# Using the ACS-ED Maps to Explore Community Data

The National Center for Education Statistics (NCES) has developed a tool that displays district-level geographic data from the American Community Survey (ACS): https://nces.ed.gov/programs/maped/ACSMaps/. This guide explains how to use the ACS-ED Maps tool to explore how community factors may be affecting student outcomes.

Starting out

Clicking on the link above launches the website which then asks you to choose a data topic to explore. You can select one of them or click to the side of the pop-up to close it. The first thing you will notice is that this tool defaults to the continental United States. Users will have to zoom in to Wisconsin or their school district using the search bar, the zoom buttons or other methods described below.

## Finding your way around the ACS-ED Maps tool
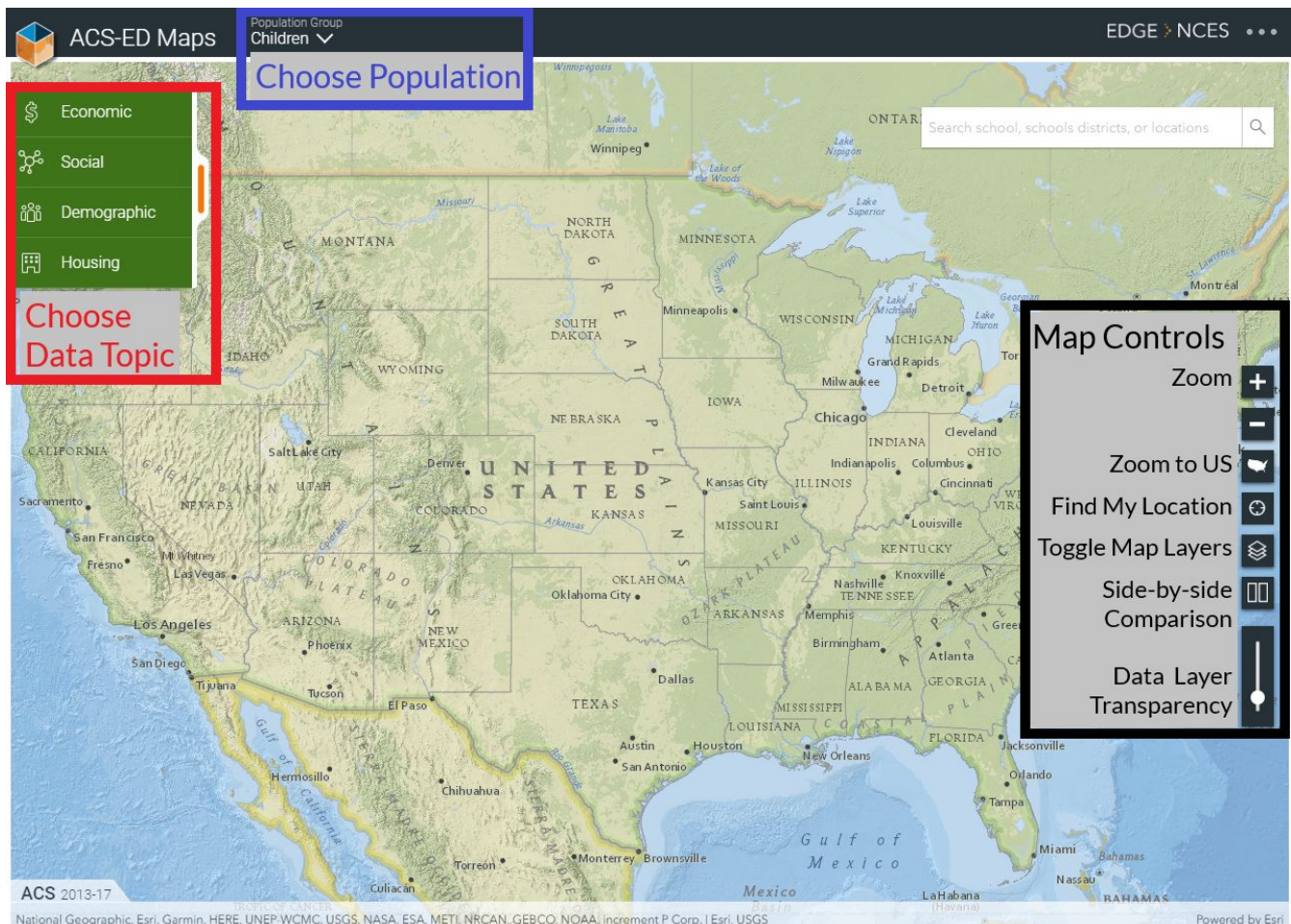
The picture above shows an annotated screenshot of the ACES-ED Maps tool. This section will describe how to use each set of controls to create a custom map of community level data.

