

Estimating Low Income Households

Under statute, Qualified Entities (QE) are required to identify the amount of STIF Formula funds that are allocated to improve services to a **high percentage of low-income households** (not *individuals* and not *families*). OAR 732-404-0005(17) defines low-income household incomes as those below 200% of the federal poverty guidelines. QE's are required to define **high percentage of low-income households** in Advisory Committee bylaws. A STIF Plan must contain an explanation of how the plan defines and identifies communities with a high percentage of low-income households, and indicate how projects improve transit service for these communities.

There have been some questions about how to calculate the number of low-income households for STIF Plans, both for service planning and for reporting project outcomes. The US Census Bureau does not provide data specifically on the number of *households* earning less than 200% of the federal poverty level. The Census does provide data on the *population* (i.e. individuals or people) earning less than 200% of the federal poverty level, and the same for *families*.

This document provides guidelines for using available Census data to calculate the number of low-income households within a given geographic area based on existing Census data. Both methods involve data related to *population* and *households*.¹ The guidelines cover two methods, using average household size, or using a low-income population ratio. The methods result in comparable results, with very little difference between results from either method. Communities should choose the method that best suits their local conditions.

The transit sketch planning tool **Remix** provides the Census total *population* and the percent of *population* below 200% of the poverty level within a user-defined distance of transit stops. With this data, providers can calculate the number of low-income people with access to transit. Remix does not provide the number or percentage of *households* with access to transit. Users can use the methods described below to convert the low-income *population* measure to low-income *households*. Remix can be found here: <https://www.remix.com/>

Federal Poverty Guidelines Example

- For a 2-person household, the 2018 poverty guideline (a.k.a. poverty level) is \$16,460
- 200% of the guideline is \$32,920
- 2-person households earning \$32,920 or less are considered low-income

¹ Do not use *families* in the calculation. Families are a smaller population group in the Census, which can result in significantly different percent of low income populations.

Using American Factfinder

<https://factfinder.census.gov/>

These methods are based on using the year **2016 American Community Survey (ACS) 5-year estimates**, available from the American FactFinder website.² Users may use any year provided it is consistent across the calculations. The guidelines here refer to the “Advanced Search” tool, which lets users enter the table and geography name into the search bars (A), or search for the table using the drop down menu options (B).

The Census Bureau organizes data by geographic type. The smallest geographic type in the ACS dataset is a block group.³ States, counties, and tracts are made up of block groups. These guidelines refer to one table that provides data at each level down to block group. The second table provides data at the state and county level, and other levels such as place.

Figure 1: Searching for Tables in American Factfinder

The screenshot shows the American Factfinder website's Advanced Search page. The browser address bar shows factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t&keepList=t. The page has a navigation bar with links for MAIN, COMMUNITY FACTS, GUIDED SEARCH, ADVANCED SEARCH (highlighted), and DOWNLOAD CENTER. Below the navigation bar is a search instruction: "Search - Use the options on the left (topics, geographies, ...) to narrow your search results".

On the left side, there is a "Your Selections" box (C) containing the text "Your Selections' is empty" and buttons for "load search" and "save search". Below this is a section titled "Search using the options below:" with several dropdown menus: Topics (age, income, year, dataset, ...), Geographies (states, counties, places, ...), Race and Ethnic Groups (race, ancestry, tribe), Industry Codes (NAICS industry, ...), and EEO Occupation Codes (executives, analysts, ...). An arrow labeled B points to the Geographies dropdown.

In the center, there is a search form with two input fields: "topic or table name" (containing "c17002") and "state, county or place (optional)" (containing "Baker County, Oregon"). A "GO" button and a help icon are to the right. Below the form, a dropdown menu is open, showing two options: "C17002: RATIO OF INCOME IN THE PAST 12 MONTHS TO POVERTY LEVEL" and "C17002: RATIO OF INCOME TO POVERTY LEVEL IN THE PAST 12 MONTHS". An arrow labeled A points to the search form.

