Mississippi

Housing & Environmental Health

2022 Annual Surveillance Report

Prepared for the Mississippi State Department of Health

Green & Healthy Homes Initiative®

Introduction

Green & Healthy Homes Initiative (GHHI), in partnership with local and state leaders in Mississippi, has developed the Housing & Environmental Health Annual Surveillance Report to build awareness of the presence of environmental health hazards in the state's housing stock, including lead-based paint and other sources of lead exposure, asthma triggers, causes of injury, and other common conditions known to be unhealthy and unsafe (Learn more about common health hazards in housing). This report also includes health surveillance data related to these environmental conditions, as well as social and community indicators that are often correlated with unhealthy housing. The development of the report serves as a continuation of the Mississippi Healthy Housing Policy Project developed by GHHI.

The data indicators included in this report were selected to support local and state government agencies in their efforts to educate the public about environmental health risks related to housing conditions, demonstrate needs for housing and environmental health programs to serve the public, and track annual changes in metrics to support state and local public policy development. GHHI prioritized inclusion of data that are commonly requested by the U.S. Department of Housing and Urban Development (HUD) in Notices of Funding Opportunity from the Office of Lead Hazard Control and Healthy Homes. Sources of information are primarily the U.S. Census and American Community Survey, Centers for Disease Control and Prevention (CDC), Environmental Protection Agency (EPA), and other federal agencies. A key resource for housing program planning is the HUD Comprehensive Housing Affordability Strategy data, which include information to demonstrate the extent of housing problems and housing needs, particularly for low-income households.

GHHI has sought input from the Mississippi State Department of Health and leadership of local cities, towns, and counties to determine the formatting of the data tables and figures included in this report. The current version has five tables with ranked lists of municipalities or counties with measurable needs for healthy housing interventions. Methods of ranking are included in table descriptions. Some reporting is limited by availability of data at certain geographic levels and most recent reporting years. The figures included are data visualization maps related to these tables. Web based sources for data maps are linked for users who want to access these resources directly. If readers are seeking data points not included in this document, GHHI recommends searching the sources of data provided in the references section for the desired information.

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This table ranks municipalities in Mississippi with the highest total population. Additional data include key metrics from the U.S. Department of Housing and Urban Development Community Housing Affordability Strategy (CHAS) data set, which demonstrate the number of households in need of housing assistance. CHAS data measures include certain housing problems and information about household income that show rates at which households qualify for HUD housing assistance programs.

HUD defines Area Median Family Income as the median family income calculated by HUD for each jurisdiction, in order to determine Fair Market Rents (FMRs) and income limits for HUD programs. Many healthy housing and related assistance programs set program income eligibility at 80% AMFI or less, or 50% AMFI or less.

HUD defines Severe Housing Problems as having at least one of four conditions: incomplete kitchen facilities, incomplete plumbing facilities, more than 1.5 persons per room, or cost burden greater than 50%. Cost burden is the ratio of housing costs to household income. For renters, housing cost is gross rent (contract rent plus utilities). For owners, housing cost is "select monthly owner costs," which includes mortgage payment, utilities, association fees, insurance, and real estate taxes [i]

	Municipality	Population[ii]	Households[iii]	80% AMFI or less[iv]	50% AMFI or less[v]	Owners with Severe Housing Problems[vi]	Renters with Severe Housing Problems[vii]
1	Jackson	163,778	62,861	35,005 (56.3%)	23,110 (37.2%)	3,840 (12.3%)	8,925 (28.7%)
2	Gulfport	71,660	28,193	14,260 (51%)	9,270 (33.2%)	1,655 (11.8%)	4,840 (34.7%)
3	Southaven	55,026	20,226	7,330 (37.1%)	3,650 (18.5%)	775 (5.8%)	1,515 (23.3%)
4	Biloxi	46,042	18,096	7,640 (42.6%)	5,055 (28.2%)	670 (8.4%)	2,345 (23.3%)
5	Hattiesburg	46,010	17,828	9,180 (51.6%)	6,235 (35%)	435 (6.7%)	3.215 (28.3%)
6	Olive Branch	38,270	13,931	3,370 (25.4%)	1,600 (12%)	775 (7.3%)	595 (21.5%)
7	Tupelo	38,251	15,004	5,870 (39.7%)	3,620 (24.5%)	750 (8.6%)	2,030 (33.5%)
8	Meridian	37,252	15,665	8,395 (52.6%)	5,340 (33.4%)	665 (8.4%)	2,295 (28.4%)
9	Greenville	29,854	11,945	7,220 (59.4%)	4,945 (40.7%)	665 (11.1%)	2,235 (36.5%)
10	Oxford	27,662	10,844	5,230 (50.5%)	3,580 (34.5%)	310 (6.4%)	2,165 (38.9%)
11	Horn Lake	27,234	9,270	4,315 (44.8%)	2,380 (24.7%)	665 (12.1%)	1,080 (26.1%)
12	Pearl	26,462	10,565	4,600 (43.9%)	2,365 (22.5%)	475 (7.3%)	790 (19.9%)
13	Madison	25,650	8,720	1,065 (11.8%)	565 (6.2%)	435 (5.2%)	150 (24.5%)
14	Starkville	25,495	10,715	5,875 (58.2%)	4,425 (43.8%)	425 (9.8%)	2,085 (36%)
15	Clinton	24,797	8,800	3,200 (35.3%)	1,535 (16.9%)	425 (7%)	675 (22.5%)

Table #2: Key Housing Problems Data for 15 Largest Counties by Population

This table ranks counties in Mississippi with the highest total population. Additional data include key metrics from the U.S. Department of Housing and Urban Development Community Housing Affordability Strategy (CHAS) data set, which demonstrate the number of households in need of housing assistance. CHAS data measures include certain housing problems and information about household income that show rates at which households qualify for HUD housing assistance programs.

HUD defines Area Median Family Income as the median family income calculated by HUD for each jurisdiction, in order to determine Fair Market Rents (FMRs) and income limits for HUD programs. Many healthy housing and related assistance programs set program income eligibility at 80% AMFI or less, or 50% AMFI or less.