Choosing a data topic

The upper left-hand corner (outlined in red) contains the menu for choosing the data topic to explore. If you don't see the menu it may be hidden, simply click on the vertical orange bar on the upper right side of your window. The data are grouped into four topics:

- economic (see Table 1 for a complete listing of topics),
- social (see Table 2),
- demographic (see Table 3), and
- housing (see Table 4).

To select a topic, click on a category. This will reveal a menu of subcategories. When you click on a subtopic, a second menu unfolds to the right where you can select either a sub-subcategory or single topic. When you click on a single topic, for example: Social > Experience > Residence 1 Year Ago > Same house, the ACS-ED Maps tool will draw a choropleth map displaying the selected data (see screenshot below).
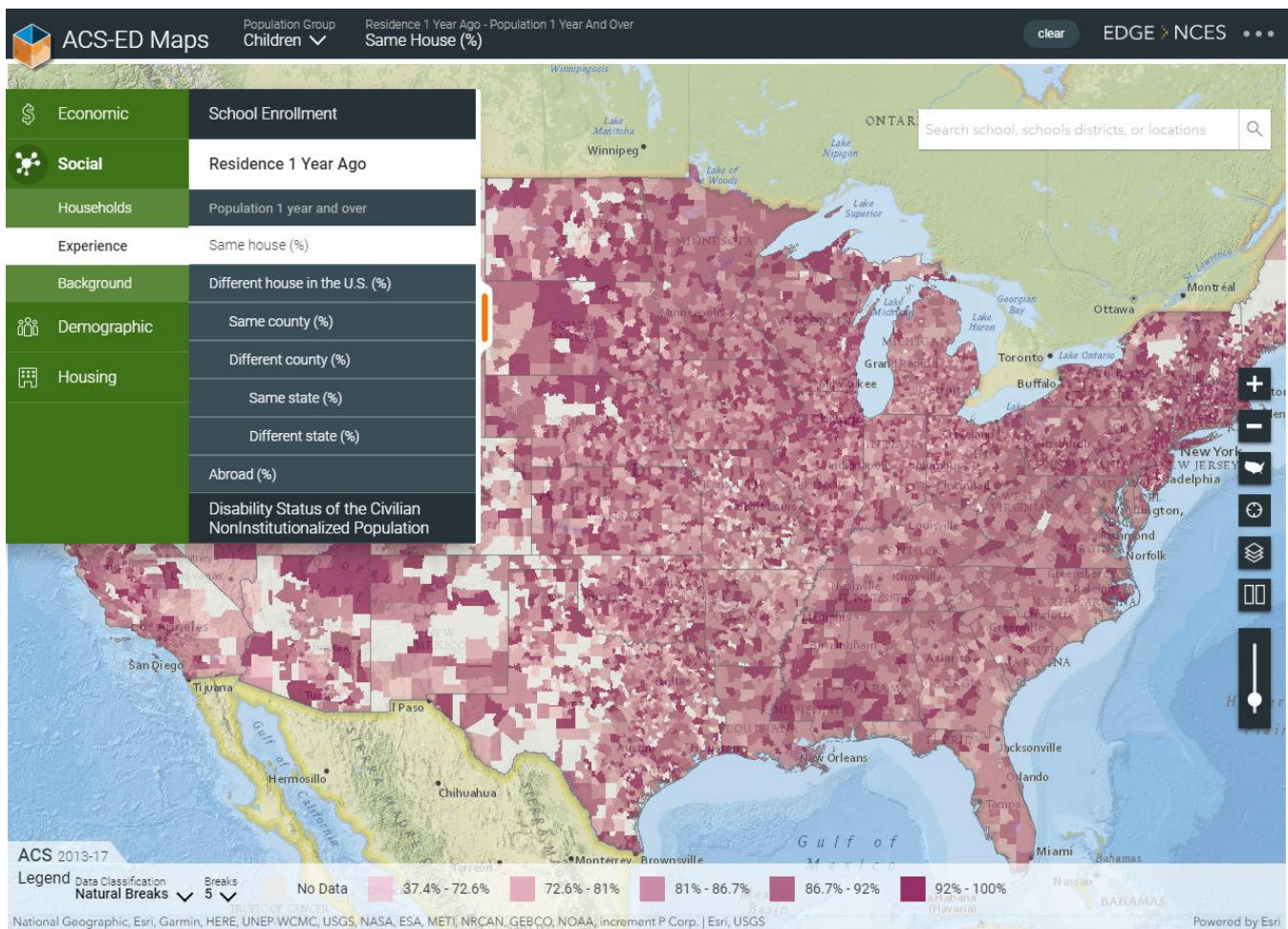
Notice that the top menu bar identifies the data topic displayed on the map and that a legend bar pops up on the bottom of the screen. We will return to the legend bar later when discussing map controls. Clicking on the vertical orange bar on the right side of the data topic menu will hide the menu so that you can see the entire screen.

