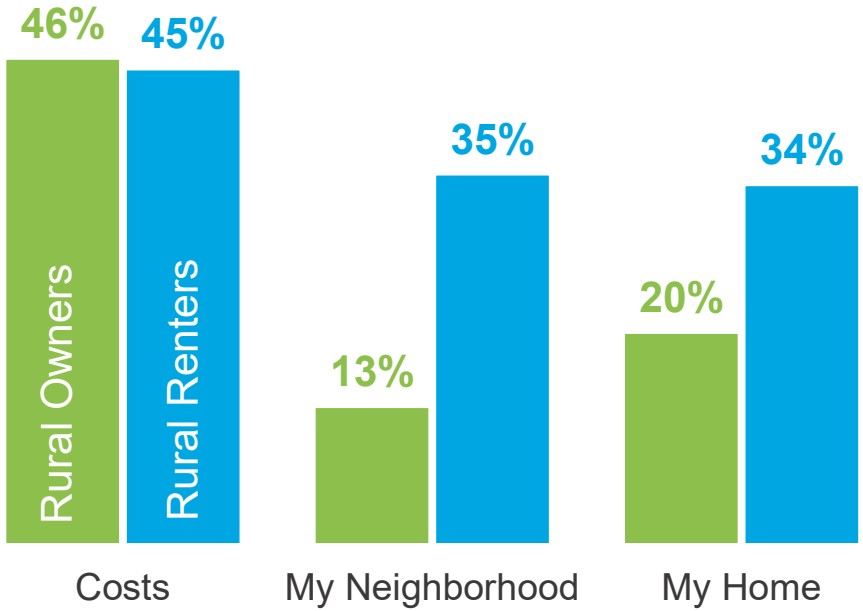
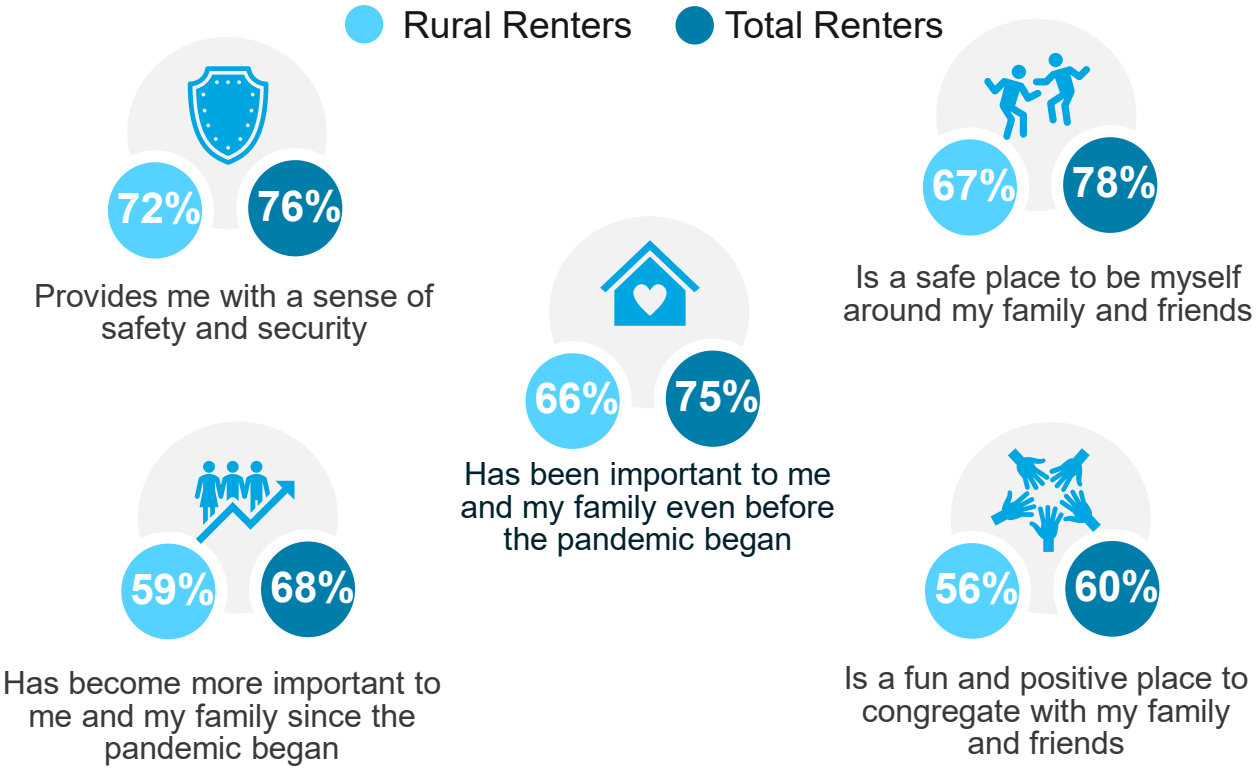
Perceived Health Impacts of Housing Elements

