

HINTS Data Linkage Project 2024 (HDLP)

External Variables Codebook

September 2025

Table 1. County level HDLP Variables

HDLP Variable Name	Original Variable Name (if applicable)	Variable Label	Data Source	Data Codebook	Category Values (if applicable)	Bookmark	Additional Notes
ACS_AGE017_PCT_C		Percentage of population age 0–17 (county level)	American Community Survey (ACS) (2019-2023)		Continuous Variable	Demographics	Variable calculated by NCI based on ACS Dataset: B01001
ACS_AGE017_PCT_MOE_C		Margin of Error: Percentage of population age 0–17 (county level)	American Community Survey (ACS) (2019-2023)			Demographics	MOE calculated by NCI using the method described on pages 3-4 (approximating standard errors for derived estimates: https://www2.census.gov/programs-surveys/acs/tech_docs/statistical_testing/2023_Instructions_for_Stat_Testing_ACS.pdf)
ACS_AGE65UP_PCT_C		Percentage of population age 65 and over (county level)	American Community Survey (ACS) (2019-2023)		Continuous Variable	Demographics	Variable calculated by NCI based on ACS Dataset: B01001
ACS_AGE65UP_PCT_MOE_C		Margin of Error: Percentage of population age 65 and over (county level)	American Community Survey (ACS) (2019-2023)			Demographics	MOE calculated by NCI using the method described on pages 3-4 (approximating standard errors for derived estimates: https://www2.census.gov/programs-surveys/acs/tech_docs/statistical_testing/2023_Instructions_for_Stat_Testing_ACS.pdf)
ACS_AIAN_PCT_C		Percentage of population reporting American Indian/Alaska Native race (county level)	American Community Survey (ACS) (2019-2023)		Continuous Variable	Demographics	Variable calculated by NCI based on ACS Dataset: B02001
ACS_AIAN_PCT_MOE_C		Margin of Error: Percentage of population reporting American Indian/Alaska Native race (county level)	American Community Survey (ACS) (2019-2023)			Demographics	MOE calculated by NCI using the method described on pages 3-4 (approximating standard errors for derived estimates: https://www2.census.gov/programs-surveys/acs/tech_docs/statistical_testing/2023_Instructions_for_Stat_Testing_ACS.pdf)
ACS_BLACK_PCT_C		Percentage of population reporting Black race (county level)	American Community Survey (ACS) (2019-2023)		Continuous Variable	Demographics	Variable calculated by NCI based on ACS Dataset: B02001
ACS_BLACK_PCT_MOE_C		Margin of Error: Percentage of population reporting Black race (county level)	American Community Survey (ACS) (2019-2023)			Demographics	MOE calculated by NCI using the method described on pages 3-4 (approximating standard errors for derived estimates: https://www2.census.gov/programs-surveys/acs/tech_docs/statistical_testing/2023_Instructions_for_Stat_Testing_ACS.pdf)

HDLP Variable Name	Original Variable Name (if applicable)	Variable Label	Data Source	Data Codebook	Category Values (if applicable)	Bookmark	Additional Notes
ACS_BROADBAND_PCT_C		Percentage of households with any type of broadband internet subscription (county level)	American Community Survey (ACS) (2019-2023)		Continuous Variable	Information Technology	surveys/acs/tech_docs/statistical_testing/2023_Instructions_for_Stat_Testing_ACS.pdf) Variable calculated by NCI based on ACS Dataset: B28002
ACS_BROADBAND_PCT_MOE_C		Margin of Error: Percentage of households with any type of broadband internet subscription (county level)	American Community Survey (ACS) (2019-2023)			Information Technology	MOE calculated by NCI using the method described on pages 3-4 (approximating standard errors for derived estimates: https://www2.census.gov/programs-surveys/acs/tech_docs/statistical_testing/2023_Instructions_for_Stat_Testing_ACS.pdf
ACS_COMPUTERS_PCT_C	S2801_C02_002E	Estimated percentage of households that have one or more types of computing devices (county level)	American Community Survey (ACS) (2019-2023)		Continuous Variable	Information Technology	
ACS_COMPUTERS_PCT_MOE_C	S2801_C02_002M	Margin of Error: Estimated percentage of households that have one or more types of computing devices (county level)	American Community Survey (ACS) (2019-2023)			Information Technology	MOE calculated by NCI using the method described on pages 3-4 (approximating standard errors for derived estimates: https://www2.census.gov/programs-surveys/acs/tech_docs/statistical_testing/2023_Instructions_for_Stat_Testing_ACS.pdf
ACS_ENGLNOTWELL_PCT_C		Percentage of population that does not speak English well, ages 5 and over (county level)	American Community Survey (ACS) (2019-2023)		Continuous Variable	Demographics	Variable calculated by NCI based on ACS Dataset: B16004
ACS_ENGLNOTWELL_PCT_MOE_C		Margin of Error: Percentage of population that does not speak English well, ages 5 and over (county level)	American Community Survey (ACS) (2019-2023)			Demographics	MOE calculated by NCI using the method described on pages 3-4 (approximating standard errors for derived estimates: https://www2.census.gov/programs-surveys/acs/tech_docs/statistical_testing/2023_Instructions_for_Stat_Testing_ACS.pdf)
ACS_ENGLVERYWELL_PCT_C		Percentage of population that speaks English very well, ages 5 and over (county level)	American Community Survey (ACS) (2019-2023)		Continuous Variable	Demographics	Variable calculated by NCI based on ACS Dataset: B16004

