



# How Can U.S. Broadband Expansion Help the Census Bureau Reach More Survey Respondents

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American Association of Geographers,  
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# Broadband Access Across Hawaiian Counties

County	Households <sup>1</sup> with Broadband Access	Aggregated Margin of Error			
					
Hawaii County	48,156	±1,444			
Honolulu County	247,068	±2,813			
Kalawao County <sup>2</sup>	218	±97			
Kauai County	16,599	±699			
Maui County	42,721	±1,172			

# Broadband Access Across Hawaiian Counties

County			Total Occupied Households <sup>1</sup>	Aggregated Margin of Error	
					
Hawaii County			71,747	±1,501	
Honolulu County			316,928	±2,913	
Kalawao County <sup>2</sup>			306	±111	
Kauai County			23,331	±723	
Maui County			55,620	±1,234	

# Broadband Access Across Hawaiian Counties

County	Households <sup>1</sup> with Broadband Access	Aggregated Margin of Error	Total Occupied Households <sup>2</sup>	Aggregated Margin of Error	Percent of County Households with Broadband Access
Hawaii County	 48,156	 ±1,444	 71,747	 ±1,501	 67.12%
Honolulu County	247,068	±2,813	316,928	±2,913	77.96%
Kalawao County <sup>3</sup>	218	±97	306	±111	71.24%
Kauai County	16,599	±699	23,331	±723	71.15%
Maui County	42,721	±1,172	55,620	±1,234	76.81%

Sources: 2022 Planning Database (PDB, CBDRB-FY21-148)

1: Estimated number of households with broadband access, using ACS 2016-2022 5-year estimates in the 2022 PDB

2: Estimated number of occupied households, using ACS 2016-2022 5-year estimates in the 2022 PDB

3: Estimates for Kalawao County may have increased variability, due to small, declining population numbers.

# 2020 Census Invitations to Respond

## How the 2020 Census will invite everyone to respond



Every household will have the option of responding online, by mail, or by phone.

Nearly every household will receive an invitation to participate in the 2020 Census from either a postal worker or a census worker.

 **95%** of households will receive their census invitation in the mail.



**Almost 5%** of households will receive their census invitation when a census taker drops it off. In these areas, the majority of households may not receive mail at their home's physical location (like households that use PO boxes or areas recently affected by natural disasters).



**Less than 1%** of households will be counted in person by a census taker, instead of being invited to respond on their own. We do this in very remote areas like parts of northern Maine, remote Alaska, and in select American Indian areas that ask to be counted in person.

# Two Mailing Contact Strategies

## Internet First:

### Letter invitation

- Most areas of the country are likely to respond online, so most households will receive a letter asking them to go online to complete the census questionnaire.
- We are working with the U.S. Postal Service to stagger the delivery of these invitations over several days. This way we can spread out the number of users responding online, and we'll be able to serve you better if you need help over the phone.

## Internet Choice:

### Letter invitation and paper questionnaire

- Areas that are less likely to respond online will receive a paper questionnaire along with their package. The package will also include information about how to respond online or by phone.

### We understand that you might miss our initial letter in the mail.

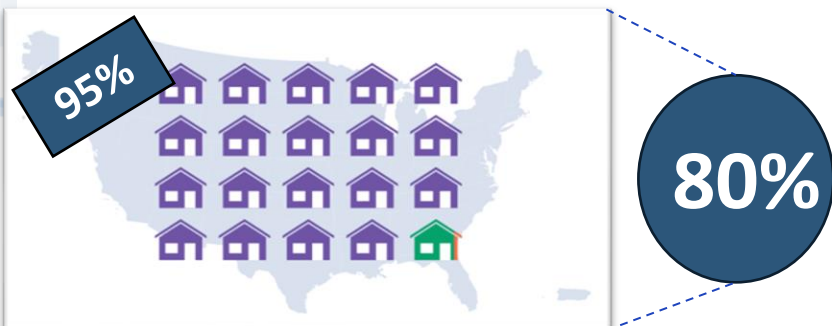
- Every household that hasn't responded will receive reminders and will eventually receive a paper questionnaire.
- If you don't respond online, by phone, or by mail, we will follow up in person.