HUD defines Severe Housing Problems incomplete kitchen facilities, incomplete plumbing facilities, more than 1.5 persons per room, and cost burden greater than 50%. Cost burden is the ratio of housing costs to household income. For renters, housing cost is gross rent (contract rent plus utilities). For owners, housing cost is "select monthly owner costs", which includes mortgage payment, utilities, association fees, insurance, and real estate taxes [viii]

	County	Population[ix]	Households[x]	80% AMI or less[xi]	50% AMI or less[xii]	% Owners with Severe Housing Problems[xiii]	% Renters with Severe Housing Problems[xiv]
1	Hinds	235,604	88,832	45,010 (50.7%)	28,630 (32.3%)	5,855 (11.3%)	10,040 (26.9%)
2	Harrison	206,169	80,097	33,515 (42.9%)	20,810 (26.6%)	4,430 (10%)	9,660 (28.5%)
3	DeSoto	182,256	64,424	20,400 (32.4%)	10,330 (16.4%)	3,475 (7.4%)	3,855 (23.5%)
4	Rankin	154,119	56,640	17,625 (31.5%)	9,450 (16.9%)	2,450 (5.7%)	2,265 (17.2%)
5	Jackson	142,872	53,878	22,960 (43.7%)	13,835 (26.3%)	3,400 (9.2%)	3,680 (23.2%)
6	Madison	105,482	40,179	12,360 (31.1%)	6,660 (16.8%)	2,205 (7.7%)	2,525 (22.5%)
7	Lee	85,304	31,866	12,915 (40.2%)	7,585 (23.6%)	1,590 (7.2%)	3,315 (32.1%)
8	Forrest	75,162	28,116	13,290 (47.3%)	8.635 (30.7%)	1,280 (8.3%)	3,550 (27.7%)
9	Lauderdale	75,557	29,718	13,055 (43.9%)	8,220 (27.6%)	1,530 (7.9%)	2,900 (27.4%)
10	Jones	68,307	24,855	10,615 (42.7%)	6,570 (26.4%)	1,560 (8.6%)	1,805 (26.5%)
11	Lamar	62,693	22,467	7,085 (32%)	4,460 (20.2%)	885 (5.9%)	1,810 (25.1%)
12	Lowndes	58,896	22,457	9,725 (43.3%)	6,325 (28.1%)	1,365 (9.5%)	1,850 (22.6%)
13	Pearl River	55,512	21,321	8,745 (41.6%)	5,230 (24.8%)	1,785 (10.9%)	1,000 (21.4%)
14	Lafayette	54,059	18,585	8,680 (46.3%)	5,675 (30.3%)	860 (7.4%)	2,665 (37.5%)
15	Oktibbeha	49,593	18,849	9,525 (53.5%)	7,215 (40.5%)	765 (8.3%)	2,945 (34.3%)

Table #3: Municipalities with Highest Need for Lead Hazard Reduction in Housing

This table ranks the largest cities or towns in Mississippi by population that have a percentage of pre-1978 units greater than 50%. Because lead-based paint was banned for residential use in 1978, housing built before that year is the most likely to contain lead-based paint, which could be hazardous even if covered by other layers of newer paint. The other metrics included are those commonly requested by HUD in Notices of Funding Opportunity for the Lead Based Paint Hazard Reduction Program administered by the Office of Lead Hazard Control and Healthy Homes.[xv] According to the CDC, all children enrolled in Medicaid are required to get tested for lead at ages 12 and 24 months, or age 24-72 months if they have no record of ever being tested. [xvi]

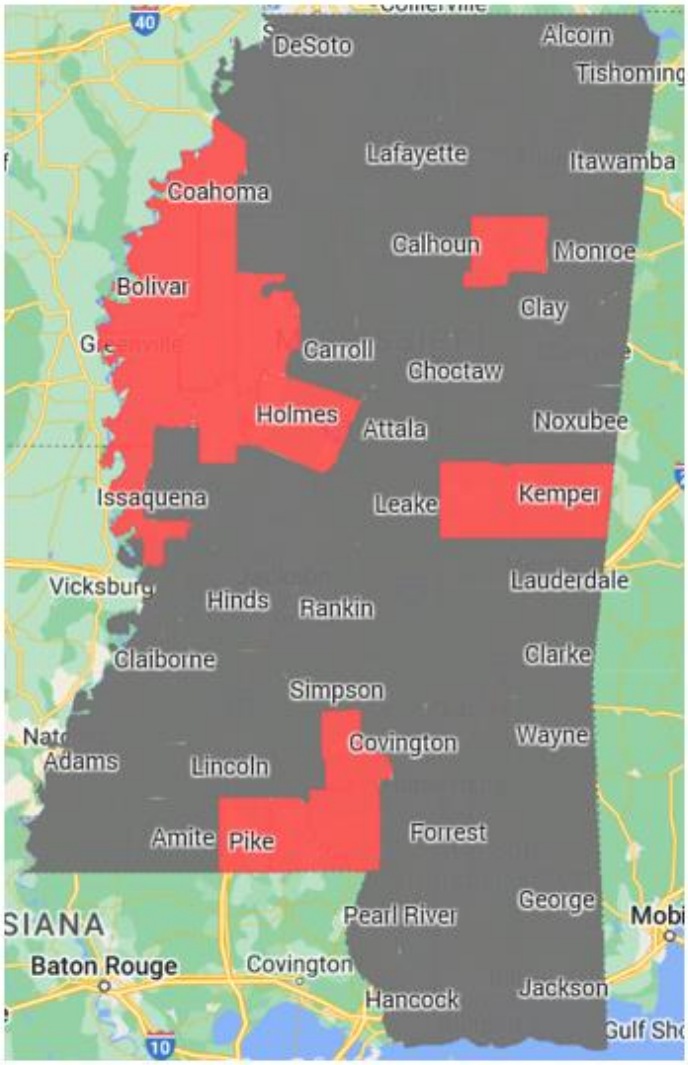
#	Municipality	Population [xvii]	Number of Children under 6 [xviii]	% children <6 with Medicaid [xix]	Total Housing Units [xx]	Total Occupied Housing Units [xxi]	Number of Pre-1978 Units [xxii]	% Pre-1978 Units [xxiii]
1	Jackson	163,778	13,786	76.4%	74,759	62,861	52,751	70.6%
2	Hattiesburg	46,010	3,529	68.7%	21,228	17,828	11,078	52.2%
3	Meridian	37,252	3,136	75.3%	18,888	15,665	12,658	67%
4	Greenville	29,854	2,521	72.7%	14,464	11,945	10,312	71.3%
5	Columbus	23,853	1,524	65.7%	12,067	9,736	7,201	59.7%
6	Vicksburg	22,045	1,667	73.6%	11,195	8,898	7,878	70.4%
7	Pascagoula	21,732	1,832	59.4%	10,035	8,152	6,834	68.1%
8	Laurel	18,403	1,211	76.7%	8,426	7,118	5,618	66.7%
9	Clarksdale	15,342	1,579	84.7%	7,117	5,709	5,250	73.8%
10	Natchez	14,854	1,333	77%	7,764	5,907	6,307	81.2%
11	Corinth	14,544	1,099	59%	7,424	6,280	4,338	58.4%
12	Moss Point	13,396	792	42.2%	6,438	5,207	4,804	74.6%
13	McComb	12,788	1,127	65.9%	6,205	4,987	3,464	55.8%
14	Grenada	12,349	1,193	81.6%	6,239	5,193	3,559	57%
15	Brookhaven	12,045	941	70.6%	5,950	4,968	3,540	59.5%

Table #4: Counties with Highest Need for Indoor Air Quality Improvement in Housing

This table ranks counties in Mississippi with the highest rates of severe housing problems according to CHAS data, asthma prevalence above county level average (10.7%) and COPD prevalence above county level average (8.4%). The correlation of housing problems and chronic respiratory illnesses demonstrates increased likelihood that asthma and COPD conditions are not well controlled and could be improved with housing-based interventions.[xxiv] Asthma and COPD Prevalence data are from the CDC PLACES data set, which are estimates based on Behavioral Risk Factor Surveillance System data.[xxv] The other metrics included are those commonly requested by HUD in Notices of Funding Opportunity for the Healthy Homes Production Grant Program administered by the Office of Lead Hazard Control and Healthy Homes.