Below the search form, there are instructions and a list of options:

- 1 Enter search terms and an optional geography and click GO
- 2 Next, select Geographies (states, counties, cities, towns, etc.)
 - these are added to 'Your Selections'
 - the Search Results are updated
- 3 Select one or more Search Results and click View

Below the instructions, there is a section titled "Select from Topics, Race and Ethnic Groups, Industry Codes, EEO Occupation Codes." with a list of options:

- these are added to 'Your Selections'
- the Search Results are updated

If using the Advanced Search for multiple different tables in the same work session in your internet browser, be sure to click “back to Advanced Search” and clear any table or topic selections still active in “Your Selections” box (C).

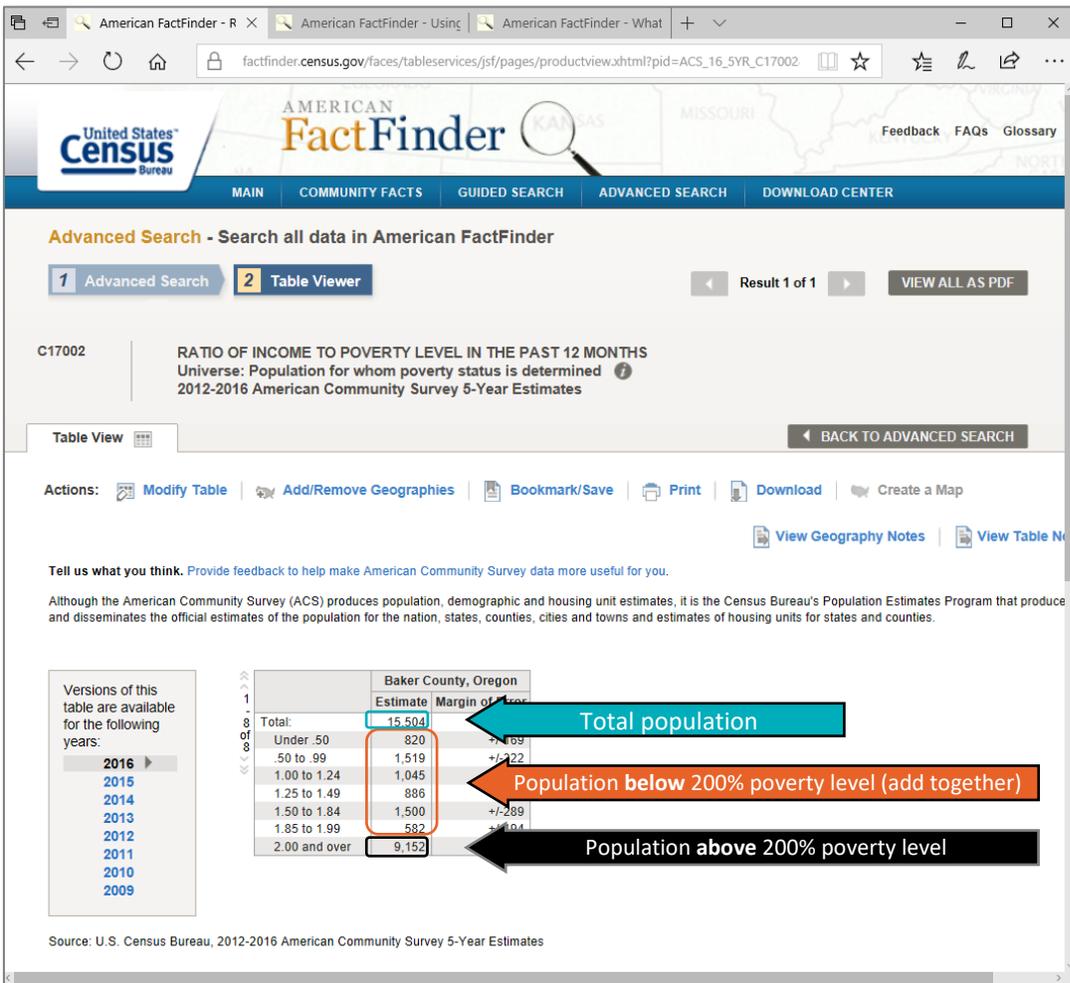
² US Census data tables used in the calculations here are updated in December for the preceding year. That is, 2016 Census tables are available beginning in December 2017. Census data will therefore always lag slightly behind the current Federal poverty guidelines. 2017 ACS data is expected in December 2018.

