2017 PAHRC Report Methodology

This document contains detailed information on the data sources, methods, and assumptions made to produce the estimates shared in the 2017 PAHRC Report and accompanying maps.

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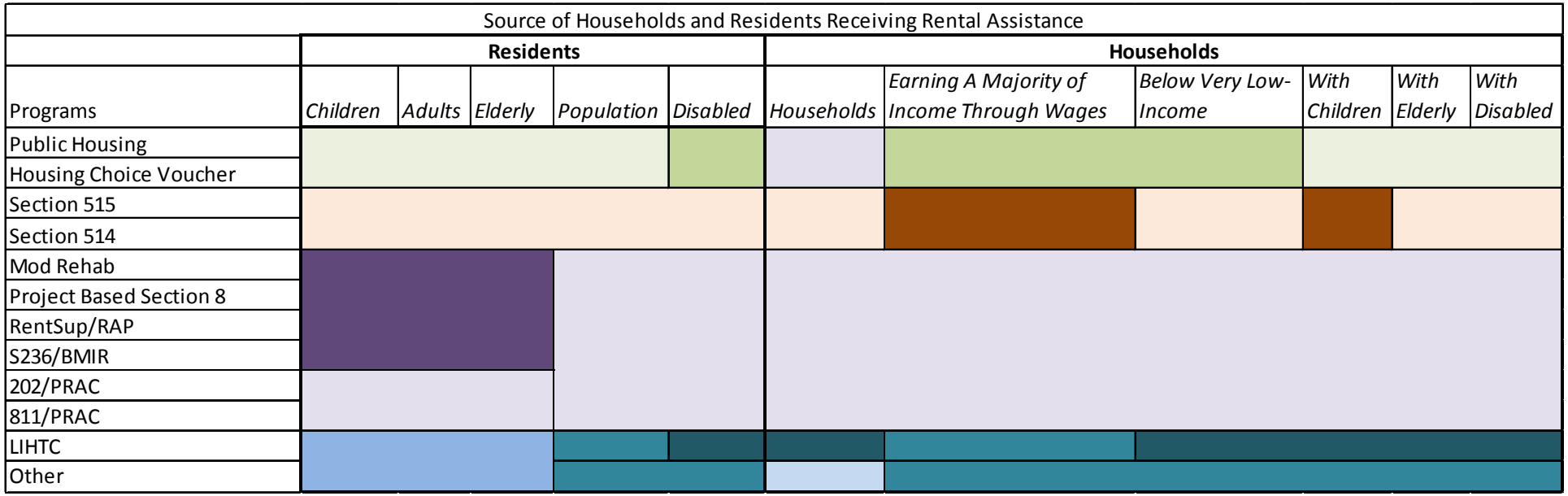
Protecting the Most Vulnerable Analyses

Households and Residents Receiving Rental Assistance Estimates

The number of households and residents receiving rental assistance includes households assisted by public housing, Housing Choice Vouchers, Section 515, Section 514, mod rehab, project based section 8, Rent Sup, Section 236 Below Moderate Income Rents (BMIR), Section 202 PRAC, Section 811 PRAC, Low-Income Housing Tax Credits, HOME, state Section 236, and HUD Insured Multifamily Mortgages. The number of households receiving rental assistance was downwardly adjusted to reflect households assisted by multiple programs. Resident demographic data were populated using Picture of Subsidized Households summary of all program data and HUD's Resident Characteristics Report for public housing and Housing Choice Vouchers for programs which resident demographic information was unavailable. The data source for each of these resident demographic estimates by program are described in the two color coordinated charts below.



Resident Characteristics Report (RCR), Retrieved January 11, 2017
These values were calculated by adjusting the total number of people assisted by public housing and Housing Choice Vouchers (HCVs) as reported in POSH 2016 by the percentage of population by age as reported in RCR for public housing and HCV holders.
Picture of Subsidized Households (POSH) 2016
These values were collected directly from POSH 2016 for household level demographics on public housing and HCV holders.
Multifamily Housing Occupancy Statistics Report 2015
These values were collected directly from USDA's Multifamily Housing Occupancy Report in 2015 for Section 515 and Section 514 households.