	County	Pop.[xxvi]	Pop. Under 18[xxvii]	Pop. 62 and Over[xxviii]	Housing Units[xxix]	Total Occupied Housing[xxx]	% Severe Housing Problems[xxxi]	Asthma Prevalence[xxxii]	COPD Prevalence[xxxiii]
1	Washington	45,072	11,601	9,223	21,619	17,882	21.6%	12.1%	9.3%
2	Walthall	14,423	3,330	3,470	7,303	5,707	21.0%	10.9%	8.9%
3	Holmes	17,414	4,443	3,286	8,593	6,358	20.8%	12.7%	10.5%
4	Jefferson Davis	11,182	2,235	2,907	5,985	4,615	20.6%	11.5%	8.6%
5	Sunflower	25,759	5,683	4,218	9,678	8,345	19.5%	11.6%	9.2%
6	Marion	24,785	5,783	5,737	12,102	9,770	19.0%	10.8%	9.1%
7	Bolivar	31,253	7,733	6,183	14,377	12,114	18.5%	11.8%	9.0%
8	Pike	39,365	10,191	7,956	18,736	14,561	18.3%	11.6%	9.2%
9	Kemper	9,829	1,830	2,282	4,770	3,757	17.6%	11.4%	9.4%
10	Leflore	28,764	7,966	4,975	13,092	9,901	17.6%	12.1%	9.4%
11	Issaquena	1,223	166	306	553	462	17.5%	11.7%	10.9%
12	Neshoba	29,250	7,995	5,571	12,578	10,495	16.7%	10.9%	9.5%
13	Humphreys	8,198	2,156	1,649	3,816	3,197	16.6%	12.4%	10.6%
14	Coahoma	22,685	6,112	4,470	10,699	8,614	16.6%	12.2%	9.4%
15	Chickasaw	17,060	4,229	3,641	7,587	6,523	15.8%	10.9%	8.9%

MS Counties with Highest Need for Indoor Air Quality Improvements in Housing



Washington
Walthall
Holmes
Jefferson Davis
Sunflower
Marion
Bolivar
Pike
Kemper
Leflore
Issaquena
Neshoba
Humphreys
Coahoma
Chickasaw

Table #5: Counties with Highest Need for Older Adult Home Modifications in Housing

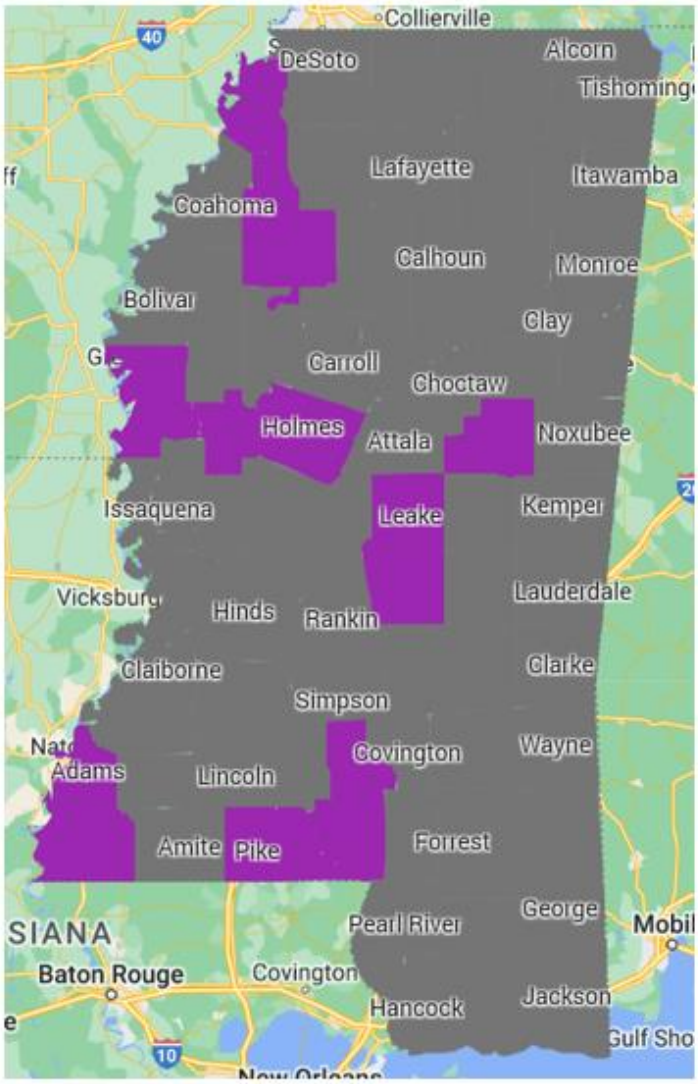
This table ranks counties in Mississippi with the highest percentage of housing with the following characteristics measures by the CHAS:

1) Owner-occupied
2) 80 percent Area Median Family Income or less
3) Households have at least one resident age 62 or older
4) Housing has least one of four severe problems

These households are the most likely to need assistance with housing modifications and retrofitting to support Aging in Place and injury prevention.[xxxiv] The other metrics included are those commonly requested by HUD in Notices of Funding Opportunity for the Older Adult Home Modification Grant Program administered by the Office of Lead Hazard Control and Healthy Homes.