³ The smallest geographic type is the block, used in other datasets.

Method 1: Average Household Size

- Find the population below 200% of the federal poverty level for the geographic area chosen for the analysis geography (e.g. county, place, tract).
 - Table **C17002 Ratio of Income to Poverty Level in the Past 12 Months** has this data down to the block-group level. Users should sum the population in categories earning less than 200% of the poverty level.⁴ See Figure 2 below.

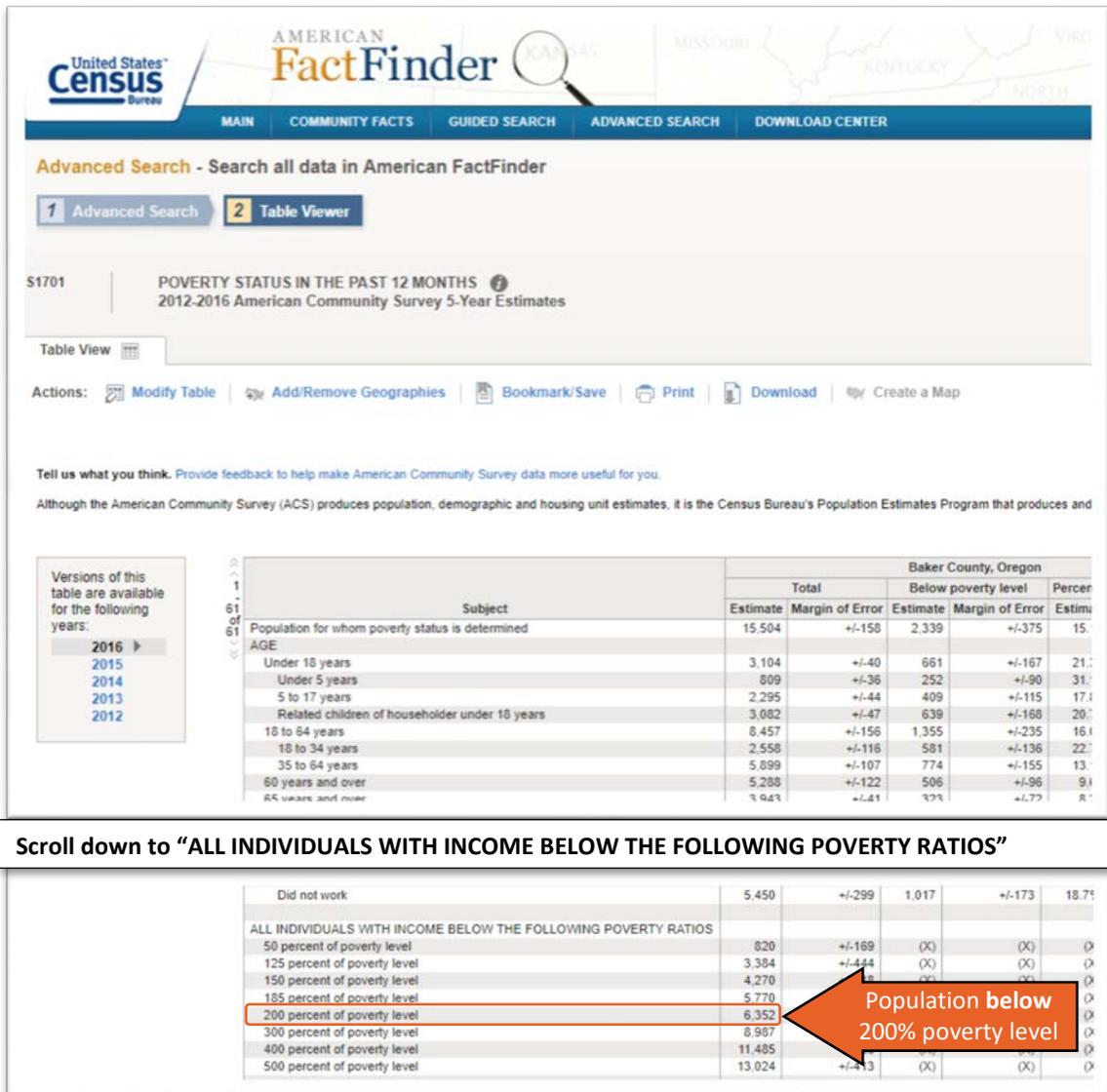
Figure 2: US Census Table C17002 Screenshot



⁴ Alternatively users can subtract the population with a ratio 2.00 and over from the total population.