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ACS_ENGLVERYWELL_PCT_MOE_C		Margin of Error: Percentage of population that speaks English very well, ages 5 and over (county level)	American Community Survey (ACS) (2019-2023)			Demographics	MOE calculated by NCI using the method described on pages 3-4 (approximating standard errors for derived estimates: https://www2.census.gov/programs-surveys/acs/tech_docs/statistical_testing/2023_Instructions_for_Stat_Testing_ACS.pdf)
ACS_ENGLWELL_PCT_C		Percentage of population that speaks English well, ages 5 and over (county level)	American Community Survey (ACS) (2019-2023)		Continuous Variable	Demographics	Variable calculated by NCI based on ACS Dataset: B16004
ACS_ENGLWELL_PCT_MOE_C		Margin of Error: Percentage of population that speaks English well, ages 5 and over (county level)	American Community Survey (ACS) (2019-2023)			Demographics	MOE calculated by NCI using the method described on pages 3-4 (approximating standard errors for derived estimates: https://www2.census.gov/programs-surveys/acs/tech_docs/statistical_testing/2023_Instructions_for_Stat_Testing_ACS.pdf)
ACS_FOREIGNBORN_PCT_C		Percentage of population that is foreign-born (county level)	American Community Survey (ACS) (2019-2023)		Continuous Variable	Demographics	Variable calculated by NCI based on ACS Dataset: B05001
ACS_FOREIGNBORN_PCT_MOE_C		Margin of Error: Percentage of population that is foreign-born (county level)	American Community Survey (ACS) (2019-2023)			Demographics	MOE calculated by NCI using the method described on pages 3-4 (approximating standard errors for derived estimates: https://www2.census.gov/programs-surveys/acs/tech_docs/statistical_testing/2023_Instructions_for_Stat_Testing_ACS.pdf)
ACS_GINI_INDEX_C		Gini index of income inequality (county level)	American Community Survey (ACS) (2019-2023)		Continuous Variable	Social and Economic Factors	Variable calculated by NCI based on ACS Dataset: B19083
ACS_GINI_INDEX_MOE_C		Margin of Error: Gini index of income inequality (county level)	American Community Survey (ACS) (2019-2023)			Social and Economic Factors	MOE calculated by NCI using the method described on pages 3-4 (approximating standard errors for derived estimates: https://www2.census.gov/programs-surveys/acs/tech_docs/statistical_testing/2023_Instructions_for_Stat_Testing_ACS.pdf)

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ACS_HHPUBASSIST_PCT_C		Percentage of households with public assistance income or food stamps/SNAP (county level)	American Community Survey (ACS) (2019-2023)		Continuous Variable	Social and Economic Factors	Variable calculated by NCI based on ACS Dataset: B19058
ACS_HHPUBASSIST_PCT_MOE_C		Margin of Error: Percentage of households with public assistance income or food stamps/SNAP (county level)	American Community Survey (ACS) (2019-2023)			Social and Economic Factors	MOE calculated by NCI using the method described on pages 3-4 (approximating standard errors for derived estimates: https://www2.census.gov/programs-surveys/acs/tech_docs/statistical_testing/2023_Instructions_for_Stat_Testing_ACS.pdf)
ACS_HHRENTED_PCT_C		Percentage of occupied housing units: rented (county level)	American Community Survey (ACS) (2019-2023)		Continuous Variable	Social and Economic Factors	Variable calculated by NCI based on ACS Dataset: B25003
ACS_HHRENTED_PCT_MOE_C		Margin of Error: Percentage of occupied housing units: rented (county level)	American Community Survey (ACS) (2019-2023)			Social and Economic Factors	MOE calculated by NCI using the method described on pages 3-4 (approximating standard errors for derived estimates: https://www2.census.gov/programs-surveys/acs/tech_docs/statistical_testing/2023_Instructions_for_Stat_Testing_ACS.pdf)
ACS_HISPAN_PCT_C		Percentage of population reporting Hispanic ethnicity (county level)	American Community Survey (ACS) (2019-2023)		Continuous Variable	Demographics	Variable calculated by NCI based on ACS Dataset: B03003
ACS_HISPAN_PCT_MOE_C		Margin of Error: Percentage of population reporting Hispanic ethnicity (county level)	American Community Survey (ACS) (2019-2023)			Demographics	MOE calculated by NCI using the method described on pages 3-4 (approximating standard errors for derived estimates: https://www2.census.gov/programs-surveys/acs/tech_docs/statistical_testing/2023_Instructions_for_Stat_Testing_ACS.pdf)
ACS_INTERNET_PCT_C		Percentage of households with any internet connection (county level)	American Community Survey (ACS) (2019-2023)		Continuous Variable	Information Technology	Variable calculated by NCI based on ACS Dataset: B28002
ACS_INTERNET_PCT_MOE_C		Margin of Error: Percentage of households with any internet connection (county level)	American Community Survey (ACS) (2019-2023)			Information Technology	MOE calculated by NCI using the method described on pages 3-4 (approximating standard errors for derived estimates: https://www2.census.gov/programs-surveys/acs/tech_docs/statistical_testing/2023_Instructions_for_Stat_Testing_ACS.pdf)