(% Negative Impact)



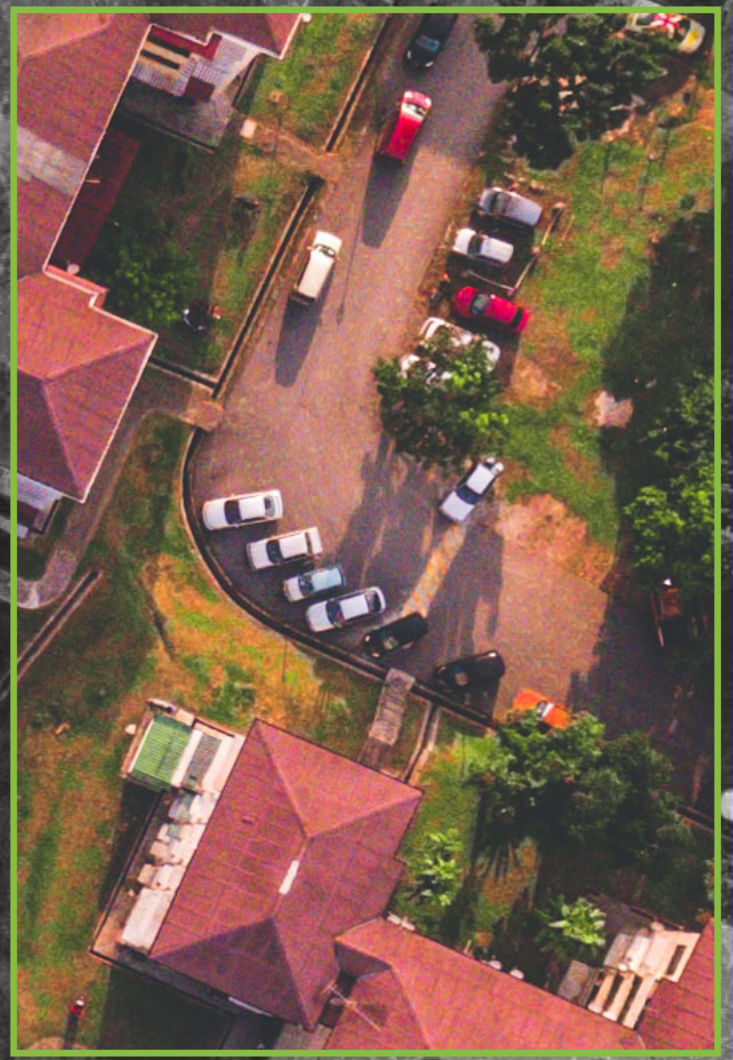
Feelings About Quality of Personal Homes

(% Strongly/Somewhat Agree)



Base: 809 Total Renters; 268 Rural Homeowners; 170 Rural Renters Q: What elements of your housing do you think have the greatest positive or negative impact on your overall health, including your physical health and stress levels?; Thinking about how you feel in your home, how much do you agree or disagree with the following statements?