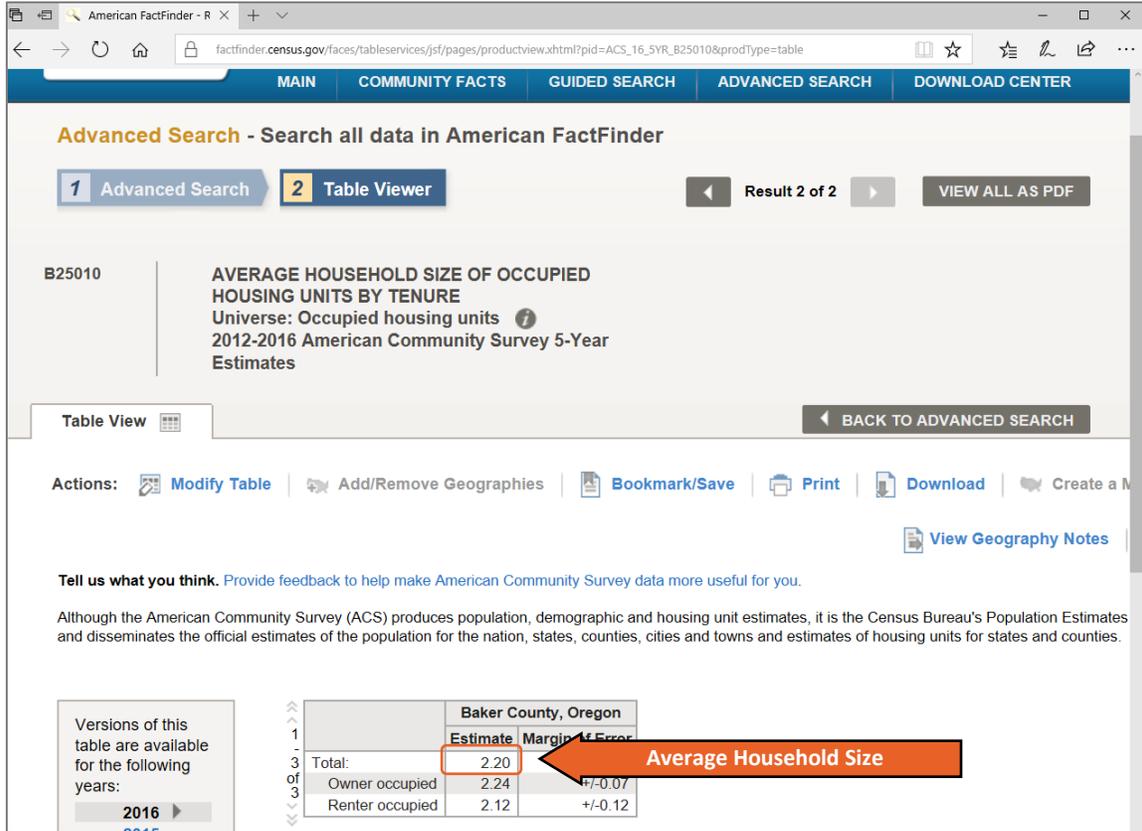
- Table **S1701 Poverty Status in the Past 12 Months** has this data for counties and census-designated places (e.g. cities, towns). This table includes the population earning below ratios of the poverty level, including 200% or less. Users should make calculations using the number of individuals below 200% of the poverty level. See Figure 3 below.