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							us.gov/programs-surveys/acs/tech_docs/statistical_testing/2023_Instructions_for_Stat_Testing_ACS.pdf)
ACS_LIMITENGL_PCT_C		Percentage of households with limited English speaking (county level)	American Community Survey (ACS) (2019-2023)		Continuous Variable	Demographics	Variable calculated by NCI based on ACS Dataset: C16002
ACS_LIMITENGL_PCT_MOE_C		Margin of Error: Percentage of households with limited English speaking (county level)	American Community Survey (ACS) (2019-2023)			Demographics	MOE calculated by NCI using the method described on pages 3-4 (approximating standard errors for derived estimates: https://www2.census.gov/programs-surveys/acs/tech_docs/statistical_testing/2023_Instructions_for_Stat_Testing_ACS.pdf)
ACS_MEDIAN_HHINC_OME_C		Median household income, in dollars, inflation-adjusted to file data year (county level)	American Community Survey (ACS) (2019-2023)		Continuous Variable	Social and Economic Factors	Variable calculated by NCI based on ACS Dataset: B19013
ACS_MEDIAN_HHINC_OME_MOE_C		Margin of Error: Median household income, in dollars, inflation-adjusted to file data year (county level)	American Community Survey (ACS) (2019-2023)			Social and Economic Factors	MOE calculated by NCI using the method described on pages 3-4 (approximating standard errors for derived estimates: https://www2.census.gov/programs-surveys/acs/tech_docs/statistical_testing/2023_Instructions_for_Stat_Testing_ACS.pdf)
ACS_MULTIRACE_PCT_C		Percentage of population reporting multiple races (county level)	American Community Survey (ACS) (2019-2023)		Continuous Variable	Demographics	Variable calculated by NCI based on ACS Dataset: B02001
ACS_MULTIRACE_PCT_MOE_C		Margin of Error: Percentage of population reporting multiple races (county level)	American Community Survey (ACS) (2019-2023)			Demographics	MOE calculated by NCI using the method described on pages 3-4 (approximating standard errors for derived estimates: https://www2.census.gov/programs-surveys/acs/tech_docs/statistical_testing/2023_Instructions_for_Stat_Testing_ACS.pdf)
ACS_NOINTERNET_PCT_C	S2801_C02_019E	Estimated percentage of total households without an Internet subscription (county level)	American Community Survey (ACS) (2019-2023)		Continuous Variable	Information Technology	
ACS_NOINTERNET_PCT_MOE_C	S2801_C02_019M	Margin of Error: Estimated percentage of total households without an Internet subscription (county level)	American Community Survey (ACS) (2019-2023)			Information Technology	MOE calculated by NCI using the method described on pages 3-4 (approximating

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							standard errors for derived estimates: https://www2.census.gov/programs-surveys/acs/tech_docs/statistical_testing/2023_Instructions_for_Stat_Testing_ACS.pdf
ACS_NOPC_PCT_C		Percentage of households without a computer (county level)	American Community Survey (ACS) (2019-2023)		Continuous Variable	Information Technology	Variable calculated by NCI based on ACS Dataset: B28001
ACS_NOPC_PCT_MOE_C		Margin of Error: Percentage of households without a computer (county level)	American Community Survey (ACS) (2019-2023)			Information Technology	MOE calculated by NCI using the method described on pages 3-4 (approximating standard errors for derived estimates: https://www2.census.gov/programs-surveys/acs/tech_docs/statistical_testing/2023_Instructions_for_Stat_Testing_ACS.pdf)
ACS_TOTALHOUSEHOLDS_C	S2801_C01_001E	Estimated Total Number of households (county level)	American Community Survey (ACS) (2019-2023)		Continuous Variable	Demographics	
ACS_TOTALHOUSEHOLDS_MOE_C		Margin of Error: Estimated Total Number of households (county level)	American Community Survey (ACS) (2019-2023)		Continuous Variable	Demographics	MOE calculated by NCI using the method described on pages 3-4 (approximating standard errors for derived estimates: https://www2.census.gov/programs-surveys/acs/tech_docs/statistical_testing/2023_Instructions_for_Stat_Testing_ACS.pdf)
ACS_UNINSURED_PCT_C		Percentage of population with no health insurance coverage (county level)	American Community Survey (ACS) (2019-2023)		Continuous Variable	Demographics	Variable calculated by NCI based on ACS Dataset: B27010
ACS_UNINSURED_PCT_MOE_C		Margin of Error: Percentage of population with no health insurance coverage (county level)	American Community Survey (ACS) (2019-2023)			Demographics	MOE calculated by NCI using the method described on pages 3-4 (approximating standard errors for derived estimates: https://www2.census.gov/programs-surveys/acs/tech_docs/statistical_testing/2023_Instructions_for_Stat_Testing_ACS.pdf)