Multifamily Housing Occupancy Statistics Report 2015, made with assumptions using POSH 2016 and 2015 (all relevant programs)
These values were calculated by multiplying the number of Section 515 and Section 514 assisted households by the percentage of households earning a majority of income through wages and the percentage of households with children as reported in POSH 2016 for all relevant programs.
Picture of Subsidized Households 2016
These values were collected directly from POSH 2016 for household and resident level demographics for households assisted by Mod Rehab, Project Based Section 8, Rent Supp/RAP, Section 236 BMIR, Section 202, Section 811, public housing, and Housing Choice Vouchers. The number of households reported was adjusted upwards to reflect 100% reporting if the percentage reported was below 100%. All residents in Section 202/PRAC properties were considered to be seniors. Since the average household size for Section 811/PRAC properties was 1.1, the number of children and elderly residents at Section 811/PRAC properties was calculated by multiplying the total population assisted by this program by the percent of households with children and the percent of households headed by a senior. The remaining total population for the Section 811/PRAC program was considered to be an adult.
POSH 2016, with assumptions made using Resident Characteristics Report 2017 (Project Based Vouchers)
The percentage of residents that are elderly, disabled, and children for residents assisted by Mod Rehab, Project Based Section 8, Rent Supp/RAP, and Section 236/BMIR were assumed to be consistent with the resident level demographics reported in RCR in February 2017 for public housing and HCV households. The number of elderly residents at Project Based Section 8 and Rent Supp/RAP properties was upwardly adjusted to match the total number of elderly headed households and the number of adults and children at these properties were downwardly adjusted.
National Housing Preservation Database (NHPD) Custom Extract, retrieved October, 2016
This value was collected directly from the total units in the NHPD that are assisted by HOME, HUD insured mortgages, Section 538 direct loans, and state Section 236. Any properties assisted by these programs that were also assisted by any of the other programs listed above were excluded.
NHPD Custom Extract, retrieved October, 2016, with assumptions made using RCR 2017 (Public Housing and HCV)
The total number of elderly residents living in units assisted by tax credits and other subsidy programs were assumed to equal the total number of elderly headed households serviced by these programs. The percentage of adults, children, and elderly living in units assisted by tax credits and other subsidy programs were assumed to be consistent with the resident level demographics reported in RCR for public housing and housing choice voucher households.
NHPD Custom Extract, retrieved October 2016, with assumptions made using POSH 2016 (All relevant programs)
The percentage of households living in units assisted by other subsidy programs earning a majority of income through wages, earning below very low income, with children, with elderly, with disabled, and the average number of persons per household for units assisted by other subsidies were assumed to be consistent with household level demographics reported in POSH 2016 for all relevant programs. The percentage of households living in units assisted by tax credits earning a majority of income through wages and the average number of people per household were assumed to be the same as the household level demographics reported in POSH 2016 for all relevant programs.
NHPD Custom Extract, retrieved October 2016 and LIHTC Resident Characteristics Report 2015
The total number of households living in units assisted by tax credits was calculated by subtracting the total number of tax credit assisted units in the NHPD by the percent of tax credit households that receive rental assistance, including HCVs, project based vouchers, Project Based Section 8, public housing, and Section 521 rental assistance as listed in the 2015 LIHTC Resident Characteristics Report. This prevents households assisted from these programs from being double counted in the analysis. The total households living in properties assisted by tax credits was multiplied by the percent of households with children, elderly, disabled, and earning below very low-income as listed in the LIHTC Resident Characteristic Report to determine total number of households that meet this criteria.

This methodology was replicated for each data source by year to calculate percent change in the number of households and residents that received assistance between 2015 and 2016 by type.

