

# About The Data

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## Data Sources

### EducationSuperHighway List of Properties

The focus of the Free Apartment Wi-Fi program is Multi-Dwelling Units (MDUs) with over 50 units and in areas with a high percentage of unconnected households, in high poverty census tracts, or areas that are underserved or unserved (additional details in sections **High-Priority Census Tracts** and **Broadband Serviceable Location (BSL) Served Status**). The number of properties and unconnected households is estimated from the selected properties defined as eligible below.

The list of properties originates from the FCC Fabric dataset that underlies the FCC Broadband Maps published in November 2022. In addition, EducationSuperHighway sourced proprietary third-party real estate data and combined this with HUD location datasets. When an address location in the FCC Broadband Maps matched with our proprietary third-party real estate datasets and/or HUD dataset, we used the larger unit count of either data source as the property unit counts.

Given privacy concerns and license agreements, only aggregate estimates of the number of households that can be connected by the Free Apartment Wi-Fi program are included.

### Census Data

To determine unconnected populations, poverty rates, or population densities, we used Census American Community Survey (ACS) 5-year 2016-2020 and Census Public Use Microdata Sample (PUMS) 2016 - 2020. For the definition of an unconnected household, check details under **ACP Eligible and Unconnected Household** section.

### Broadband Availability Data

We used the Broadband Availability Data from the FCC Broadband Maps as of December 2022. This data was used to estimate served, underserved, and unserved properties (see **Broadband Serviceable Location (BSL) Served Status**). Our estimates do not include updates in the availability data since that time. Our dataset is comprehensive to the state level of fixed wireless and does not include mobile wireless.

### Definitions and Calculations

Free Apartment Wi-Fi program Eligible List of Properties and Households

### Eligible Households

This is a sum total of units in our property list of eligible properties. We do not take into account potential vacancy rates, which can lower our overall estimates.

### Estimated Unconnected Households in Eligible Properties

Within a particular Public Use Microdata Area (PUMA) location, we take the average unconnected rate of those samples in properties with fifty or more units and apply that average percentage to all buildings within our list (additional details in section **'Unconnected Households'**).

$$\text{Housing unit counts} \times (\text{Total Unconnected Households/Total Households by PUMA and building size (50+)}) = \text{Unconnected Households}$$

This estimate uses Census PUMS 2016-2020.

### Estimated Population

We estimated the total population in a building given the total number of units in a building without considerations for vacancy rates. Within a given PUMA, we calculated the average household size in buildings where there are 50 or more units and used that average household size for all properties.

$$\text{Housing unit Total} \times (\text{Average Persons per household by PUMA in buildings 50+ units}) = \text{Total Population}$$

The unconnected population is estimated in a similar way, with the same average persons per household being applied to the total unconnected households by property or a given area.

$$\text{Unconnected Housing Units} \times (\text{Average Persons per household by PUMA in buildings 50+ units}) = \text{Total Unconnected Population}$$

This estimate uses Census PUMS 2016-2020.

### Population and Unconnected Estimates by Building

The variables used from PUMS to identify unconnected units and population by building size are listed below. (see details to define unconnected in **Unconnected Households Census Variables**)

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1. NP: Number of Persons per household
2. BLD: Building size in units per building

This estimate uses Census PUMS 2016-2020.

Broadband Serviceable Location (BSL) Served Status

### Served

A served property is defined as a BSL that has either residential or mixed-use service at or above 100 Mbps download speed and 20 Mbps upload speed with low latency. A BSL is considered served if it has these speeds and has wired technology or licensed fixed wireless technology.

### Underserved

An underserved property is defined as a BSL that does not have broadband coverage defined as served but has 25 Mbps or more download speed and 3 Mbps upload speed and has wired technology or licensed fixed wireless technology.

### Unserved

An unserved property is defined as a BSL that does not meet the served or underserved criteria at the property.