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AHRF_TOT_COM_HEA_LTH_GRANT_C		Number of community health centers, grantees only (county level)	Area Health Resources Files (AHRF) from the Health Resources & Services Administration (2023-2024)	https://data.hrsa.gov/topics/health-workforce/ahrf	Continuous Variable	Built Environment	Margins of Error are not available for data points from AHRF files
AHRF_POS_TOT_FQH_C_C	POS_TOT_FQH_C	Number of Federally Qualified Health Centers (county level)	Area Health Resources Files (AHRF) from the Health Resources & Services Administration (2023-2024)	https://data.hrsa.gov/topics/health-workforce/ahrf	Continuous Variable	Built Environment	Margins of Error are not available for data points from AHRF files
AHRF_HPSA_MENTAL_C		Health Professional Shortage Area (HPSA) code-shortage of mental healthcare providers (county level)	Area Health Resources Files (AHRF) from the Health Resources & Services Administration (2023-2024)	https://data.hrsa.gov/topics/health-workforce/ahrf	0= None of the county designated as a shortage area, 1 = Whole county designated as a shortage area, 2 = One or more parts of county designated as shortage area	Built Environment	Margins of Error are not available for data points from AHRF files
AHRF_HPSA_PRIM_C		Health Professional Shortage Area (HPSA) code-shortage of primary care physicians (county level)	Area Health Resources Files (AHRF) from the Health Resources & Services Administration (2023-2024)	https://data.hrsa.gov/topics/health-workforce/ahrf	0 = None of the county designated as a shortage area, 1 = Whole county designated as a shortage area, 2 = One or more parts of county designated as shortage area	Built Environment	Margins of Error are not available for data points from AHRF files
AHRF_GOOD_AQ_PCT_C		Percentage of days with good air quality (county level)	Area Health Resources Files (AHRF) from the Health Resources & Services Administration (2023-2024)	https://data.hrsa.gov/topics/health-workforce/ahrf	Continuous Variable	Physical Environment	Margins of Error are not available for data points from AHRF files
CCBP_BWLSTORES_RATE_C		Beer, wine and liquor stores per 1,000 people (county level)	U.S. Census County Business Patterns (CCBP) from Agency for Healthcare Research and Quality (AHRQ) Social Determinants of Health (SDOH) Dataset 2022	https://www.ahrq.gov/sdoh/data-analytics/sdoh-data.html#download	Continuous Variable	Built Environment	Margins of Error are not available for data points from CCBP files

HDLP Variable Name	Original Variable Name (if applicable)	Variable Label	Data Source	Data Codebook	Category Values (if applicable)	Bookmark	Additional Notes
CCBP_CS_RATE_C		Convenience stores per 1,000 people (county level)	U.S. Census County Business Patterns (CCBP) from Agency for Healthcare Research and Quality (AHRQ) Social Determinants of Health (SDOH) Dataset 2022	https://www.ahrq.gov/sdoh/data-analytics/sdoh-data.html#download	Continuous Variable	Built Environment	Margins of Error are not available for data points from CCBP files
CCBP_FCRSC_RATE_C		Fitness centers and recreational sports centers per 1,000 people (county level)	U.S. Census County Business Patterns (CCBP) from Agency for Healthcare Research and Quality (AHRQ) Social Determinants of Health (SDOH) Dataset 2022	https://www.ahrq.gov/sdoh/data-analytics/sdoh-data.html#download	Continuous Variable	Built Environment	Margins of Error are not available for data points from CCBP files
CCBP_FF_RATE_C		Limited-service restaurants (fast food establishments) per 1,000 people (county level)	U.S. Census County Business Patterns (CCBP) from Agency for Healthcare Research and Quality (AHRQ) Social Determinants of Health (SDOH) Dataset 2022	https://www.ahrq.gov/sdoh/data-analytics/sdoh-data.html#download	Continuous Variable	Built Environment	Margins of Error are not available for data points from CCBP files
CCBP_SOGS_RATE_C		Supermarkets and other grocery (except convenience) stores per 1,000 people (county level)	U.S. Census County Business Patterns (CCBP) from Agency for Healthcare Research and Quality (AHRQ) Social Determinants of Health (SDOH) Dataset 2022	https://www.ahrq.gov/sdoh/data-analytics/sdoh-data.html#download	Continuous Variable	Built Environment	Margins of Error are not available for data points from CCBP files
CDCSVI_RPL_THEME1_SOCIECO_C	CDCSVI_RPL_THEME1_SOCIECO	Social Vulnerability Index: Percentile ranking for socioeconomic theme. Percentile ranking values range from 0 to 1, with higher values indicating greater vulnerability (county level)	Social Vulnerability Index (SVI) from Agency for Toxic Substances and Disease Registry (ATSDR) Geospatial Research, Analysis & Services Program (GRASP) Centers for Disease Control and Prevention Social Vulnerability Index (CDC SVI) Dataset 2022	https://www.atsdr.cdc.gov/place-health/media/pdfs/2024/10/SVI2022Documentation.pdf	Continuous Variable	Social and Economic Factors	
CDCSVI_RPL_THEME2_HH_COMP_C	CDCSVI_RPL_THEME2_HH_COMP	Social Vulnerability Index: Percentile ranking for household composition theme. Percentile ranking values range from 0 to 1, with higher values indicating greater vulnerability (county level)	Social Vulnerability Index (SVI) from Agency for Toxic Substances and Disease Registry (ATSDR) Geospatial Research, Analysis & Services Program (GRASP) Centers for Disease Control and Prevention Social Vulnerability Index (CDC SVI) Dataset 2022	https://www.atsdr.cdc.gov/place-health/media/pdfs/2024/10/SVI2022Documentation.pdf	Continuous Variable	Social and Economic Factors	