	County	Population Age 62 or Older (% total population)[xxxv]	Households occupied by at least one resident age 62+ with 80% AMI or less (ALL)[xxxvi]	As % of occupied housing[xxxvii]	Owner-occupied housing with one resident age 62 or older with income </= 80% AFMI and least one housing problem[xxxviii]	As % of owner occupied housing[xxxix]	Pre-1980 Housing (% total)[xl]	Pre-1940 Housing (% total)[xli]
1	Wilkinson	1,858 (21.3%)	844	26.6%	349	13.8%	2,140 (41.2%)	160 (3.1%)
2	Humphreys	1,649 (20.1%)	515	16.2%	240	12.2%	1,955 (51.2%)	240 (6.3%)
3	Holmes	3,286 (18.9%)	985	15.9%	460	12.1%	3,896 (45.3%)	492 (5.7%)
4	Tallahatchie	2,569 (18.3%)	864	19.8%	350	11.1%	2,953 (52.2%)	286 (5.1%)
5	Quitman	1,525 (21.7%)	508	16.8%	194	10.9%	2,191 (61.4%)	203 (5.7%)
6	Pike	7,956 (20.2%)	2,060	14.3%	1,065	10.7%	9,754 (52%)	1,231 (6.6%)
7	Walthall	3,470 (24.1%)	1,170	20.9%	520	10.6%	3,506 (48%)	281 (3.8%)
8	Winston	4,575 (25.3%)	1,520	20.9%	560	10.5%	4,886 (55.6%)	364 (4.1%)
9	Jefferson Davis	2,907 (26%)	730	15.5%	375	10.5%	2,400 (40.1%)	83 (1.4%)
10	Marion	5,737 (23.1%)	1,850	19.5%	820	10.5%	6,358 (52.5%)	737 (6.1%)
11	Washington	9,223 (20.5%)	2,060	11.5%	970	10.2%	14,782 (68.35)	1,098 (5.1%)
12	Tunica	1,565 (16%)	405	10.3%	160	10.1%	1,354 (27.2%)	128 (2.6%)
13	Leake	4,375 (19.2%)	1,325	16.3%	580	10.1%	4,439 (46.2%)	310 (3.2%)
14	Scott	5,680 (20.1%)	1,685	16.6%	750	9.9%	4,533 (38.5%)	280 (2.4%)
15	Adams	7,349 (23.6%)	1,865	16.6%	690	9.8%	10,296 (69.9%)	1,380 (9.4%)

MS Counties with Highest Need for Older Adult Home Modifications in Housing

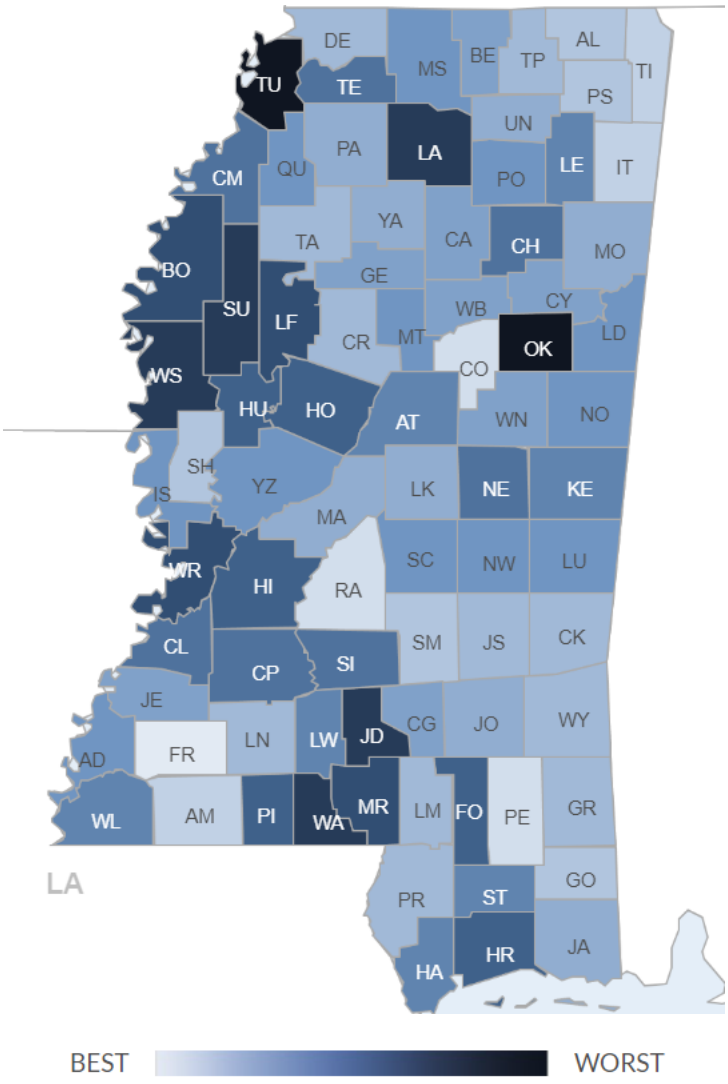


Wilkinson
Humphreys
Holmes
Tallahatchie
Quitman
Pike
Walthall
Winston
Jefferson Davis
Marion
Washington
Tunica
Leake
Scott
Adams

Map of Severe Housing Problems Rankings

About this Source: The national County Health Rankings are based on a model of community health that emphasizes the many factors that influence how long and how well we live. The Rankings use more than 30 total measures that help communities understand how healthy their residents are today (health outcomes) and what will impact their health in the future (health factors). This map shows how counties in Mississippi rank by prevalence of Severe Housing Problems (percentage of households with at least 1 of 4 housing problems: overcrowding, high housing costs, lack of kitchen facilities, or lack of plumbing facilities). The 2022 County Health Rankings used data from 2014-2018 for this measure.