Households that Qualify for Assistance

The American Community Survey (ACS) 2015 one year estimates were used to determine the number of households and the number of individuals that could qualify for rental assistance, but are likely not receiving it. While the ACS does not identify HUD-assisted households, assumptions are often made using household income data about whether a household might qualify for rental assistance. Because there is some debate about whether a household receiving rental assistance reports to the ACS their gross rent or only the tenant portion of their rent, non-cost burdened and excessively cost burdened low-income renters were counted among the 7 million renters currently assisted by HUD/USDA with the assumption that HUD-assisted renters reporting tenant rent would not be cost-burdened and excessively cost burdened renters were assisted and reporting their gross rent. More specifically, a household and its individual residents were considered to qualify for rental assistance if they met HUD's definition of low-income (earning below 80% of the statewide HUD area median income, adjusted for household size) and were renters. Renter households not likely to be currently receiving rental assistance paid between 30% and 80% of their income towards housing costs. Households that paid less than 30% or more than 80% of their income towards housing costs were considered to be assisted renter households. However, the total number of low-income renter households that paid less than 30% or more than 80% of their income towards housing costs exceeded the number of households receiving rental assistance as reported by HUD-administrative data, likely including some households living in naturally occurring affordable housing.

The average monthly boost rental assistance could provide to unassisted qualifying household was calculated by taking the average difference between the monthly rent paid and 30% of the household's monthly income for all households classified as unassisted. The total sustainability impact on rent saved for providing rental assistance to unassisted qualifying households was calculated by multiplying the estimated number of unassisted households by the average yearly boost.

Length of Stay Regression

An Ordinary Least Squares (OLS) Regression was used estimate the average number of months since move in for each HUD project based property, controlling for the following property and neighborhood characteristics. Neighborhood characteristics were matched to properties at the census tract level. Neighborhood characteristics were generated from the methods and sources described below in the 'Neighborhood Indicators' section.

OLS Regression Analysis of Average Months from Move in for Properties Receiving Rental Assistance 2015		
	Coef.	Std. Err.
Property Indicators		
Occupancy Rate***	0.207594	0.032296
Average Total Rent Per Month at Property***	0.032689	0.000746
Percent of Extremely Low Income Households at Property***	-0.24838	0.01547

Total Number of People at Property***	0.026662	0.000847
Percent of Households Earning Majority of Income Through Wages at Property***	-0.06715	0.01265
Neighborhood Indicators		
Z score of Area Median Rent Relative to CBSA***	1.147807	0.278836
School Performance Index (Scale of 0 to 100, higher values suggest better quality schools)	0.007652	0.009435
Transportation Cost Index (Scale of 0 to 100, higher values suggest lower transportation costs)***	0.332745	0.010225
Property is in a Census Tract Within a Half Mile to a Grocery Store***	4.845581	0.472912
Statewide Rental Vacancy Rate***	-1.51993	0.094375
Constant	38.48189	3.489213

Promoting Sustainable Communities Analyses

PAHRC estimated the percentage of publicly supported housing units located in communities likely to promote economic, education, transportation, and health opportunities using a custom extract of the National Housing Preservation Database (NHPD) and a Neighborhood Indicator Database compiled using the methods described below. Each property in the NHPD was geocoded and matched to multiple neighborhood indicators at the census tract level.

National Housing Preservation Database Custom Extract

Properties included in the National Housing Preservation Database receive assistance from Low Income Housing Tax Credits (LIHTC), Section 8 contracts, Section 202 direct loans, Section 515 direct loans, Section 538, Section 236 rental assistance, HUD insured mortgages, HOME, and public housing. The Custom Extract of the NHPD was created using methodology describe in the NHPD Data Dictionary with adjustments described in the table below. These adjustments resulted in the Custom Extract differing from the Public NHPD Extract available on www.preservationdatabase.org in the following ways:

Custom NHPD Extract	Public NHPD Extract
Includes data from the National Housing Preservation Database, updated to include the most recent information on tax credits, Section 8 contracts, and Section 515 and 514 direct loans. Data sources and dates are listed on following page.	Includes data as of 2015, described here.
Matches subsidies to properties based on street address, city, and state or street name, city, state, and total units for properties over five units.	Matches subsidies to properties based on street address, city, and state.
Addresses are geocoded using Esri's geocoding service. If no valid geocode from Esri was returned, the geocode from the subsidy level data source was used. If	Addresses are geocoded using Smarty Streets. If no valid geocode from Smarty Streets was returned, the geocode from the subsidy level data source was

both of these fields were missing, the census tract was left blank and the city was used to identify the county.	used.
The file does not group subsidy information by subsidy type.	The file groups subsidy information by subsidy type.
The subsidy end date for tax credits is the year placed in service + 30 years or the year placed in service + mandatory affordability restrictions in states with additional extended affordability requirements listed on the table on page 7.	The subsidy end date for tax credits is the year placed in service + 15 years. If the tax credit is still in HUD's LIHTC Database at year 15, the subsidy end date is updated to be the year placed in service + 29.