Choosing a population

In addition to data topics, the user can also choose the population group to display. There are four choices:

- Total Population,
- Children,
- Children that are enrolled in school, and
- Children that are enrolled in public school.

There are more data topics available under the Total Population choice. These items are marked with a dagger (†) in the data topics tables in the appendix.

Map Controls

The final piece of the ACS-ED Maps tool to discuss are the map controls. Many of these controls will be familiar to users who have interacted with other web maps (e.g. MapQuest or Google Maps) before. These controls are located on the lower right section of the screen. The top three buttons control the zoom on the map. Users can also zoom using their mouse wheel/touchpad.

The fourth control icon allows users to zoom into the map centered on their current location if their browser settings are configured to share their location. Users can also zoom using the search bar to search for specific cities, districts, and/or schools, but this feature seems to be fairly slow at this point.

The fifth control icon from the top allows users to toggle on (or off) various map layers, including:

- public schools, private schools, postsecondary institutions,
- school district boundaries, state boundaries, congressional district boundaries,
- basemaps, and
- "color ramps" which determine the color scheme of the choropleth maps.

The sixth control icon from the top allows users to map compare two different data topics and/or population groups side-by-side. Once you have two maps side-by-side, be sure to click on the one that you want to change before changing the selection.

The final control that looks like a volume button controls the transparency of the choropleth layer so that you can determine how much you want to see through to the basemap below.

The final set of map controls are located in the legend when a choropleth map is drawn. There are two things the user can control that are identified by the downward arrowhead ($\vee$).

1. *Data Classification*: This choice determines how the data are grouped together. The default choice is natural breaks (naturally groupings inherent in the data), but alternatives include quantiles (grouping the data so that the same fraction of the data fall into each category) and equal intervals (groups are defined such that the difference between the upper and lower limits of each group are identical).
2. *Breaks*: This determines the number of groups the data are divided into. The default choice is 5, but the user can select any number between 3 and 7.

Other User Controls

The final section of user controls are available at the upper right side in the top menu bar. Clicking on the words EDGE or NCES will take you to the EDGE homepage or NCES homepage, respectively. The three dots at the very right opens a menu that does the following:

- Point you to additional resources/documentation
- Allow you to share the current view via email, facebook, twitter or a custom URL that you can copy. I am not sure how long this custom URL link persists.

Finally, a clear button shows up when you have chosen a data topic to display.

Using ACS-ED Maps for Continuous Improvement

The following example illustrates one way that ACS-ED Maps can be used as an additional source of data schools or districts can consult during the root cause analysis phase of the Continuous Improvement Process (for more information about and resources on Continuous Improvement visit https://dpi.wi.gov/continuous-improvement).