Spotlight: Rural Homeownership & Renting Experience



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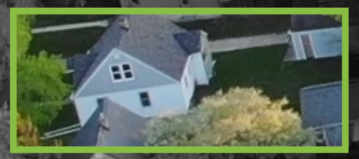

Affordability: Rural Americans are experiencing financial strain

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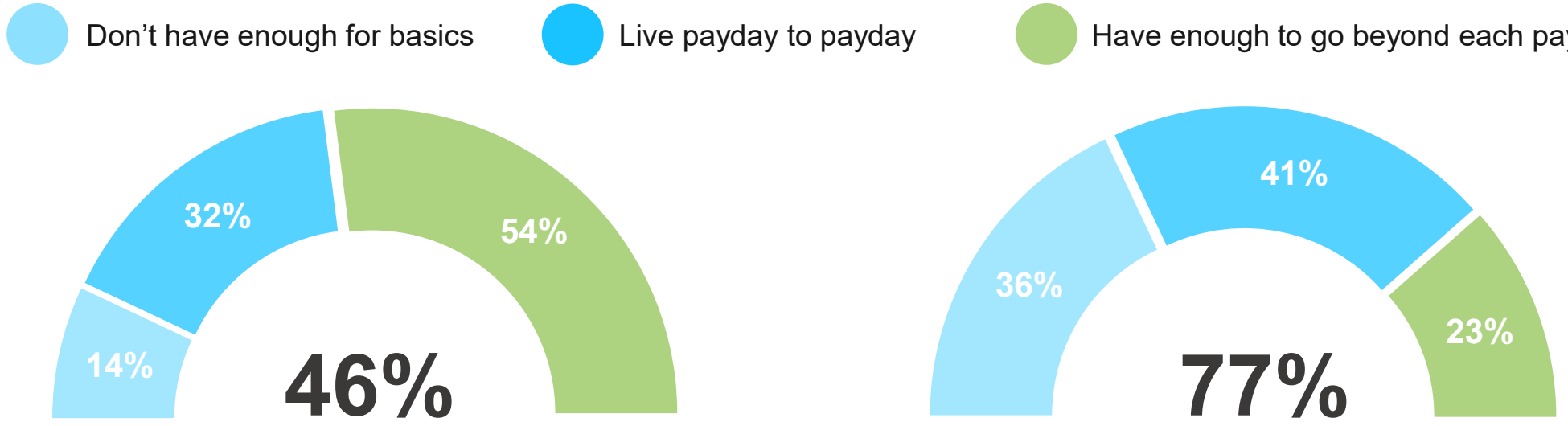
State of Household Finances



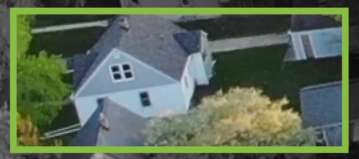
of **rural owners** had not enough or just enough money to get by

compared to 38% of total owners

of **rural renters** had not enough or just enough money to get by

compared to 67% of total renters

Base: 996 Total Homeowners; 809 Total Renters; 268 Rural Homeowners; 170 Rural Renters Q: Which of the following statements best describes your household's general financial situation?



Home Features: Rural residents are concerned their homes are negatively impacting their health