All active subsidies, which were compiled according to the rules described in the NHPD Data Dictionary or the adjustments listed in the table above, were appended to an excel file and geocoded using Esri's geocoder to obtain standardized addresses and latitude and longitude. Only geocodes that matched to the street address or a point location were used. If no valid geocode was returned, the latitude and longitude listed from the source data was used to obtain a geocode. After addresses were standardized, the max total units for each unique street address, city, and state was generated and applied to each subsidy. Each subsidy was then sorted in order of data quality and collapsed by street name, city, state, and total units if the number of total units was greater than or equal to five or collapsed by street address, city, and state if the number of total units was less than five. If a property had multiple subsidies, the first field from the most accurate data source was used. If a property did not have a valid geocode, it was excluded from the analysis of neighborhood characteristics.

Data Sources for Custom NHPD Extract

Program Name	Source Data Set	Date Source Updated**
HUD Project Based Rental Assistance	Multifamily Assistance and Section 8 Contracts Database	08/29/2016
Section 202 Direct Loans	Section 202 Direct Loans Dataset	09/24/2015
HUD Insurance Programs	Insured Multifamily Mortgages Database	12/31/2015
State Housing Finance Agency Funded Section 236	Active 236 Projects Dataset*	12/19/2007
Low Income Housing Tax Credits	Low Income Housing Tax Credit Database (properties placed in service between 1987 and 2014)	05/15/2016
HOME Rental Assistance	File Received from Office of Community Planning and Development (HUD)*	03/31/2015
Section 515 and 514 Rural Rental Housing Loans	USDA Rural Development Program Exit Data	03/31/2016

Rural Development Section 538	File Received from Rural Housing Services (USDA)*	01/24/2011
Public Housing	File received from HUD*	01/29/2015
(Supporting Datasets)		
HUD Project-Based Rental Assistance	Contract Renewal Information	08/29/2016
HUD Insurance Programs	Terminated Multifamily Mortgages Database	12/31/2015
Physical Inspection Scores	Physical Inspection Scores and Release Dates (Multifamily Assistance Properties Only)	12/31/2015

Lengthened LIHTC Affordability Restrictions

State	Conditional Requirement	Years Lengthened
Oregon	9% and 4% and 9% tax credits after 2010	30
Vermont	9% and 4% and 9% tax credits after 2000	69
Utah	All tax credits between 1999-2007	20
Utah	All tax credits between 2008-2012	69
Utah	All tax credits after 2012	20
Maine	All tax credits between 2003-2014	60
Maine	All tax credits after 2014	15
New Hampshire	All tax credits after 2001	69
California	All tax credits after 2000	25
Connecticut	Special extract from Connecticut Housing Finance Agency	Varies
Florida	Special Extract from Shimberg Center	Varies

Neighborhood Indicators Database

The Neighborhood Indicators Database measures the neighborhood quality, change in neighborhood quality, and access to economic opportunity for each census tract relative to the CBSA or region of a state outside of a CBSA that the census tract is located. The Neighborhood Indicators Database was created using the methodology described below.

Neighborhood Quality Indicators

Neighborhood Indicator	Source	Description
Median Gross Rent	American Community Survey 2010-2014	The median gross rent for each census tract was extracted from the ACS and used to calculate the average median gross rent for all census tracts within a CBSA and within a region of a state located outside of a CBSA. Z scores were calculated for each census tract's median gross rent relative to the CBSA or region of a state outside of a CBSA in which the tract is located.
Median Housing Value	American Community Survey 2010-2014	The median housing value for each census tract was extracted from the ACS and used to calculate the average median housing value for all census tracts within a CBSA and within a region of a state outside of a CBSA. Z scores were calculated for each census tract's median housing value relative to the CBSA or region of a state outside of a in which the tract is located.
Total Crime Index	Applied Geographic Solutions Crime Data 2016	The total crime index for each block group was extracted from the Crime Database and used to calculate the average total crime index for each census tract. The total crime index for each census tract was then averaged by CBSA and regions of states outside of a CBSA. Z scores were calculated for each census tract's total crime index relative to the CBSA or region of a state outside of a CBSA in which the tract is located.
Percent of Population in Poverty	American Community Survey 2010-2014	The total population whom are in poverty and whom poverty status is determined was extracted from the ACS for each census tract. These values were aggregated by CBSA and regions of states outside of a CBSA and were used to calculate the percent of population in poverty. Z scores were calculated for each census tract's percent of population in poverty relative to the CBSA or region of a state outside of a CBSA in which the tract is located.