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CDCSVI_RPL_THEME3_MINO_C	CDCSVI_RPL_THEME3_MINO	Social Vulnerability Index: Percentile ranking for minority status/language theme. Percentile ranking values range from 0 to 1, with higher values indicating greater vulnerability (county level)	Social Vulnerability Index (SVI) from Agency for Toxic Substances and Disease Registry (ATSDR) Geospatial Research, Analysis & Services Program (GRASP) Centers for Disease Control and Prevention Social Vulnerability Index (CDC SVI) Dataset 2022	https://www.atsdr.cdc.gov/place-health/media/pdfs/2024/10/SVI2022Documentation.pdf	Continuous Variable	Social and Economic Factors	
CDCSVI_RPL_THEME4_HH_TRANS_C	CDCSVI_RPL_THEME4_HH_TRANS	Social Vulnerability Index: Percentile ranking for housing/transportation theme. Percentile ranking values range from 0 to 1, with higher values indicating greater vulnerability (county level)	Social Vulnerability Index (SVI) from Agency for Toxic Substances and Disease Registry (ATSDR) Geospatial Research, Analysis & Services Program (GRASP) Centers for Disease Control and Prevention Social Vulnerability Index (CDC SVI) Dataset 2022	https://www.atsdr.cdc.gov/place-health/media/pdfs/2024/10/SVI2022Documentation.pdf	Continuous Variable	Social and Economic Factors	
CDCSVI_RPL_THEMES_ALL_C	CDCSVI_RPL_THEMES_ALL	Percentile ranking for overall Social Vulnerability Index. Percentile ranking values range from 0 to 1, with higher values indicating greater vulnerability (county level)	Social Vulnerability Index (SVI) from Agency for Toxic Substances and Disease Registry (ATSDR) Geospatial Research, Analysis & Services Program (GRASP) Centers for Disease Control and Prevention Social Vulnerability Index (CDC SVI) Dataset 2022	https://www.atsdr.cdc.gov/place-health/media/pdfs/2024/10/SVI2022Documentation.pdf	Continuous Variable	Social and Economic Factors	
CHR_MENTAL_PROV_RATE_C		Number of mental health care providers per 100,000 population (county level)	2023 CMS, National Provider Identification from the 2024 County Health Rankings (CHR)	https://www.countyhealthrankings.org/explore-health-rankings/rankings-data-documentation	Continuous Variable	Built Environment	
CHR_SEGREG_BLACK_C		Segregation Index: higher values indicate greater residential segregation between Black and White residents (county level)	2024 County Health Rankings (CHR)	https://www.countyhealthrankings.org/explore-health-rankings/rankings-data-documentation	Continuous Variable	Social and Economic Factors	
CHR_ADULTSMOKING_PCT_C	% Smokers	Within-state percentile of adults who are current smokers (county level)	Behavioral Risk Factor Surveillance System (BRFSS) 2019 from 2024 County Health Rankings	https://www.countyhealthrankings.org/explore-health-rankings/rankings-data-documentation	Continuous Variable	Physical Environment	

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CHR_FOODENVINDEX_C	Food Environment Index	Food environment index (county level)	USDA Food Environment Atlas, Map the Meal Gap from Feeding America 2019 from 2024 County Health Rankings	https://www.countyhealthrankings.org/explore-health-rankings/rankings-data-documentation	Continuous Variable	Built Environment	
CHR_EXERCISEACCESS_PCT_C	% With Access to Exercise Opportunities	Within-state percentile of adequate access to places for physical activity (county level)	Business Analyst, Delorme map data, ESRI, & US Census Tigerline Files 2021 from 2024 County Health Rankings	https://www.countyhealthrankings.org/explore-health-rankings/rankings-data-documentation	Continuous Variable	Built Environment	
CHR_AVGDAILYPM_PCT_C	Average Daily PM2.5	Within-state percentile of air pollution - particulate matter (county level)	Environment Public Health Tracking Network 2019 from 2024 County Health Rankings	https://www.countyhealthrankings.org/explore-health-rankings/rankings-data-documentation	Continuous Variable	Physical Environment	
CHR_SVRHOUSINGPRBLM_PCT_C	% 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 (county level)	Comprehensive Housing Affordability Strategy (CHAS) data 2016-2020 from 2024 County Health Rankings	https://www.countyhealthrankings.org/explore-health-rankings/rankings-data-documentation	Continuous Variable	Social and Economic Factors	
CHR_HOUSINGCOSTBURDEN_PCT_C	Severe Housing Cost Burden	Percentage of households with high housing costs (county level)	Comprehensive Housing Affordability Strategy (CHAS) data 2016-2020 from 2024 County Health Rankings	https://www.countyhealthrankings.org/explore-health-rankings/rankings-data-documentation	Continuous Variable	Social and Economic Factors	
CHR_OVERCROWDING_PCT_C	Overcrowding	Percentage of households with overcrowding (county level)	Comprehensive Housing Affordability Strategy (CHAS) data 2016-2020 from 2024 County Health Rankings	https://www.countyhealthrankings.org/explore-health-rankings/rankings-data-documentation	Continuous Variable	Social and Economic Factors	
CHR_INADEQUATEFACILITIES_PCT_C	Inadequate Facilities	Within-state percentile of households with inadequate kitchen or plumbing facilities (county level)	Comprehensive Housing Affordability Strategy (CHAS) data 2016-2020 from 2024 County Health Rankings	https://www.countyhealthrankings.org/explore-health-rankings/rankings-data-documentation	Continuous Variable	Social and Economic Factors	