Suppose your team wants to increase family engagement, and specifically, to determine why efforts to expand the group of engaged parents are falling short. One source of data that may speak to this is the household information available in ACS-ED Maps. As you will see when you are navigating through the Data Topic menu (also listed in Table 4), the ACS-ED Maps tool has information on the percentage of housing units with no telephone service available.
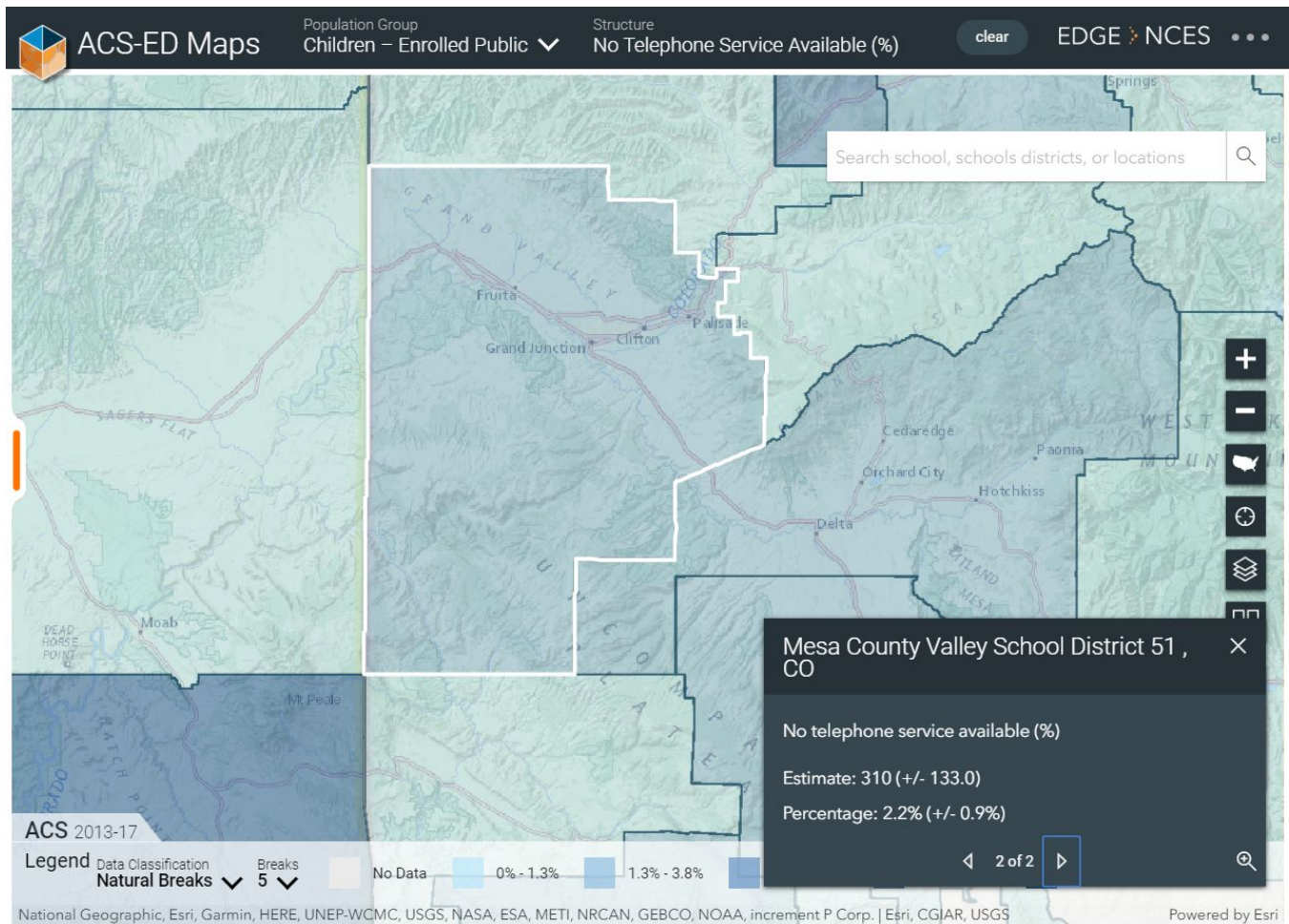
The screen shot above shows these data for the school district containing Grand Junction, CO, the largest city in the western half of the state. As you can see along the top, the data shown are for households with children enrolled in public schools. By clicking on the district, I was able to show the popup window in the lower right side that summarizes the data. There are 310 (plus or minus 133) students living in housing

units without telephone service available. This is 2.2% (plus or minus 0.9%) of the children enrolled in public school.

What does this mean for our desire to increase family engagement? First, it is good to be clear about the details of the statistic we are considering.

- What time period do these data come from?

  The time period is labeled on the left side of the map by the legend. These data refer to the 5 year period from 2013-2017.

- What does "no telephone service available" mean?

  Finding definitions of the data topics is a bit more involved. These are available on the ACS website. First select the end year (2017) and then open the 2017 Subject Definitions pdf file. (https://www.census.gov/programs-surveys/acs/technical-documentation/code-lists.html). On page 37 of this document, there is a description of what telephone service means, a brief history of the questions, limitations of the data, and comparability over time.

  We learn that housing units with telephone service available must have (1) a telephone in working order and (2) service available in the house that allows the respondent to make and receive calls. Further, households whose service has been discontinued for nonpayment are **not** counted as having service available. A little further digging shows that this question captures both mobile phones and landlines.