For the median gross rent and median housing value indicators, census tracts with a z score of 1 or higher were classified as above average neighborhoods and census tracts with a z score of -1 or lower were classified as below average neighborhoods. For the total crime index and percent of population in poverty, census tracts with a z score of -1 or lower were classified as above average neighborhoods and neighborhoods with a score of 1 or higher were classified as below average neighborhoods. All census tracts with neighborhood quality indicator z scores between 1 and -1 were classified as average.

To create an index to represent overall neighborhood quality, above average census tracts on each indicator were set equal to .25, average tracts equal to zero, and below average tracts equal to -.25. Scores on each indicator of neighborhood quality were then added to create an overall score. This method allows different factors that contribute to overall neighborhood quality to be summed into one index based on the same scale.

Neighborhood Change Indicators

Neighborhood Indicator	Source	Description
Change in Median Gross Rent	American Community Survey 2010-2014 and 2006-2009	The median gross rent for each census tract was extracted from the ACS for 2010-2014 and 2006-2009. Median gross rent from 2006-2009 was converted to 2014 dollars using the Consumer Price Index and was then used to calculate the average median gross rent for all census tracts within a CBSA and within a region of a state located outside of a CBSA for both years. The absolute value for the change in median gross rent or average median gross rent was calculated for each census tract, CBSA, and state region outside of the CBSA between 2006-2009 and 2010-2014. Z scores were calculated for each census tracts change in median gross rent relative to the CBSA or region of a state outside of a CBSA in which the tract is located.
Percent Change in Median Housing Value	American Community Survey 2010-2014 and 2006-2009	The median housing value for each census tract was extracted from the ACS for 2006-2009 and 2010-2014. The median housing value from 2006-2009 was converted to 2014 dollars using the Consumer Price Index and was then used to calculate the average median housing value for all census tracts within a CBSA and within a region of a state outside of a CBSA for both years. The percent change in the median housing value or average median housing value was calculated for each census tract, CBSA, and state region outside of a CBSA between 2006-2009 and 2010-2014. Z scores were calculated for each census tracts percent change in median housing value relative to the CBSA or region of a state outside of a CBSA in which the tract is located.
Change in Average Total Crime Index	Applied Geographic Solutions Crime Data 2016 and 2013	The total crime index for each block group was extracted from the Crime Database for 2013 and 2016 and used to calculate the average total crime index for each census tract. The total crime index for each census tract was then averaged by CBSA and regions of states outside of a CBSA for each year. The absolute value for the change in average total crime index was then calculated for each census tract, CBSA, and state region outside of a CBSA between 2013 and 2016. Z scores were calculated for each census tracts change in total crime index relative to the CBSA or region of a state outside of a CBSA in which the tract is located.
Percent Change of Population in Poverty	American Community Survey 2010-2014 and 2006-2009	The total population whom are in poverty and whom poverty status is determined was extracted from the ACS for each census tract for 2006-2009 and 2010-2014. These values were aggregated by CBSA and regions of states outside of a CBSA for each year and were used to calculate the percent change of the number of people in poverty for each census tract, CBSA, and state region outside of a CBSA between 2006-2009 and 2010-2014. Z scores were calculated for each census tracts percent change of people earning below the poverty line relative to the CBSA or region of a state outside of a CBSA in which the tract is located.

All data from the American Community Survey during 2006-2009 was converted to 2010 Census boundaries using Brown University's Longitudinal Tract Database. For the change in median gross rent and the percent change in median housing value indicators, census tracts with a z score of 1 or higher were classified as upwardly transitioning and census tracts with a z score of -1 or lower were classified as downwardly transitioning. For the change in average total crime index and the percent change of the population in poverty, census tracts with a z score of -1 or lower were classified as upwardly transitioning neighborhoods and neighborhoods with a score of 1 or higher were classified as downwardly transitioning neighborhoods. All census tracts with neighborhood change indicator z scores between 1 and -1 were classified as no change.