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YOST_INDEX_SES_C	Yost_Index	Yost Index is a measure of SES. For more details see Yost et al 2001 and the HINTSSEER Codebook. Higher scores indicate better SES (county level)	SEER*Stat, American Community Survey (ACS) 2018-2022		Continuous Variable	Social and Economic Factors	Index is based on the following variables: Median household income, Median house value, Median rent, Percent below 150% of poverty line, Education Index, Percent working class, and Percent unemployed Yost Index is also sometimes referred to as the Social Deprivation Index and higher scores indicate better SES. https://pubmed.ncbi.nlm.nih.gov/11562110/ More information available in https://seer.cancer.gov/seerst-at/databases/census-tract/index.html
NSRDB_UV_C		The Physical Solar Model (PSM) calculates surface radiation, a proxy of UV exposure (county level)	NSRDB: National Solar Radiation Database		Continuous Variable	Physical Environment	The Physical Solar Model (PSM) computes global horizontal irradiance (GHI) using a two-stage scheme that first retrieves cloud properties and then uses those properties to calculate surface radiation. (https://docs.nrel.gov/docs/fy15osti/64981.pdf)

Table 2. Census tract level HDLP Variables

HDLP Variable Name	Original Variable Name (if applicable)	Variable Label	Data Source	Data Codebook	Category Values (if applicable)	Bookmark	Additional Notes
ACS_AGE017_QUARTILE_T		Quartiles: percentage of population age 0–17 (census-tract)	American Community Survey (ACS) (2019-2023)		1 <=17.3531 2 >17.3531 - 21.6233 3 >21.6233 - 25.8281 4 >25.8281	Demographics	Variable calculated by NCI based on ACS Dataset: B01001
ACS_AGE65UP_QUARTILE_T		Quartiles: percentage of population age 65 and over (census-tract)	American Community Survey (ACS) (2019-2023)		1 <=11.9393 2 >11.9393 - 16.6331 3 >16.6331 - 21.7011 4 >21.7011	Demographics	Variable calculated by NCI based on ACS Dataset: B01001
ACS_AIAN_BIN_T		Binary: percentage of population reporting American Indian/Alaska Native race (census-tract)	American Community Survey (ACS) (2019-2023)		1 = 0 2 > 0	Demographics	Variable calculated by NCI based on ACS Dataset: B02001
ACS_BLACK_QUARTILE_T		Quartile: percentage of population reporting Black race (census-tract)	American Community Survey (ACS) (2019-2023)		1 <=0.8491 2 >0.8491 - 4.1987 3 >4.1987 - 15.3681 4 >15.3681	Demographics	Variable calculated by NCI based on ACS Dataset: B02001
ACS_BROADBAND_QUARTILE_T		Quartiles: percentage of households with any type of broadband internet subscription (census-tract)	American Community Survey (ACS) (2019-2023)		1 <=84.67305 2 >84.67305 - 90.7333 3 >90.7333 - 95.24965 4 >95.24965	Information Technology	Variable calculated by NCI based on ACS Dataset: B28002
ACS_COMPUTERS_QUARTILE_T		Quartiles: estimated percentage of households that have one or more types of computing devices (census-tract)	American Community Survey (ACS) (2019-2023)		1 <=92.0161 2 >92.0161 - 95.77185 3 >95.77185 - 98.28195 4 >98.28195	Information Technology	
ACS_ENGLNOTWELL_QUARTILE_T		Quartiles: percentage of population that does not speak English well (ages 5 and over) (census-tract)	American Community Survey (ACS) (2019-2023)		1 <=0.04 2 >0.04 - 0.9612 3 >0.9612 - 3.4483 4 >3.4483	Demographics	Variable calculated by NCI based on ACS Dataset: B16004
ACS_ENGLVERYWELL_QUARTILE_T		Quartiles: percentage of population that speaks English very well (ages 5 and over) (census-tract)	American Community Survey (ACS) (2019-2023)		1 <=3.1934 2 >3.1934 - 8.5484 3 >8.5484 - 19.0093 4 >19.0093	Demographics	Variable calculated by NCI based on ACS Dataset: B16004
ACS_ENGLWELL_QUARTILE_T		Quartiles: percentage of population that speaks English well (ages 5 and over) (census-tract)	American Community Survey (ACS) (2019-2023)		1 <=0.5372 2 >0.5372 - 2.0967 3 >2.0967 - 5.6263 4 >5.6263	Demographics	Variable calculated by NCI based on ACS Dataset: B16004
ACS_FOREIGNBORN_QUARTILE_T		Quartiles: percentage of population that is foreign-born (census-tract)	American Community Survey (ACS) (2019-2023)		1 <=3.5351 2 >3.5351 - 9.0909 3 >9.0909 - 20.1936 4 >20.1936	Demographics	Variable calculated by NCI based on ACS Dataset: B05001
ACS_GINI_INDEX_T		Gini index of income inequality (census-tract)	American Community Survey (ACS) (2019-2023)		Continuous Variable	Social and Economic Factors	Variable calculated by NCI based on ACS Dataset: B19083
ACS_GINI_INDEX_MOE_T		Margin of Error: Gini index of income inequality (census-tract)	American Community Survey (ACS) (2019-2023)			Social and Economic Factors	MOE calculated by NCI using the method described on pages 3-4 (approximating standard