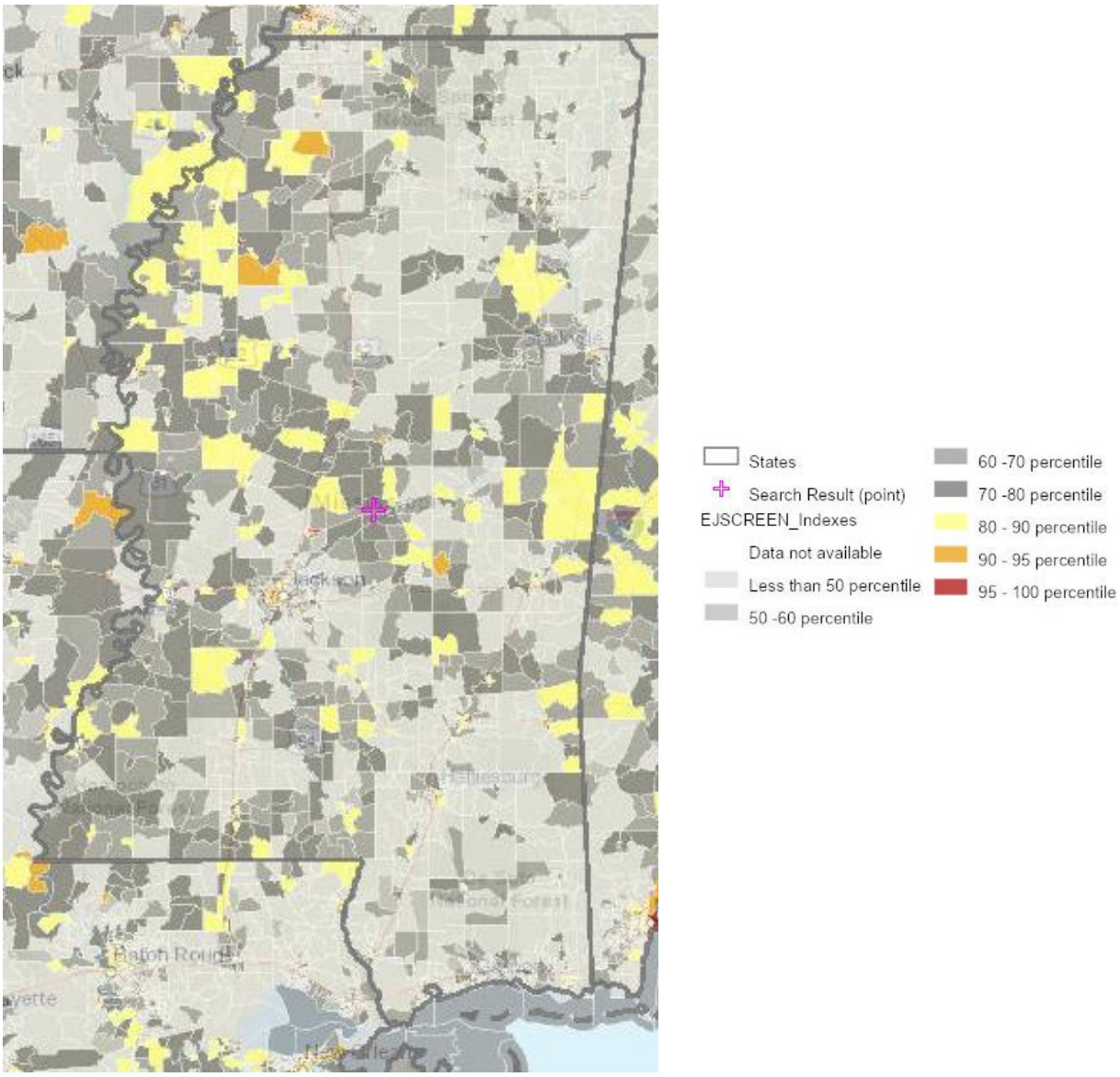
Access County Health Rankings Map



Map of Lead Paint Risk by U.S. Census Block Group

About this Source: The Environmental Protection Agency created the EJScreen Tool, which is an environmental justice mapping and screening tool that provides EPA with a nationally consistent dataset and approach for combining environmental and demographic indicators. EJScreen includes the EJ index, which is a combination of environmental and demographic information. There are eleven EJ Indexes in EJScreen reflecting the 12 environmental indicators including lead paint. The lead paint indicator is based on the age of the housing stock in a selected U.S. Census Block Group and highlights homes built prior to 1960 because lead paint was commonplace during that era.

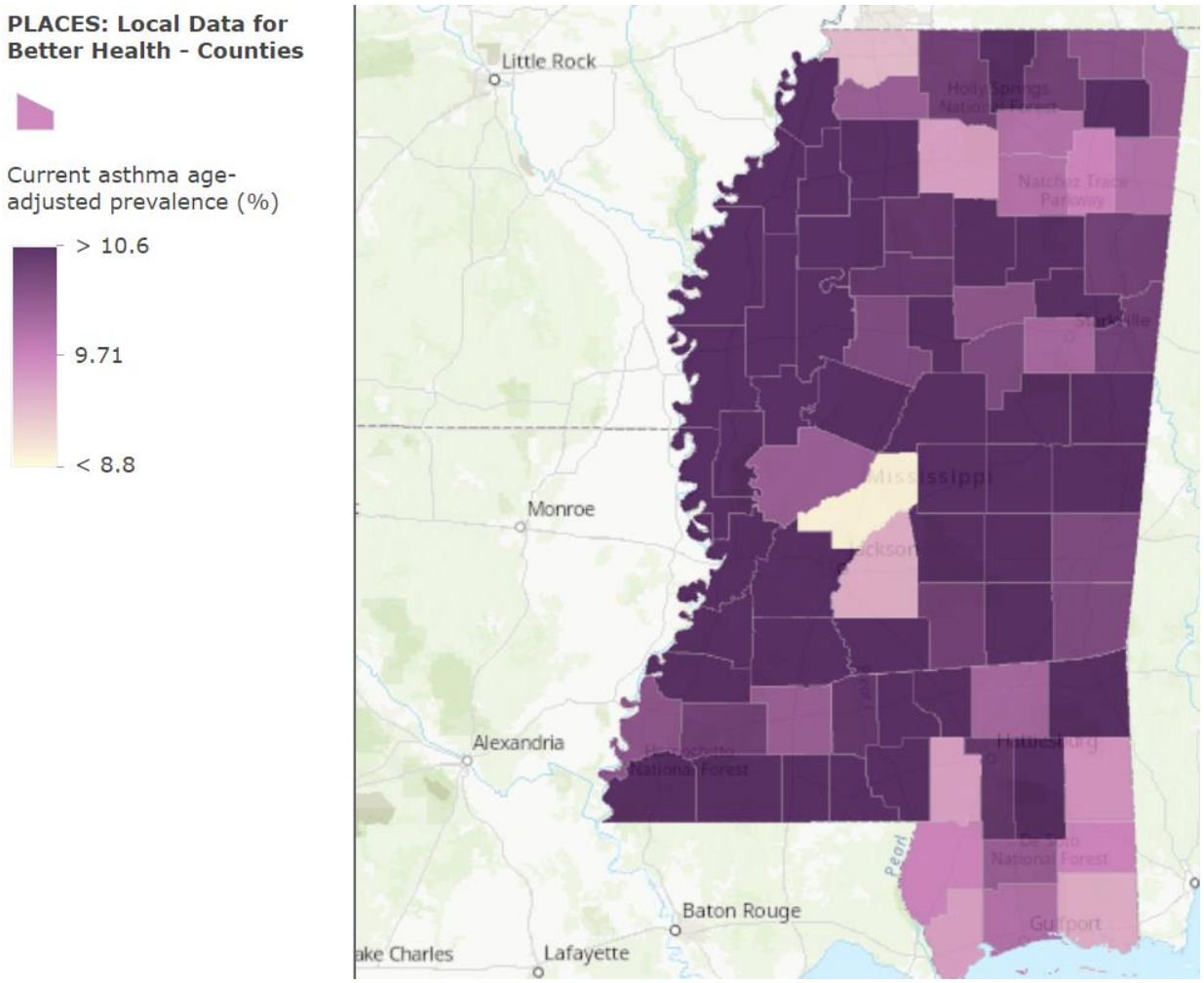
Access EJScreen Mapping Tool



Map of Asthma Prevalence by County

About this Source: Asthma Prevalence data are from the CDC PLACES data set, which report estimates of health indicators based on Behavioral Risk Factor Surveillance System data. PLACES is a collaboration between CDC, the Robert Wood Johnson Foundation, and the CDC Foundation created to provide health data for small areas across the country. Estimates of asthma prevalence indicate the number and percentage of the population with asthma at a given point in time.