To create an index to represent overall neighborhood change, above upwardly transitioning census tracts on each indicator were set equal to .25, unchanged tracts equal to zero, and downwardly transitioning tracts equal to -.25. Scores on each indicator of neighborhood change were then added to create an overall score. This method allows different factors that contribute to overall neighborhood change to be summed into one index based on the same scale.

Economic Mobility Indicators

Neighborhood Indicator	Source	Description
Transportation Cost Index	HUD's Low Cost Transportation Index 2008-2012	The low cost transportation index for each census tract was extracted from HUD eGIS and used to calculate the average low cost transportation index for all census tracts within a CBSA and within a region of a state located outside of a CBSA. These averages were then used to calculate z scores for each census tract's low cost transportation index relative to the average low cost transportation index for the CBSA or region of a state outside of a CBSA in which each census tract is located.
School Proficiency	HUD's School Proficiency Index 2011-2012	The school proficiency index value for each census tract was extracted from HUD eGIS and used to calculate the average school proficiency index for all census tracts within a CBSA and within a region of a state outside of a CBSA. These averages were then used to calculate z scores for each census tract's school proficiency index relative to the average school proficiency index for the CBSA or region of a state outside of a CBSA in which the tract is located.
Early Learning Centers	Common Core Database 2013-2014 Head Start Locations	Head start locations and pre-schools were appended and geocoded. The number of early learning center locations that were located within a half mile of census tract boundaries were counted. These values were used to calculate the average number of early learning centers for all census tracts within a CBSA and a region of a state located outside of a CBSA. These averages were then used to calculate z scores for each census tract's number of early learning centers relative to the average number of early learning centers in the CBSA or region of a state outside of a CBSA in which the census tract is located.
Number of Jobs within 45 Minute Drive	EPA Smart Locations Database	The number of jobs within a 45 minute drive of a block group was aggregated to the census tract level. This value was used to calculate the average number of jobs within a 45 minute drive for all census tracts within a CBSA and within a region of a state outside of a CBSA. These averages were then used to calculate z scores for each census tract's number of jobs relative to the average number of jobs for all census tracts within a

		CBSA or region of a state outside of a CBSA in which the tract is located.
College is Within Two Miles	The Integrated Postsecondary Education Data System 2014-2015	Colleges with accredited associates or bachelor's degree programs were extracted from IPEDS and geocoded. The number of colleges within two miles of each census tract centroid was then calculated.

Census tracts for all area of economic opportunity indicators with a z score of 1 or higher were classified as above average neighborhoods, census tracts with a z score between 1 and -1 were classified as average, and census tracts with a z score of -1 or lower were classified as below average neighborhoods. These indicators were not combined into an index, but rather assessed as separate indicators of economic mobility.

Accessible Transportation Indicators

Neighborhood Indicator	Source	Description
Transportation Cost	HUD's Low Cost Transportation Index 2008-2012	The low cost transportation index for each census tract was extracted from HUD eGIS and used to calculate the average low cost transportation index for all census tracts within a CBSA and within a region of a state located outside of a CBSA. These averages were then used to calculate z scores for each census tract's low cost transportation index relative to the average low cost transportation index for the CBSA or region of a state outside of a CBSA in which each census tract is located.
Public Transportation Utilization	HUD's Low Cost Transportation Index 2008-2012	The transit trips index for each census tract was extracted from HUD eGIS and used to calculate the average transit trips index for all census tracts within a CBSA and within a region of a state located outside of a CBSA. The transit trips index measures how frequently a 3-person single parent family with an income at 40% of the median income from renters uses public transportation. These averages were then used to calculate z scores for each census tract's transit trips index relative to the average transit trips index for the CBSA or region of a state outside of a CBSA in which each census tract is located.

Census tracts for all accessible transportation indicators with a z score of 1 or higher were classified as above average neighborhoods, census tracts with a z score between 1 and -1 were classified as average, and census tracts with a z score of -1 or lower were classified as below average neighborhoods. These indicators were not compiled into an index, but treated as separate indicators.