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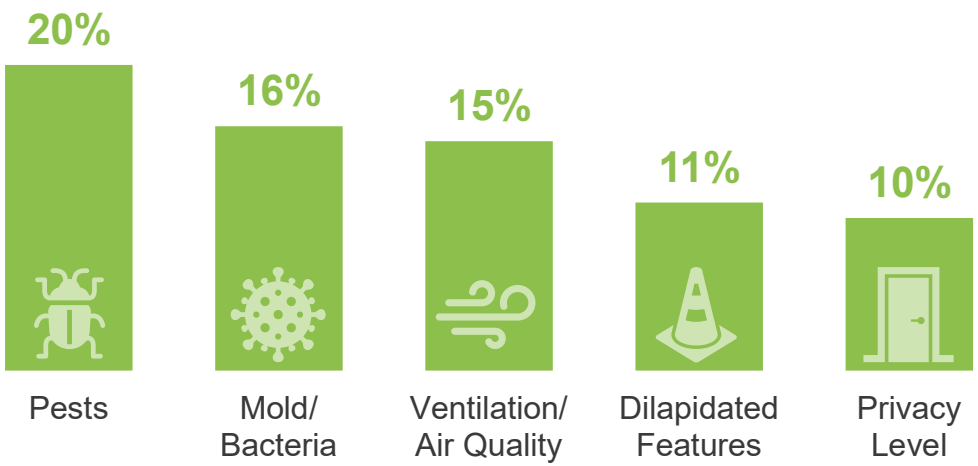
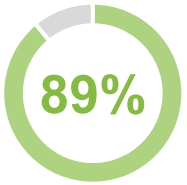
Top 5 Home Feature Concerns of Rural Owners

(% Selected as a Top Negative Health Impact)

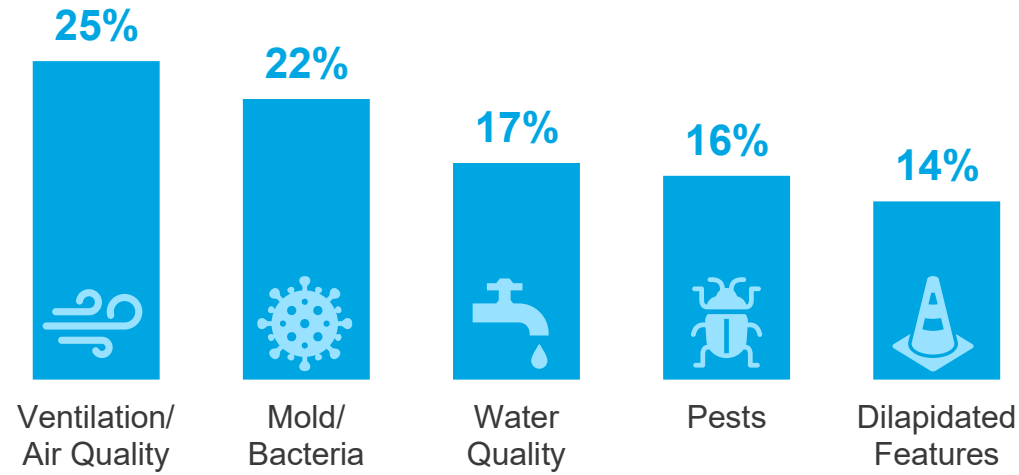


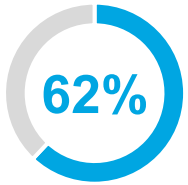


of **rural owners** rate the quality of their home as good or better, compared to 95% of total owners

Top 5 Home Feature Concerns of Rural Renters

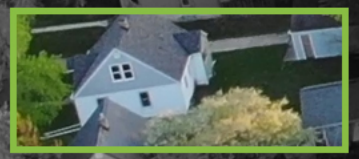
(% Selected as a Top Negative Health Impact)





of **rural renters** rate the quality of their home as good or better, compared to 76% of total renters

Base: 996 Total Homeowners; 809 Total Renters; 268 Rural Homeowners; 170 Rural Renters Q: Which of the following elements of your home do you believe have the greatest negative impact on your health? How would you evaluate the overall quality of your home?



Neighborhoods: Rural renters face a distinctive set of community problems

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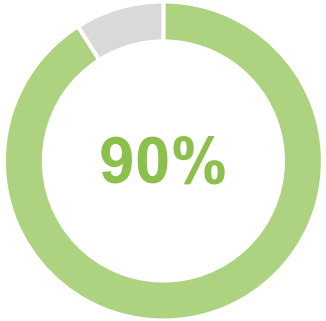
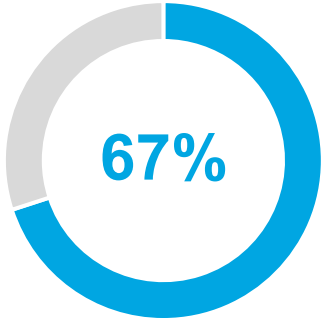
Neighborhood Quality Rating