Figure 3: US Census Table S1701 Screenshot



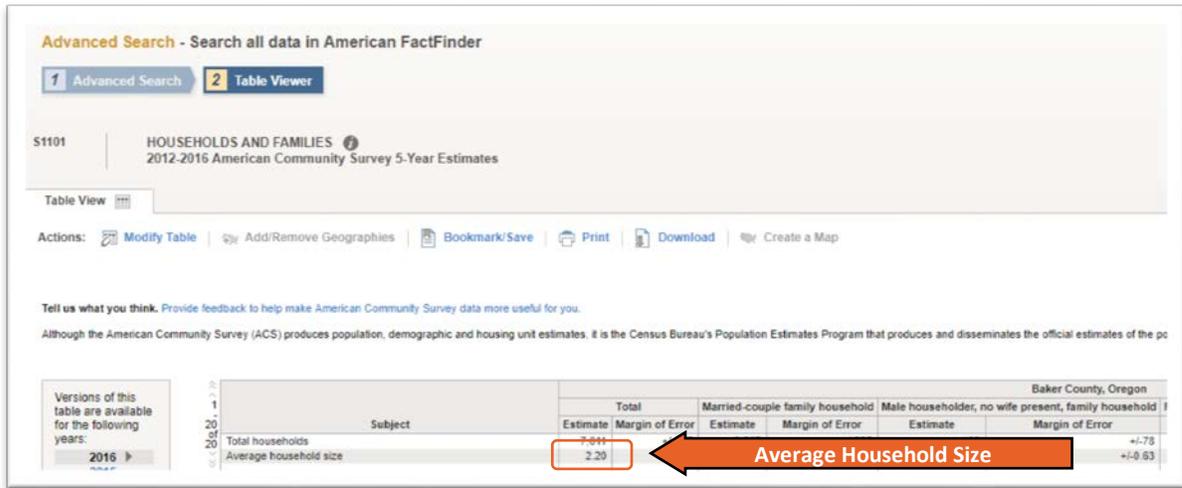
2. Get the average household size for the same geographic level.
 - Table **B25010 Average Household Size of Occupied Housing Units by Tenure** has the data down to the block-group level. See Figure 4 below.

Figure 4: US Census Table B25010 Average Household Size of Occupied Housing Units by Tenure



- Table **S1101 Households and Families** has the data at the county- and place-level. See Figure 5 below.

Figure 5: US Census Table S1101 Households and Families



- Divide the population below 200% of the federal poverty guidelines by the average household size.
- This will result in an estimate of the number of households that are below 200% of the federal poverty level. See Figure 6 for an example of how the demographic inputs are used to calculate the number of low-income households.

$$\text{Low income households} = \frac{\text{Low income population}}{\text{Average household size}}$$

Table 1: Example conversion from low-income population to low-income households – Method 1

Project Area	Low-Income Population	Average Household Size [2]	Low-Income Households
Baker County	6,352 [1]	2.2	2,890
Example area w/in half mile of conceptual project	1,000 [3]	2.2	455

Notes: [1] Census Table C17002 or S1701 [2] Census Table B25010 or S1101 [3] From Remix, GIS, or other methods

Method 2: Low income population ratio

1. Get the total number of households for the geographic area chosen for the analysis geography.
 - Table **B11016 Household Type by Household Size** has total household data.⁵ Refer to line “Total.” See Figure 6 below.
 - Table **S1101 Households and Families** provides county- and place-level data. See Figure 5 above. Refer to line “TOTAL HOUSEHOLDS”
2. Calculate the low income population ratio for the same geographic level. This is the population earning below 200% of the federal poverty level, divided by the total population for whom poverty status is determined.
 - Table **C17002 Ratio of Income to Poverty Level in the Past 12 Months** has this data from the state to block-group level. Users should sum the population in categories earning less than 200% of the poverty level, then divide by the total.⁶ See Figure 7 below.
 - Table **S1701 Poverty Status in the Past 12 Months** has this data at the county- and place-level. This table includes the population earning below ratios of the poverty level, including 200% or less.
3. Multiply the total number of households found in Step 1 by the share of low-income population ratio calculated in Step 2.
4. This will result in an estimate of households below 200% of the federal poverty level.

$$Low\ income\ households = Total\ Housholds \times \frac{Low\ income\ population}{Total\ population}$$

Table 2: Example conversion from low-income population to low income households – Method 2

Project Area	Total Households	Low-Income Population to Total Population Ratio [1]	Low-Income Households
Baker County	7,011 [2]	41%	2,870
Example area within half-mile of conceptual project	1,109 [3]	41%	455

Notes: [1] Census Table C17002 or S1701. [2] Census Table B25010 or S1101 [3] From GIS or other methods

⁵ Other tables with total households include B11001 Household Type, and B17017 Poverty Status in the Past 12 Months by Household Type by Age of Householder (100% poverty level only)

⁶ Alternatively users can subtract the population earning above 200% of the poverty level from the total population.