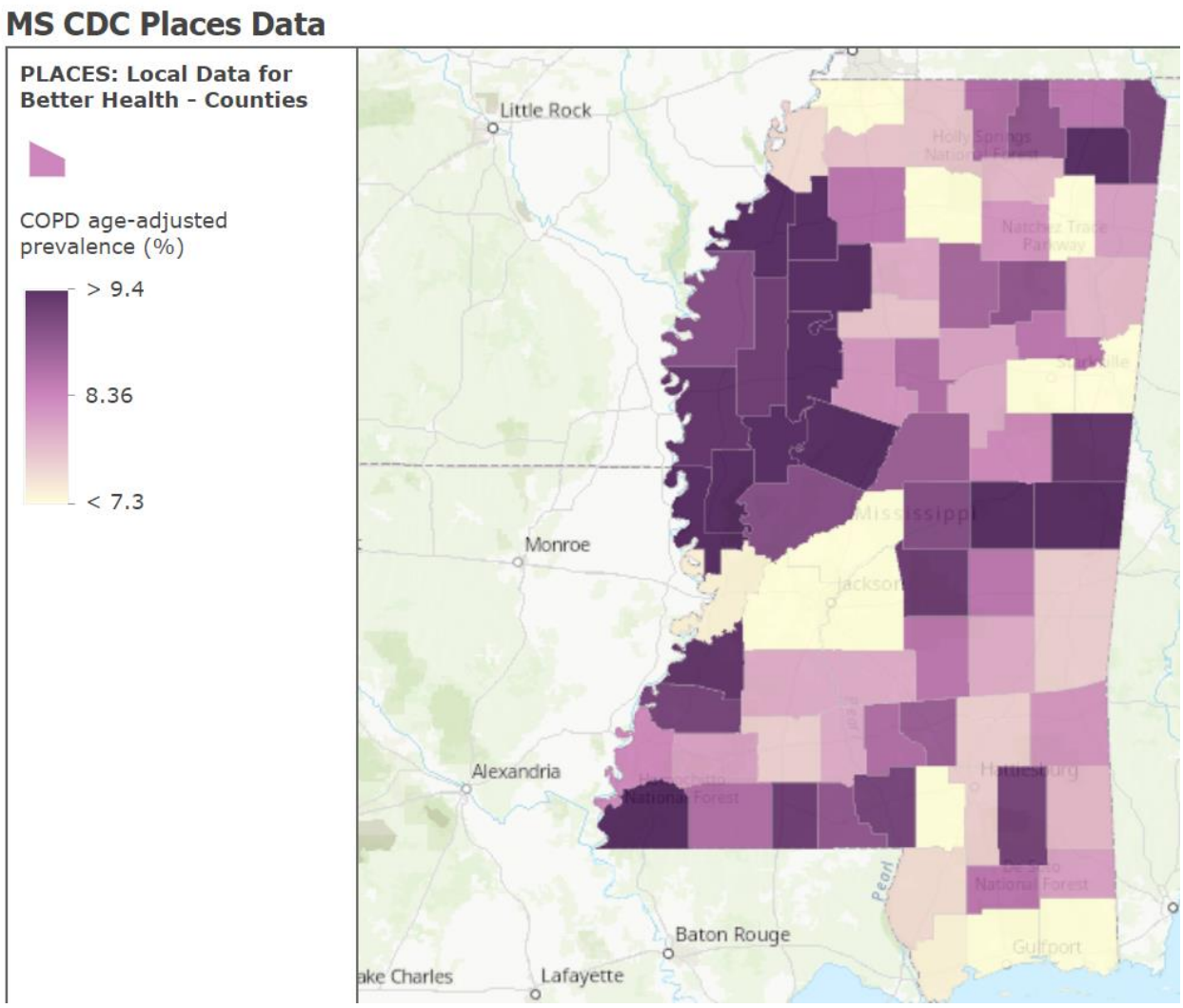
Access the CDC PLACES Mapping Tool



Map of COPD Prevalence by County

About this Source: COPD Prevalence data are from the CDC PLACES data set, which reports estimates of health indicators based on Behavioral Risk Factor Surveillance System data. PLACES is a collaboration between CDC, the Robert Wood Johnson Foundation, and the CDC Foundation created to provide health data for small areas across the country. Estimates of COPD prevalence are based on those aged ≥18 years who report ever having been told by a doctor, nurse, or other health professional that they had chronic obstructive pulmonary disease (COPD), emphysema, or chronic bronchitis.