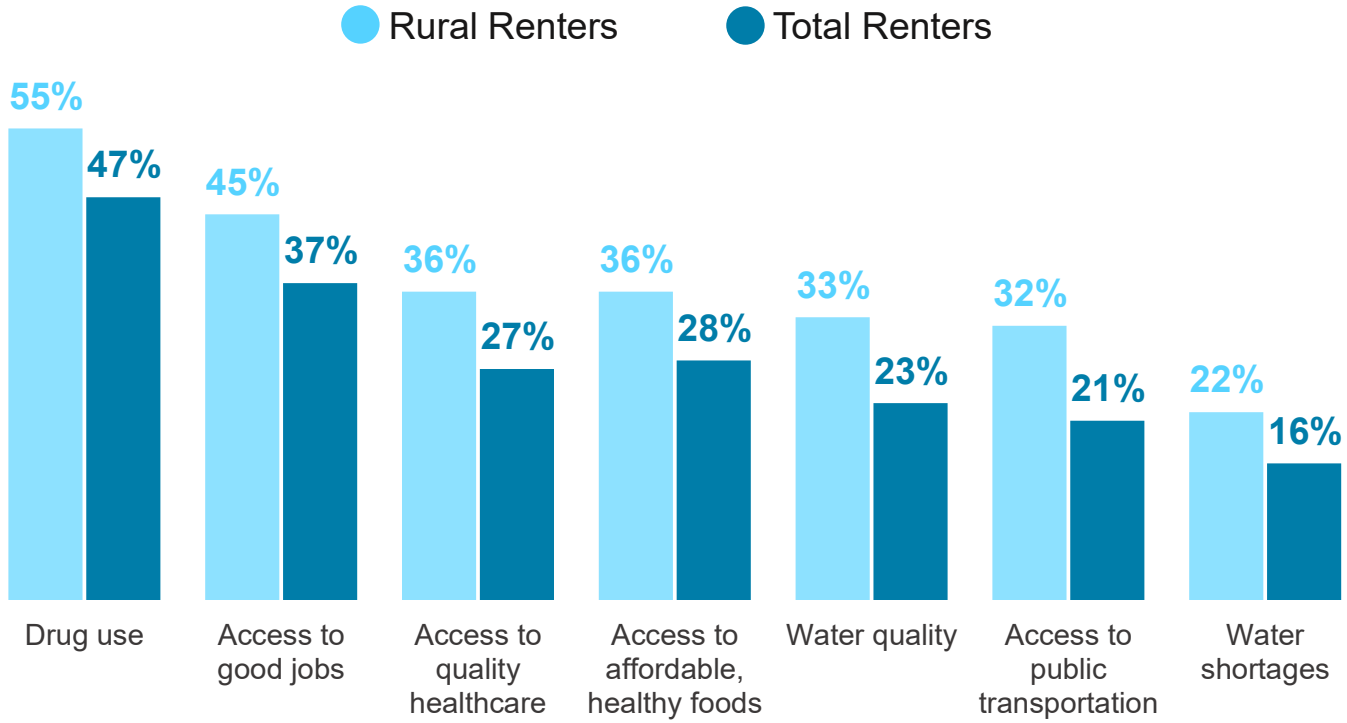
of **rural owners** rate the quality of their neighborhood as good or better, compared to 94% of total owners



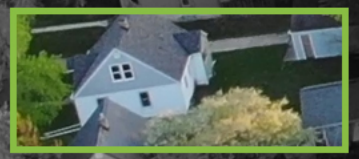
of **rural renters** rate the quality of their neighborhood as good or better, compared to 74% of total renters

Community Problems Among Renters

(% Very/Somewhat Serious)



Base: 996 Total Homeowners; 809 Total Renters; 268 Rural Homeowners; 170 Rural Renters Q: The following are problems in some communities, but not others. How much of a problem are they where you live?; How would you evaluate the overall quality of your neighborhood?