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							errors for derived estimates: https://www2.census.gov/programs-surveys/acs/tech_docs/statistical_testing/2023_Instructions_for_Stat_Testing_ACS.pdf)
ACS_HHPUBASSIST_QUARTILE_T		Quartile: percentage of households with public assistance income or food stamps/SNAP (census-tract)	American Community Survey (ACS) (2019-2023)		1 <=5.0908 2 >5.0908 - 10.46635 3 >10.46635 - 18.9386 4 >18.9386	Social and Economic Factors	Variable calculated by NCI based on ACS Dataset: B19058
ACS_HHRENTED_QUARTILE_T		Quartiles: percentage of occupied housing units, rented (census-tract)	American Community Survey (ACS) (2019-2023)		1 <=15.9884 2 >15.9884 - 29.4198 3 >29.4198 - 50.04775 4 >50.04775	Social and Economic Factors	Variable calculated by NCI based on ACS Dataset: B25003
ACS_HISPAN_QUARTILE_T		Quartiles: percentage of population reporting Hispanic ethnicity (census-tract)	American Community Survey (ACS) (2019-2023)		1 <=3.3729 2 >3.3729 - 9.093 3 >9.093 - 23.0955 4 >23.0955	Demographics	Variable calculated by NCI based on ACS Dataset: B03003
ACS_INTERNET_QUARTILE_T		Quartiles: percentage of households with any internet connection (census-tract)	American Community Survey (ACS) (2019-2023)		1 <=84.9061 2 >84.9061 - 90.9091 3 >90.9091 - 95.37515 4 >95.37515	Information Technology	Variable calculated by NCI based on ACS Dataset: B28002
ACS_LIMITENGL_QUARTILE_T		Quartiles: percentage of households with limited English speaking (census-tract)	American Community Survey (ACS) (2019-2023)		1 <=0 2 >0 - 1.4144 3 >1.4144 - 5.16435 4 >5.16435	Demographics	Variable calculated by NCI based on ACS Dataset: C16002
ACS_MEDIAN_HHINCOME_QUARTILE_T		Quartiles: median household income (in dollars, inflation-adjusted to file data year) (census-tract)	American Community Survey (ACS) (2019-2023)		1 <=56417 2 >56417 - 75313 3 >75313 - 102500 4 >102500	Social and Economic Factors	Variable calculated by NCI based on ACS Dataset: B19013
ACS_MULTIRACE_QUARTILE_T		Quartiles: percentage of population reporting multiple races (census-tract)	American Community Survey (ACS) (2019-2023)		1 <=4.0767 2 >4.0767 - 7.6996 3 >7.6996 - 13.4545 4 >13.4545	Demographics	Variable calculated by NCI based on ACS Dataset: B02001
ACS_NOINTERNET_QUARTILE_T	S2801_C02_019E	Quartiles: estimated percentage of total households without an Internet subscription (census-tract)	American Community Survey (ACS) (2019-2023)		1 <=2.9216 2 >2.9216 - 6.58525 3 >6.58525 - 11.9145 4 >11.9145	Information Technology	
ACS_NOPC_QUARTILE_T		Quartiles: percentage of households without a computer (census-tract)	American Community Survey (ACS) (2019-2023)		1 <=1.71805 2 >1.71805 - 4.22815 3 >4.22815 - 7.9839 4 >7.9839	Information Technology	Variable calculated by NCI based on ACS Dataset: B28001
ACS_TOTALHOUSEHOLDS_QUARTILE_T	S2801_C01_001E	Quartiles: estimated total number of households (census-tract)	American Community Survey (ACS) (2019-2023)		1 <=1056 2 >1056 - 1449 3 >1449 - 1899 4 >1899	Demographics	