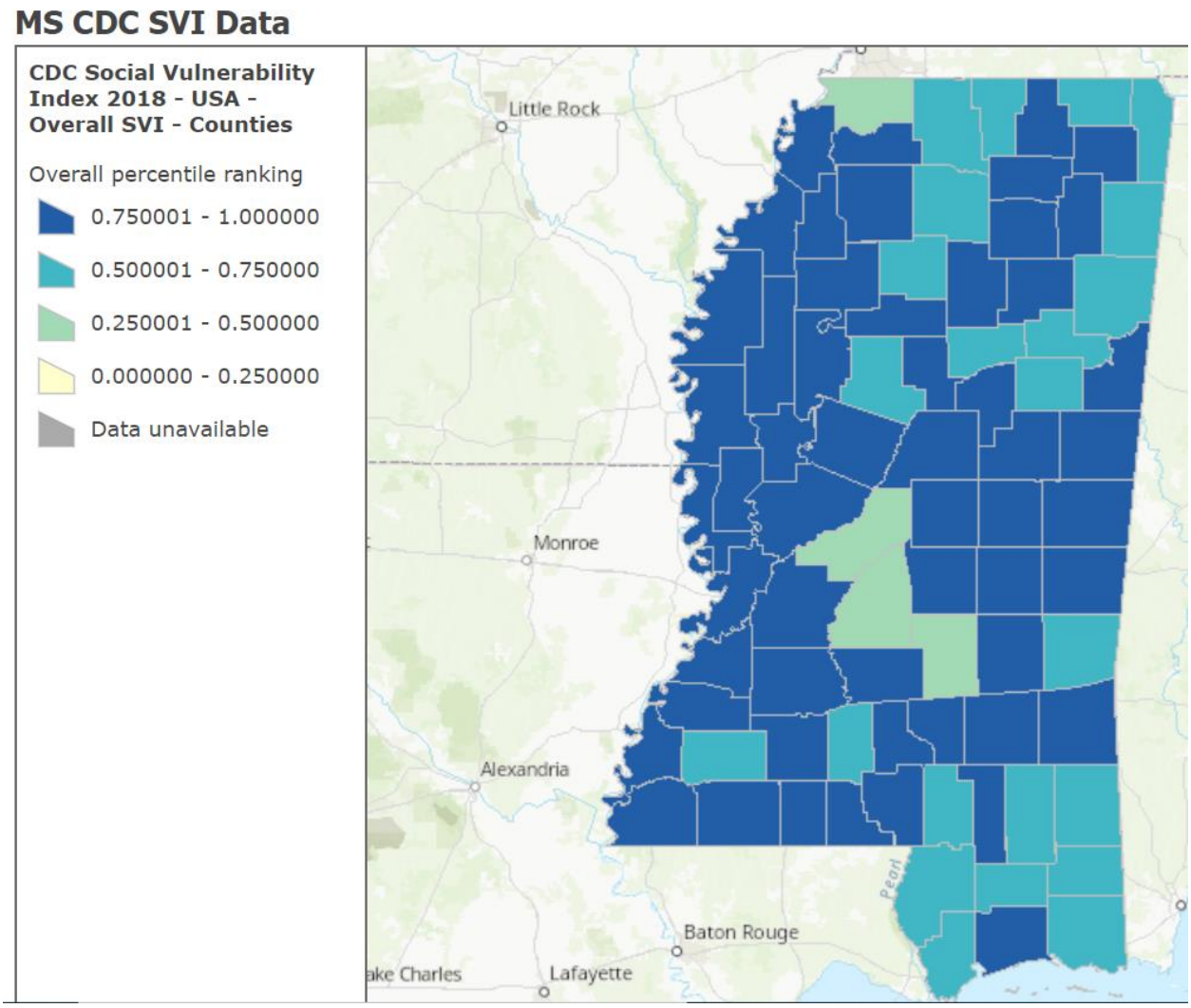
Access the CDC PLACES Mapping Tool



Map of Social Vulnerability Index by County

About this Source: The CDC's Social Vulnerability Index uses 15 U.S. census variables to help local officials identify communities that may need support before, during, or after disasters. Social vulnerability refers to the potential negative effects on communities caused by external stresses on human health. Such stresses include natural or human-caused disasters, or disease outbreaks. The indicators used in the index include multiple factors related to housing quality and environmental health, including household composition, disability status, and housing type. This information could be used for funding development to address disaster mitigation and housing resilience needs.

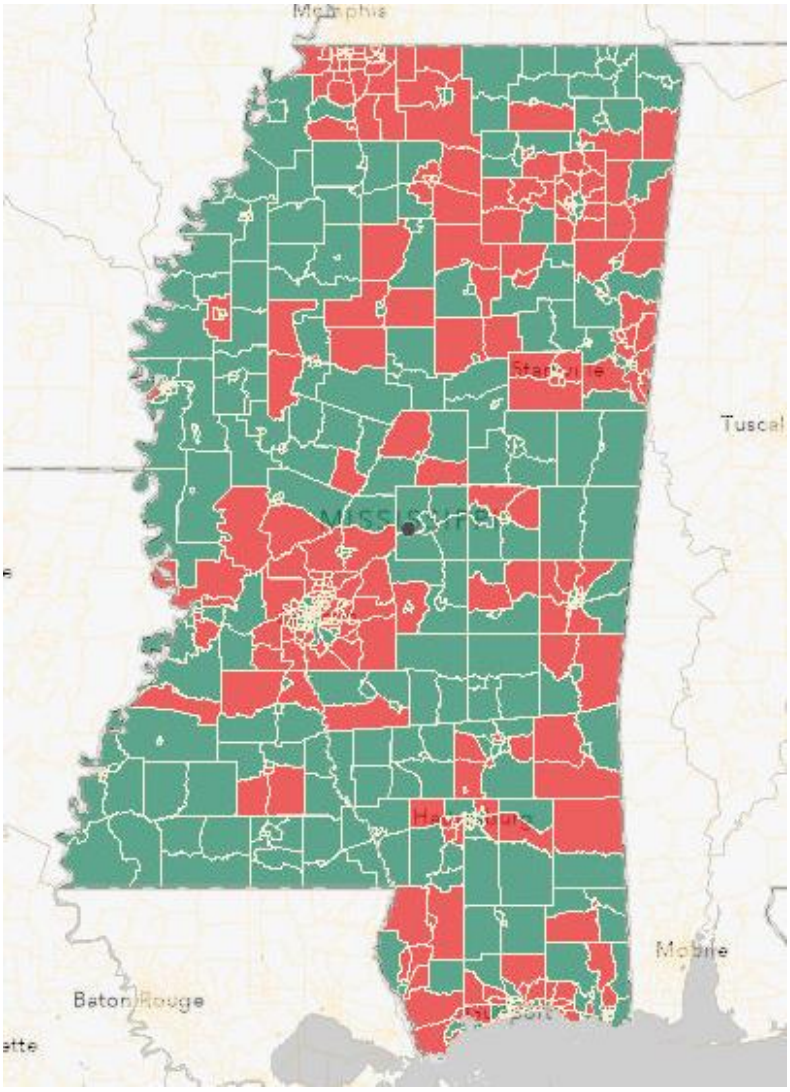
[Access the CDC Social Vulnerability Index Mapping Tool]

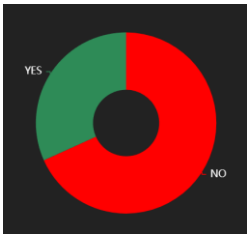


Map of Justice40 Framework Designations by U.S. Census Tract

About this Source: The Justice40 Initiative sets a federal administration goal that 40 percent of overall benefits of covered government programs flow to disadvantaged communities. The Council on Environmental Quality has developed a Climate and Economic Justice Screening Tool to identify disadvantaged census tracts based on measurements of environmental and climate indicators as well as socioeconomic indicators.[xlii] In 2021 the U.S. Office of Management and Budget identified HUD's Lead Hazard Reduction and Healthy Homes Grants as a J40 pilot program for the interim implementation plan. Program applicants are required to include data on the prevalence of disadvantaged census tracts in the geographic areas targeted for program implementation. The most recent Notice of Funding Opportunity for the Lead Hazard Reduction Program stated that applicants for geographic areas with higher rates of disadvantaged census tracts would receive higher scores. Overall, 31.75% of the state's census tracts meet the definition of disadvantaged.