### Broadband Affordability Gap

EducationSuperHighway is focused on closing the digital divide for those households that have access to the internet but cannot afford to connect and we refer to this as the broadband affordability gap. Using Broadband Availability Data, we assume if a location has access to technology that provides them with 25 Mbps download and 3 Mbps upload speeds, they have some infrastructure to connect to the high-speed broadband. This estimate out of a total number of households gives us a general percentage of households with infrastructure. Using this percentage of households that have access to infrastructure, we apply it to our estimate of households that are eligible for ACP and are unconnected. We estimate there are 16.5 million households nationwide in the affordability gap. This estimate was made with Census PUMS 2016-2020 with a combination of FCC Broadband Availability Data from December 2022.

## ACP Eligible and Unconnected Households

### ACP Eligibility Census Variables

The variables used from PUMS to identify ACP-eligible households are:

The household weight variable (WGTP) is used to estimate the total number of eligible households at the PUMA area code. According to ACP guidelines, four roommates who live together but do not share money are four households. They can have one ACP benefit each, four in total. In this example, the four eligible roommates will count as one ACP-eligible household, although we recognize that there are four ACP-eligible individuals. Our estimate only includes the unique households. A limitation of this current estimate is that the PUMS data did not include other assistance programs and Tribal specific programs data. Our estimates may be slightly underestimating the true number of ACP-eligible households due to the limitation of PUMS data.

### Unconnected Households

EducationSuperHighway considers a household unconnected if they have no access to the internet, have cell-only access to the internet, or have only dial-up access to the internet. We use Census PUMS 2016-2021 for our unconnected households estimations.

Variable Name	Value Used	Variable Used To Determine If
HINS4 HINS4	1	An individual is using Medicaid
FS Food Stamp/SNAP	1	An individual is receiving food stamps or SNAP
PAP Public Assistance Income	>0	An individual is receiving any dollars of public assistance income
SSIP Supplemental Security Income	>0	An individual is receiving any dollars of supplemental security income
POVPIP Income to Poverty Ratio	<=200	An individual is earning income at or below 200% of the poverty line

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### Unconnected Households Census Variables

The variables used from PUMS to identify unconnected households are:

Variable Name	Value Used	Variable Used To Determine If
ACCESSINET Access to the internet	3 or 1	No internet was at location or there was internet via dial-up or cell only
DIALUP Dial-up service	2 or 1	There was dial-up and nothing else or no dial-up
HISPEED Broadband (high-speed) internet service such as cable, fiber optic, or DSL service	2	There was no high-speed internet
OTHSVCEX Other internet Service	2	There was no other unlabeled internet
SATELLITE Satellite internet Service	2	There was no satellite internet

For unconnected households the household weight variable is used to estimate the total number of households at the PUMA area code.

### Unconnected Communities

We also focused on America's most unconnected communities as a subset of our affordability gap. These are households in the affordability gap and also live in census tracts, with greater than 25% of households meeting our definition of unconnected. In this estimate, we believe 9.7 million households of our affordability gap are in the most unconnected communities. This estimate used Census ACS 5-year 2016-2020.

### High-Priority Census Tracts

There are two categories that would place a census tract in our high-priority list: high unconnected rate or high poverty.

We define high unconnected rate census tracts as census tracts with over 25% or more unconnected households. We define high poverty census tracts as a census tract with 19.4% percent or more of its population under 150% of the poverty level. Properties in high-priority census tracts are the properties included in our EducationSuperHighway List of Properties. The poverty level is sourced from the U.S. Census Bureau, Current Population Survey, 2022 Annual Social and Economic Supplement (CPS ASEC).

The high-priority census tracts are guided by eligible uses of BEAD funds where entities must prioritize residential buildings that:

1. Have a substantial share of unserved households; or,
2. Are in locations where the number of households with an income at or below 150 percent of the poverty line is higher than the national percentage.

### Estimated Costs

Costs are estimated at an average cost of \$650 per unit. \$650 is an average EducationSuperHighway estimate determined from pilot programs and assessments.

### MDUs and the Digital Divide

The percentage of unconnected households in multifamily dwelling units (MDUs) and public housing is an estimate based on **EducationSuperHighway List of Properties and the Broadband Affordability Gap**. This estimate uses Census PUMS 2016-2020.