Neighborhoods: Rural residents rate every local space as lower quality than total owners/renters

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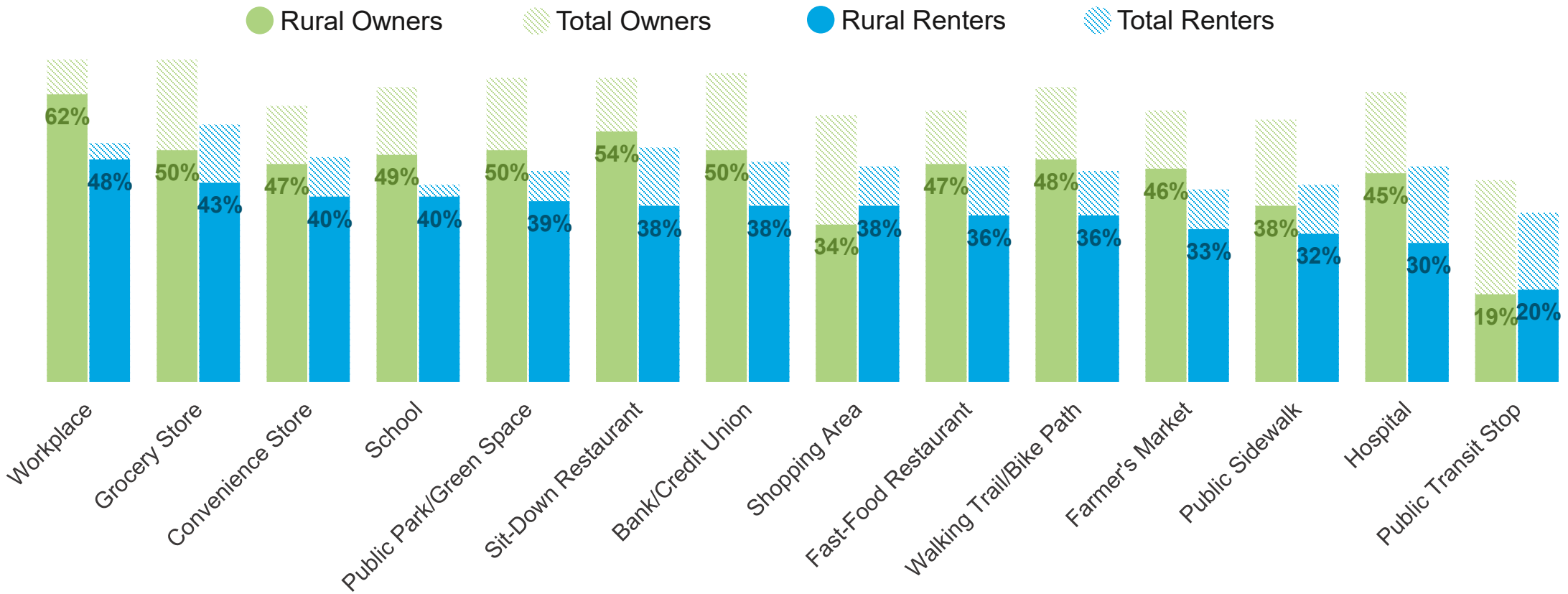
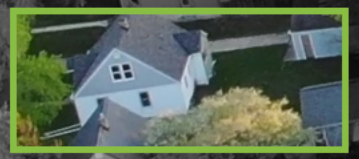
Quality of Neighborhood Spaces

(% Excellent/Very Good)



Base: 996 Total Homeowners; 809 Total Renters; 268 Rural Homeowners; 170 Rural Renters Q: When you think about the following businesses and spaces in your neighborhood, how would you rate the quality of each?