Access the HUD Justice40 Mapping Tool





Yes: 31.75%
No: 68.25%

References and Data Sources

[i] U.S. Department of Housing and Urban Development (2015-2019). Comprehensive Housing Affordability Strategy Data. https://www.huduser.gov/portal/datasets/cp/CHAS/bg_chas.html

[ii] U.S. Census. American Community Survey (2020) Age and Sex (Subject Table S0101 5-Year Estimates). Data.census.gov

[iii] U.S. Census. American Community Survey (2020) Households and Families (Subject Table S1101 5-Year Estimates). Data.census.gov

[iv] U.S. Department of Housing and Urban Development (2015-2019). Comprehensive Housing Affordability Strategy Data. https://www.huduser.gov/portal/datasets/cp.html

[v] U.S. Department of Housing and Urban Development (2015-2019). Comprehensive Housing Affordability Strategy Data. https://www.huduser.gov/portal/datasets/cp.html

[vi] U.S. Department of Housing and Urban Development (2015-2019). Comprehensive Housing Affordability Strategy Data. https://www.huduser.gov/portal/datasets/cp.html

[vii] U.S. Department of Housing and Urban Development (2015-2019). Comprehensive Housing Affordability Strategy Data. https://www.huduser.gov/portal/datasets/cp.html

[viii] U.S. Department of Housing and Urban Development (2015-2019). Comprehensive Housing Affordability Strategy Data. https://www.huduser.gov/portal/datasets/cp/CHAS/bg_chas.html

[ix] U.S. Census. American Community Survey (2020) Age and Sex (Subject Table S0101 5-Year Estimates). Data.census.gov

[x] U.S. Census. American Community Survey (2020) Households and Families (Subject Table S1101 5-Year Estimates). Data.census.gov

[xi] U.S. Department of Housing and Urban Development (2015-2019). Comprehensive Housing Affordability Strategy Data. https://www.huduser.gov/portal/datasets/cp.html

[xii] U.S. Department of Housing and Urban Development (2015-2019). Comprehensive Housing Affordability Strategy Data. https://www.huduser.gov/portal/datasets/cp.html

[xiii] U.S. Department of Housing and Urban Development (2015-2019). Comprehensive Housing Affordability Strategy Data. https://www.huduser.gov/portal/datasets/cp.html

[xiv] U.S. Department of Housing and Urban Development (2015-2019). Comprehensive Housing Affordability Strategy Data. https://www.huduser.gov/portal/datasets/cp.html

[xv] U.S. Department of Housing and Urban Development (2022). Office of Lead Hazard Control and Healthy Homes. https://www.hud.gov/lead

[xvi] Centers for Disease Control and Prevention (2022). Testing Children for Lead Poisoning. https://www.cdc.gov/nceh/lead/prevention/testing-children-for-lead-poisoning.htm

[xvii] U.S. Census. American Community Survey (2020) Demographic and Housing Estimates (Subject Table DP05 5-Year Estimates). Data.census.gov

[xviii] U.S. Census. American Community Survey (2020) Population Under 18 Years by Age (Subject Table B09001 5-Year Estimates). Data.census.gov

[xix] U.S. Census. American Community Survey (2020) Public Health Insurance Coverage by Type and Selected Characteristics (Subject Table S2704 5-Year Estimates). Data.census.gov

[xx] U.S. Census. American Community Survey (2020) Year Structure Built (Subject Table B25034 5-Year Estimates). Data.census.gov

[xxi] U.S. Census. American Community Survey (2020) Year Structure Built (Subject Table DP04 5-Year Estimates). Data.census.gov

[xxii] U.S. Census. American Community Survey (2020) Year Structure Built (Subject Table B25034 5-Year Estimates). Data.census.gov (Total based on estimate of pre-1978 units, sum of categories ”Built 1939 or earlier” through ”Built 1960 to 1969” and 80 percent of ”Built 1970 to 1979”)

[xxiii] U.S. Census. American Community Survey (2020) Year Structure Built (Subject Table B25034 5-Year Estimates). Data.census.gov (Total based on estimate of pre-1978 units, sum of categories ”Built 1939 or earlier” through ”Built 1960 to 1969” and 80 percent of ”Built 1970 to 1979”)

[xxiv] Gan WQ, Sanderson WT, Browning SR, Mannino DM. Different types of housing and respiratory health outcomes. Prev Med Rep. 2017 Jun 8;7:124-129. doi: 10.1016/j.pmedr.2017.05.018. PMID: 28660119; PMCID: PMC5479958.

[xxv] Centers for Disease Control and Prevention (2019). CDC PLACES Map (Behavioral Risk Factor Surveillance System). Asthma and COPD Prevalence. https://www.cdc.gov/places/index.html

[xxvi] U.S. Census. American Community Survey (2020) Age and Sex (Subject Table S0101 5-Year Estimates). Data.census.gov

[xxvii] U.S. Census. American Community Survey (2020) Age and Sex (Subject Table S0101 5-Year Estimates). Data.census.gov
[xxviii] U.S. Census. American Community Survey (2020) Age and Sex (Subject Table S0101 5-Year Estimates). Data.census.gov
[xxix] U.S. Census. American Community Survey (2020) Occupancy Characteristics (Subject Table S2501 5-Year Estimates). Data.census.gov
[xxx] U.S. Census. American Community Survey (2020) Occupancy Characteristics (Subject Table S2501 5-Year Estimates). Data.census.gov
[xxxi] U.S. Department of Housing and Urban Development (2015-2019). Comprehensive Housing Affordability Strategy Data. https://www.huduser.gov/portal/datasets/cp.html
[xxxii] Centers for Disease Control and Prevention (2019). CDC PLACES Map (Behavioral Risk Factor Surveillance System). Asthma and COPD Prevalence. https://www.cdc.gov/places/index.html
[xxxiii] Centers for Disease Control and Prevention (2019). CDC PLACES Map (Behavioral Risk Factor Surveillance System). Asthma and COPD Prevalence. https://www.cdc.gov/places/index.html
[xxxiv] Green & Healthy Homes Initiative (2022). Household Injury. https://www.greenandhealthyhomes.org/hazard/household-injury/
[xxxv] U.S. Census. American Community Survey (2020) Age and Sex (Subject Table S0101 5-Year Estimates). Data.census.gov
[xxxvi] U.S. Department of Housing and Urban Development (2015-2019). Comprehensive Housing Affordability Strategy Data. https://www.huduser.gov/portal/datasets/cp.html
[xxxvii] U.S. Department of Housing and Urban Development (2015-2019). Comprehensive Housing Affordability Strategy Data. https://www.huduser.gov/portal/datasets/cp.html
[xxxviii] U.S. Department of Housing and Urban Development (2015-2019). Comprehensive Housing Affordability Strategy Data. https://www.huduser.gov/portal/datasets/cp.html
[xxxix] U.S. Department of Housing and Urban Development (2015-2019). Comprehensive Housing Affordability Strategy Data. https://www.huduser.gov/portal/datasets/cp.html
[xl] U.S. Census. American Community Survey (2020) Year Structure Built (Subject Table DP04 5-Year Estimates). Data.census.gov
[xli] U.S. Census. American Community Survey (2020) Year Structure Built (Subject Table DP04 5-Year Estimates). Data.census.gov
[xlii] https://screeningtool.geoplatform.gov/en/methodology#3/33.47/-97.5