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ACS_UNINSURED_QUARTILE_T		Quartiles: percentage of population with no health insurance coverage (census-tract)	American Community Survey (ACS) (2019-2023)		1 <=3.4455 2 >3.4455 - 6.5817 3 >6.5817 - 11.68035 4 >11.68035	Demographics	Variable calculated by NCI based on ACS Dataset: B27010
CDCSVI_RPL_THEME1_SOCIECO_T	CDCSVI_RPL_THEME1_SOCIECO	Social Vulnerability Index: Percentile ranking for socioeconomic theme. Percentile ranking values range from 0 to 1, with higher values indicating greater vulnerability (census-tract)	Social Vulnerability Index (SVI) from Agency for Toxic Substances and Disease Registry (ATSDR) Geospatial Research, Analysis & Services Program (GRASP) Centers for Disease Control and Prevention Social Vulnerability Index (CDC SVI) Dataset 2022	https://www.atsdr.cdc.gov/place-health/media/pdfs/2024/10/SVI2022Documentation.pdf	Continuous Variable	Social and Economic Factors	
CDCSVI_RPL_THEME2_HH_COMP_T	CDCSVI_RPL_THEME2_HH_COMP	Social Vulnerability Index: Percentile ranking for household composition theme. Percentile ranking values range from 0 to 1, with higher values indicating greater vulnerability (census-tract)	Social Vulnerability Index (SVI) from Agency for Toxic Substances and Disease Registry (ATSDR) Geospatial Research, Analysis & Services Program (GRASP) Centers for Disease Control and Prevention Social Vulnerability Index (CDC SVI) Dataset 2022	https://www.atsdr.cdc.gov/place-health/media/pdfs/2024/10/SVI2022Documentation.pdf	Continuous Variable	Social and Economic Factors	
CDCSVI_RPL_THEME3_MINO_T	CDCSVI_RPL_THEME3_MINO	Social Vulnerability Index: Percentile ranking for minority status/language theme. Percentile ranking values range from 0 to 1, with higher values indicating greater vulnerability (census-tract)	Social Vulnerability Index (SVI) from Agency for Toxic Substances and Disease Registry (ATSDR) Geospatial Research, Analysis & Services Program (GRASP) Centers for Disease Control and Prevention Social Vulnerability Index (CDC SVI) Dataset 2022	https://www.atsdr.cdc.gov/place-health/media/pdfs/2024/10/SVI2022Documentation.pdf	Continuous Variable	Social and Economic Factors	
CDCSVI_RPL_THEME4_HH_TRANS_T	CDCSVI_RPL_THEME4_HH_TRANS	Social Vulnerability Index: Percentile ranking for housing/transportation theme. Percentile ranking values range from 0 to 1, with higher values indicating greater vulnerability (census-tract)	Social Vulnerability Index (SVI) from Agency for Toxic Substances and Disease Registry (ATSDR) Geospatial Research, Analysis & Services Program (GRASP) Centers for Disease Control and Prevention Social Vulnerability Index (CDC SVI) Dataset 2022	https://www.atsdr.cdc.gov/place-health/media/pdfs/2024/10/SVI2022Documentation.pdf	Continuous Variable	Social and Economic Factors	
CDCSVI_RPL_THEMES_ALL_T	CDCSVI_RPL_THEMES_ALL	Percentile ranking for overall Social Vulnerability Index. Percentile ranking values range from 0 to 1, with higher values indicating greater vulnerability (census-tract)	Social Vulnerability Index (SVI) from Agency for Toxic Substances and Disease Registry (ATSDR) Geospatial Research, Analysis & Services Program (GRASP) Centers for Disease Control and	https://www.atsdr.cdc.gov/place-health/media/pdfs/2024/10/SVI2022Documentation.pdf	Continuous Variable	Social and Economic Factors	

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			Prevention Social Vulnerability Index (CDC SVI) Dataset 2022				
RPL_EJI_T	RPL_EJI	Percentile ranked sum of the Health Vulnerability, Environmental Burden Index and Social Vulnerability Index module percentile ranks (census-tract)	2024 Environmental Justice Index uses from the U.S. Centers for Disease Control and Prevention	https://www.atsdr.cdc.gov/place-health/media/pdfs/2024/10/EJI_2024_Technical_Documentation.pdf	Continuous Variable	Social and Economic Factors	A percentile ranking represents the proportion of that are equal to or lower than a tract of interest in environmental burden. For example, an EJI ranking of 0.85 signifies that 85% of tracts in the nation likely experience less severe cumulative impacts from environmental burden than the tract of interest, and that 15% of tracts in the nation likely experience more severe cumulative impacts from environmental burden. https://www.atsdr.cdc.gov/place-health/php/eji/eji-frequently-asked-questions-faqs.html
RPL_SER_T	RPL_SER	Percentile ranked sum of the Environmental Burden and Social Vulnerability module percentile ranks (census-tract)	2024 Environmental Justice Index uses from the U.S. Centers for Disease Control and Prevention	https://www.atsdr.cdc.gov/place-health/media/pdfs/2024/10/EJI_2024_Technical_Documentation.pdf	Continuous Variable	Social and Economic Factors	A percentile ranking represents the proportion of tracts that are equal to or lower than a tract of interest in environmental burden. For example, an EJI ranking of 0.85 signifies that 85% of tracts in the nation likely experience less severe cumulative impacts from environmental burden than the tract of interest, and that 15% of tracts in the nation likely experience more severe cumulative impacts from environmental burden. https://www.atsdr.cdc.gov/place-health/php/eji/eji-frequently-asked-questions-faqs.html
YOST_INDEX_SES_T	Yost_Index	Yost Index is a measure of SES. For more details see Yost et al 2001 and the HINTSSEER Codebook. Higher scores indicate better SES (census-tract)	SEER*Stat, American Community Survey (ACS) 2018-2022		Continuous Variable	Social and Economic Factors	Index is based on the following variables: Median household income, Median house value, Median rent, Percent below 150% of poverty line, Education Index, Percent working class, and Percent unemployed.

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							<p>Yost Index is also sometimes referred to as the Social Deprivation Index and higher scores indicate better SES.</p> <p>https://pubmed.ncbi.nlm.nih.gov/11562110/ More information available in https://seer.cancer.gov/seerstat/databases/census-tract/index.html</p>