Figure 6: US Census Table B11016 Screenshot

The screenshot displays the American FactFinder interface. At the top, there are navigation tabs: MAIN, COMMUNITY FACTS, GUIDED SEARCH, ADVANCED SEARCH, and DOWNLOAD CENTER. The current view is 'Advanced Search - Search all data in American FactFinder'. Below this, there are two tabs: '1 Advanced Search' and '2 Table Viewer'. The table title is 'B11016 HOUSEHOLD TYPE BY HOUSEHOLD SIZE' with the universe 'Households' and '2012-2016 American Community Survey 5-Year Estimates'. The table is for 'Baker County, Oregon'. The table has three columns: 'Estimate' and 'Margin of Error'. The 'Total' row is highlighted, and an orange arrow points to the value '7,011' in the 'Estimate' column with the label 'Total households'. A list of years from 2009 to 2016 is on the left, with 2016 selected. The table data is as follows:

		Baker County, Oregon	
		Estimate	Margin of Error
16 of 16	Total:	7,011	
	Family households:	4,282	+/-229
	2-person household	2,578	+/-212
	3-person household	662	+/-150
	4-person household	607	+/-117
	5-person household	240	+/-82
	6-person household	72	+/-43
	7-or-more person household	123	+/-49
	Nonfamily households:	2,729	+/-219
	1-person household	2,371	+/-218
	2-person household	293	+/-68
	3-person household	43	+/-26
	4-person household	20	+/-25
	5-person household	2	+/-3
	6-person household	0	+/-19
	7-or-more person household	0	+/-19

Figure 7: US Census Table C17002 Screenshot

Advanced Search - Search all data in American FactFinder

1 Advanced Search 2 **Table Viewer** Result 1 of 1 VIEW ALL AS PDF

C17002 RATIO OF INCOME TO POVERTY LEVEL IN THE PAST 12 MONTHS
 Universe: Population for whom poverty status is determined
 2012-2016 American Community Survey 5-Year Estimates

Table View BACK TO ADVANCED SEARCH

Actions: Modify Table Add/Remove Geographies Bookmark/Save Print Download Create a Map
 View Geography Notes View Table Notes

Tell us what you think. Provide feedback to help make American Community Survey data more useful for you.

Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produce and disseminates the official estimates of the population for the nation, states, counties, cities and towns and estimates of housing units for states and counties.

		Baker County, Oregon	
		Estimate	Margin of Error
1	Total:	15,504	
8	Under .50	820	
of	.50 to .99	1,519	+/-322
8	1.00 to 1.24	1,045	
	1.25 to 1.49	886	
	1.50 to 1.84	1,500	+/-249
	1.85 to 1.99	582	+/-94
	2.00 and over	9,152	

Versions of this table are available for the following years:
 2016
 2015
 2014
 2013
 2012
 2011
 2010
 2009

Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates

Annotations:
 - Total population (15,504)
 - Population below 200% poverty level (add together: 1,519 + 1,045 + 886 + 1,500 + 582 = 5,532)
 - Population above 200% poverty level (9,152)

Background information:

- People, or individuals, are respondents to the Census survey
- Households is a classification of that number representing how people live. There can be one-person households. A household can also include a group of unrelated people sharing a housing unit, but it does not include group quarters, such as correctional facilities or nursing homes. Not all households contain families.
- Families are households of two or more related people, by birth, marriage or adoption. This is a smaller classification of individuals than households, e.g., excludes one-person households, households with multiple unrelated people, etc.
- The Census Bureau produces data tables on the number of individuals, or people, with household incomes below 200% of the poverty level. This is based on household income data but does not include the number of households.
- The Census Bureau also produces data tables on the number of families with household incomes below 200% of the poverty level. However, this data is not easily converted to households.
- A good place to start understanding these terms is the Census Bureau glossary:
<https://www.census.gov/glossary/>