Healthy Community Indicators

Neighborhood Indicator	Source	Description
Respiratory Hazard Index	Environmental Justice Mapping and Screening Tool 2011	The respiratory hazard index for each block group was averaged to the census tract level. This value was used to calculate the average respiratory hazard index for all census tracts within a CBSA and within a region of a state outside of a CBSA. These averages were then used to calculate z scores for each census tract's respiratory hazard index relative to the average respiratory hazard index for all census tracts within a CBSA or region of a state outside of a CBSA that the tract is located in. Census tracts with a z score of 1 or higher were classified as below average neighborhoods, census tracts with a z score between 1 and -1 were classified as average, and census tracts with a z score of -1 or lower were classified as above average neighborhoods.
Access to Recreation Space	Esri USA Parks Shapefile	HUD Assisted Properties located within a half mile of federal, state, municipal parks were classified as having access to recreation space.
Within Half Mile of Grocery Store	USDA Food Desert Database 2010	Census tracts that were within .5 miles of a grocery store in metro areas or 10 miles in rural areas were classified with high grocery store access.

Cost Savings on Investments in Sustainable Practices Map

Cost Savings Indicator	Source	Description
Total Adjusted Savings for Weatherizing Units	US Department of Energy (DOE) per unit savings estimates US Department of Housing and Urban Development (HUD) property data DOE Residential Sector Energy Price Estimates 2014	The number of public housing and HUD Project Based Section 8 assisted multifamily units qualifying for weatherization funds were aggregated for each state. The average national per unit lifetime savings for weatherizing units ($5,500) was adjusted for each state using an index on the total energy costs per state. The number of units qualifying for weatherization funds by state was then multiplied by the average adjusted savings for weatherizing units for each state.
Expanding Rental Assistance	American Community Survey 2015	The sustainability impact on rent saved for low-income cost burdened households was calculated by taking the average difference between the yearly rent paid and 30% of the household's yearly income for all households classified as unassisted. Households were considered to be unassisted income eligible households if they earned below 80% of the statewide HUD area median income adjusted for household, were renters, and if they also paid between 30% and 80% if their income towards housing costs. Households that paid more than 80% of their income towards housing costs were considered to be assisted renter households.
Reducing Affordability Moves	American Housing Survey 2015 American Community Survey 2015 (one year estimates) US Department of Transportation (DOT) Uniform Relocation Assistance and Real Property Acquisition Policies Act	The percent of households earning below poverty that moved for affordability reasons was calculated using the American Housing Survey at the national level. The American Community Survey was then used to determine the number of households earning below poverty that moved during 2015. The number of households earning below poverty that moved for affordability reasons in each state was then estimated by multiplying the number of households earning below poverty that moved in each state by the percent of households that moved for affordability reasons at the national level. The sustainability impact on reducing moving costs for households in poverty was determined by multiplying the estimated number of households earning below poverty that moved for affordability reasons by the DOT relocation assistance amount for a two bedroom household with furniture in each state.
Affordable Housing Preservation	NHPD Custom Extract 2016 Brennan, M. et al. (2015). "Comparing the Costs of New Construction and Acquisition-Rehab In Affordable Multifamily Rental Housing: Applying a	The number of units expiring by 2020 in each state was tabulated from the NHPD Custom Extract. The estimated number of units to be lost in each state was determined by multiplying the expiring units by 8%, which represents the percent of units receiving Section 8 Project Based Rental Assistance that were lost from the affordable housing inventory between 2004 and 2014. The estimated cost savings to preserve rather than rebuilt affordable housing was calculated by multiplying the estimated number of units to be lost by the difference between the adjusted cost to build a new unit of affordable housing and the average cost to preserve a unit of affordable

New Methodology for Estimating Lifecycle Costs." Center for Housing Policy.	housing for 50 years. The cost to rebuild and preserve are based on the average lifecycle cost of new construction and acquisition and renewal properties calculated in the Center for Housing Policy's report. These costs were adjusted for each state using a multifamily construction labor cost index. For states in which multifamily construction labor costs were unavailable, construction labor costs in general were used.