Now that we have a clear idea about the data available, we need to decide if this is an important factor to follow up on. At only 2.2%, lack of communication via telephone is likely not depressing family engagement too much, but this is an important piece of data to keep in mind when deciding communication strategies or identifying special populations that may warrant more focused attention and resources.

Appendix

Data Topic Tables

NOTE: Topics marked with a dagger (†) are only available if the population group is set to Total Population (see Choosing a population). Topics are complete as of the date this guide was updated.

Table 1:Economic Data Topics ACS-ED Maps

Income	Employment
Households • Median income (total and by race) • Mean income (total and by race) • Earnings (% and mean) • Social Security (% and mean) • Retirement income (% and mean) • Supplemental Security Income (% and mean) • Cash public assistance income (% and mean) • Income Brackets (10 categories from <$10,000 to $200,000 or more)	Employment Status of Parents • Own children of householder under 6 years • Own children of householder 6 to 17 years Commuting to Work † Drove alone † Carpooled † Public Transportation † Walked † Other † Worked at home † Mean travel time to work
Families • Median income • Mean income • Income Brackets (10 categories from <$10,000 to $200,000 or more) † Family per capita income	Occupation † Management, business, science, arts † Natural resources, construction, maintenance † Production, transportation, material moving † Sales and office † Service
Earnings † Median earnings for workers † Median earnings for male full-time year-round workers † Median earnings for female full-time year-round workers	Class of Worker † Private wage and salary workers † Government workers † Self-employed (own, not incorporated) † Unpaid family workers
Poverty	Industry † Agriculture, forestry, fishing/hunting, mining † Construction † Manufacturing
Families • Families below poverty line (total, with related children	

under 18, with related children under 5)
- Married couple families below the poverty line (total, with related children under 18, with related children under 5)
- Female headed, no husband present (total, with related children under 18, with related children under 5)

People
- All people
- People under 18 years (total, related to householder, related to householder under age 5, related to householder ages 5-17)
- † Unrelated individuals age 15+
- † People 18 and over (total, people 18-64, people 65+)

Health Insurance

† Wholesale trade
† Retail Trade
† Transportation/Warehouse/ Utilities
† Information
† Finance, Insurance, Real Estate
† Professional, scientific, administrative
† Education, health care, social assistance
† Arts, Entertainment, Hotel, Food
† Public Administration
† Other

- With health insurance coverage (total, private, public)
- No health insurance (total, under 18)
- † Employed (18-64) with health insurance (total, private, public)
- † Unemployed (18-64) with health insurance (total, private, public)
- † Unemployed (18-64) with no health insurance coverage
- † Not in labor force with health insurance coverage (total, private, public)
- † Not in labor force with no health insurance coverage

Table 2: Social Data Topics in ACS-ED Maps

Households	Experience

Family Households
- Family Households (Total, Married-couple, Male headed, Female headed)

Households by Age and Size
- Average number of children in households with children
- Average number of children in families with children
- Households with one or more people aged 65 and older
- † Average household size
- † Average family size

Background

Place of Birth
- Native (total, born in US, born in state of residence, born in different state, born in Puerto Rico, US Island or abroad to American parents)
- Foreign born

US Citizenship Status
- Naturalized US Citizen
- Not a US Citizen

Year of Entry
- Native (2010 or later, before 2010)
- Foreign Born (2010 or later, before 2010)

Language Spoken at Home
- English only
- Language other than English (total, speak English less than "very well")
- Spanish (total, speak English less than "very well")
- Other Indo-European (total, speak English less than "very well")
- Asian and Pacific Islander languages (total, speak English less than "very well")
- Other languages (total, speak English less than "very well")

School Enrollment
- Percent enrolled in preschool, kindergarten, elementary, high school, college or graduate school

Residence 1 Year Ago
- Same house
- Different house in US (total, same county, different county, same state, different state)
- Abroad

Disability Status
- Percent with a disability (total, under 18 years old)
- † Percent with a disability aged 18 to 64
- † Percent with a disability aged 65 and older

Educational Attainment
- † Percent aged 25 and older with less than 9th grade, some high school, high school graduate, some college, associate's degree, bachelor's degree, graduate degree
- † Percent high school graduate or higher
- † Percent bachelor's degree or higher

Veteran Status
- † Civilian population aged 18+
- † Civilian Veterans

Relationship

Relationship
- † Householder, Spouse, Child, Other relative, Nonrelative (total and unmarried partner)