Neighborhoods: Rural renters are less likely to feel a sense of cohesion within their community

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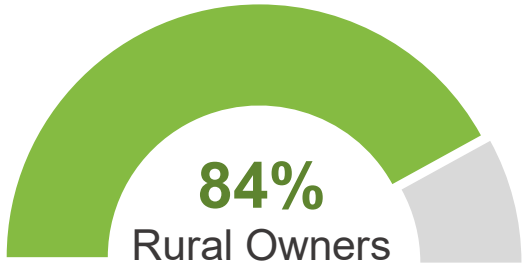
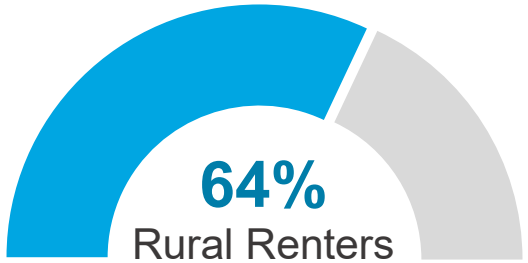
Neighborhood Social Cohesion

(% Strongly/Somewhat Agree)

I have a good relationship with my neighbors.



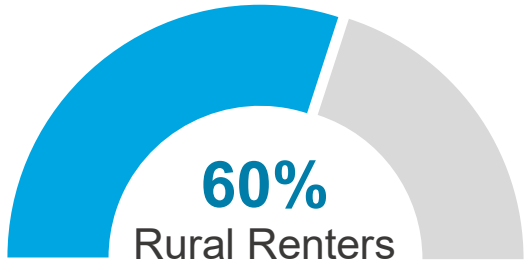
compared to 91% of total owners



compared to 71% of total renters

I feel like I belong in my neighborhood.

compared to 89% of total owners



compared to 67% of total renters

Base: 996 Total Homeowners; 809 Total Renters; 268 Rural Homeowners; 170 Rural Renters Q: Please select the level to which you agree with the following statement.

Thank You

sarah_burke@freddiemac.com

ELIZABETH DOBIS

Economist and Regional Scientist, United States Department of Agriculture Economic Research Service (USDA-ERS)

Dr. Elizabeth A. Dobis is a research agricultural economist in the Rural Economy Branch of the USDA Economic Research Service with a focus on rural health in the United States. Her research interest is spatial economic analysis, particularly pertaining to health, demography, and communities. Her health-related research has focused on health care utilization of vulnerable populations, spatial variation in life expectancy, insurance coverage among the rural self-employed, and health care supply and demand related to COVID-19. Dr. Dobis has published her research in *Social Science & Medicine and the Journal of Economic Geography.* Prior to joining the USDA-ERS, she worked with the Northeast Regional Center for Rural Development at Penn State and the Purdue Center for Regional Development.

LANCE GEORGE

Director of Research and Information, Housing Assistance Council

Lance is the director of research and information at the Housing Assistance Council. With more than 20 years of experience, Lance leads the organization's research, data, and policy efforts. He works at the intersection of housing, research, and data to help Americans who have quality and safe homes, understand and care about those who do not. Lance's research encompasses a wide array of issues and topics related to affordable housing.

SARAH BURKE

Market Research Professional, Freddie Mac

Sarah Burke is a market research professional on Freddie Mac's Corporate Communications & Marketing team in the Chief Administrative Officer (CAO) Division. She works to research and analyze trends across the housing market and wider economy. Her recent research has focused on the impact of COVID-19 on American households, the housing and financial situations of single female head of households, and the relationship between housing and personal health. Before joining Freddie Mac, Ms. Burke worked in economic development consulting and corporate finance. She holds a Bachelor of Science in economics and finance from Marquette University and a Master of Professional Studies in Urban & Regional Planning from Georgetown University.

Discussant

STEVE GUGGENMOS

Vice President, Research and Modeling, Freddie Mac

Steve leads multifamily related research at Freddie Mac. In this role, he performs research related to national and market-specific multifamily conditions. His team supports the multifamily business by developing models and quantitative approaches that determine risk-based capital allocations. The models capture loan level risks and also the benefits of the diversification and structural credit support for pools of multifamily mortgages, supporting the core business strategies of Freddie Mac Multifamily.