Marital Status (choose males/females)
- † Never Married, Married, Separated, Widowed, Divorced

Fertility
- † Unmarried women (percent and per 1000 unmarried women)
- † Per 1,000 women aged 15 to 50
- † Per 1,000 women aged 15-19
- † Per 1,000 women aged 20-34
- † Per 1,000 women aged 35-50

World Region of Birth of Foriegn Born
- Percent from Europe, Asia, Africa, Oceania, Latin America, Northern America

Ancestry
- Percent of various nationality/ethnic groups

Grandparents
† Grandparents living with and responsible for own grandchildren under 18 years
† Years responsible for grandchildren (total, less than 1 year, 1-2 years, 3-4 years, 5+ years)
† Grandparents responsible for own grandchildren under 18 who are female
† Grandparents responsible for own grandchildren who are married

Table 3: Demographic Data Topics in ACS-ED Maps

Sex and Age	Race
Sex • Male (Total, Under 5, 5-9, 10-14, 15-17, 18-19) • Female (Total, Under 5, 5-9, 10-14, 15-17, 18-19) † Male (18 years and over, 65 years and over) † Female (18 years and over 65 years and over	**One Race** • One Race any • White • Black or African American • American Indian & Alaskan Native (total, Cherokee tribal grouping, Chippewa tribal grouping, Navajo tribal grouping, Sioux tribal grouping) • Asian (total, Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, Other Asian) • Native Hawaiian and Other Pacific Islander (total, Native Hawaiian, Guamanian or Chamorro, Samoan, Other Pacific Islander) • Some other Race
Age † Age groups (under 5, 5-9, 10-14, 15-19, 20-24, 25-34, 35-44, 45-54, 55-59, 60-64, 65-74, 75-84, 85 and older) † Median age † Percent 18 and over † Percent 21 and over † Percent 62 and over † Percent 65 and over	**Two or More Races** • Two or more races any • White and Black/African American • White and American Indian/Alaskan Native • White and Asian • Black/African American and American Indian and Alaska Native
Voting Age (18+) Citizen † Female † Male	**Race Alone or in combination with one or more other races** • White • Black or African American • American Indian and Alaska Native • Asian • Native Hawaiian and Other Pacific Islander • Some other Race **Hispanic or Latino and Race** • Hispanic or Latino of any race (total, Mexican, Puerto Rican, Cuban, Other Hispanic or Latino) • Not Hispanic or Latino (total, white alone, Black or African American alone, American Indian and Alaska Native alone, Asian alone, Native Hawaiian and other Pacific Islander alone, some other race alone) • Not Hispanic or Latino and Two or more races (total, including some other race, two races excluding some other and three or more races)

Table 4: Housing Data Topics in ACS-ED Maps

Structure	Value and Cost
Units in Structure ● 1 unit (attached, detached), 2 units, 3-4 units, 5-9 units, 10-19 units, 20 or more units, mobile home, Boat/RV/van/etc.	**Housing Value** ● Median Housing Value ● Brackets of housing value from less than $50,000 to more than $1,000,000
Year Structure Built ● Various year groupings	**Mortgage Status** ● Housing units with a mortgage ● Housing units without a mortgage
Rooms ● Percent with 1 room, 2 rooms, …, 8 rooms, 9 or more rooms ● Median rooms	**Selected Monthly Owner Costs** ● Housing units with a mortgage (Median, Brackets) ● Housing units without a mortgage (Median, Brackets)
Bedrooms ● Percent with None, 1 bedroom, … 5 or more bedrooms	**Selected Monthly Owner Costs as percentage of Income** ● Housing units with a mortgage (Brackets) ● Housing units without a mortgage (Brackets)
Occupants per Room ● Percent with 1.00 or less, 1.01 to 1.50, and 1.51 or more	**Gross Rent** ● Median ● Brackets
House Heating Fuel ● Percent of households by various types of heating fuel	**Gross Rent as a Percentage of Income** ● Brackets
Selected Characteristics ● Percent lacking complete plumbing facilities ● Percent lacking complete kitchen facilities ● Percent with no telephone service available	**Tenure**
Housing Occupancy † Occupied housing units † Vacant housing units † Homeowner vacancy rate † Rental vacancy rate	**Year Householder Moved into Unit** ● Brackets **Vehicles Available** ● Percent with None, 1, 2, and 3 or more vehicles available **Housing Tenure** ● Owner-occupied ● Renter-occupied † Average household size of owner-occupied unit † Average household size of renter-occupied unit