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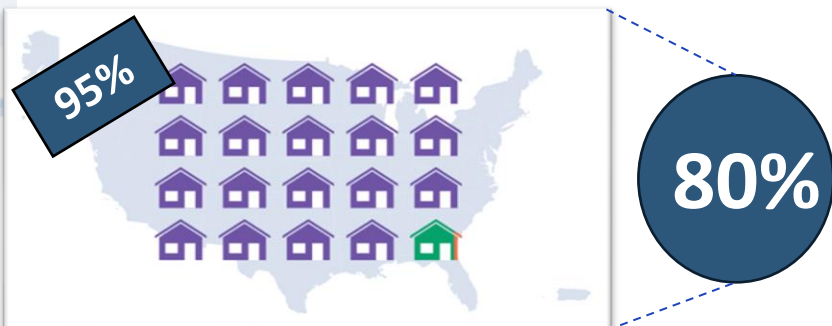
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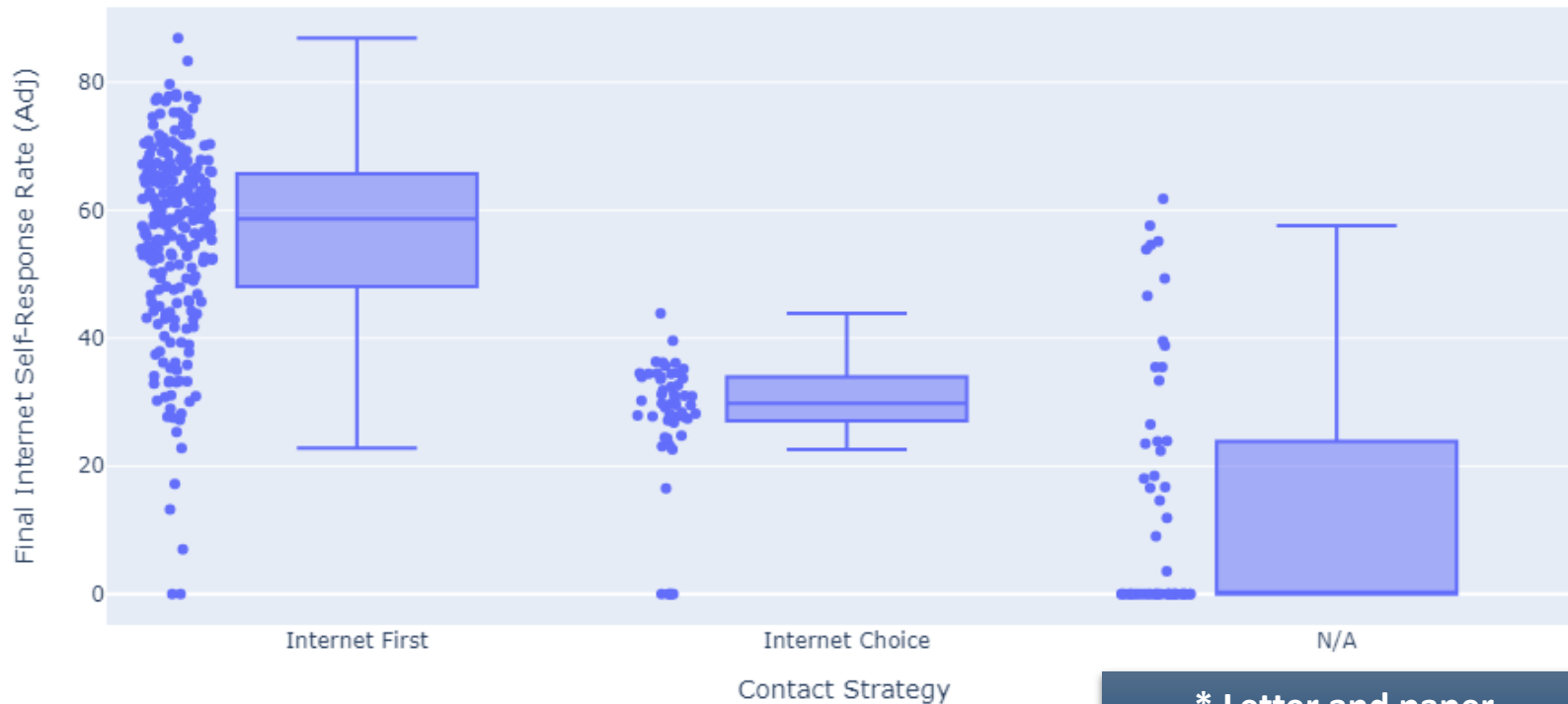




# Hawaii's Mailing Contact Strategies

# Hawaii Response Rates (adjusted), by Mailing Contact Strategy

Mailing Contact Strategies in Hawaii Census Tracts



- 2020 Census response rates were publicly available with 2020 vintage geography.
- 2020 Mailing Contact Strategy was publicly available with 2010 vintage geography.

A census tract relationship file is needed to construct any valid comparisons using the 2020 Census mailing contact strategy.

- 2020 Census response rates are adjusted accordingly, **only** when considering contact strategy.

# Honolulu County



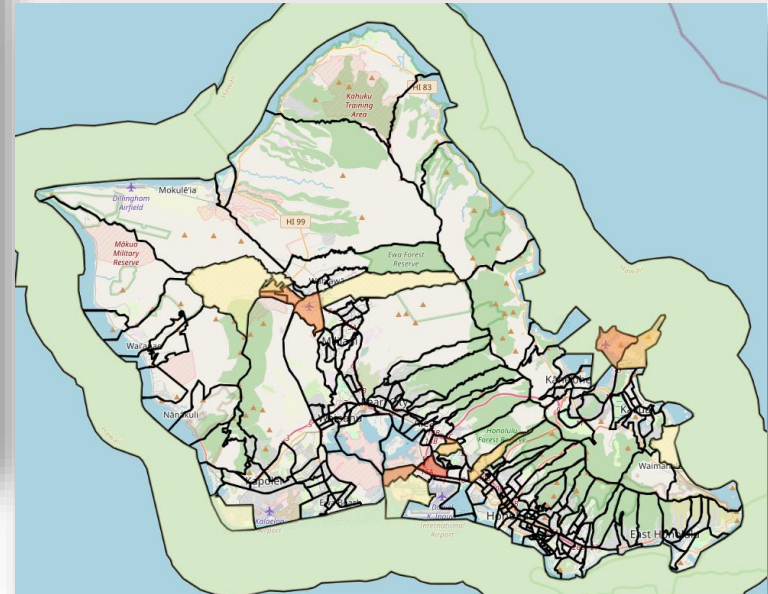
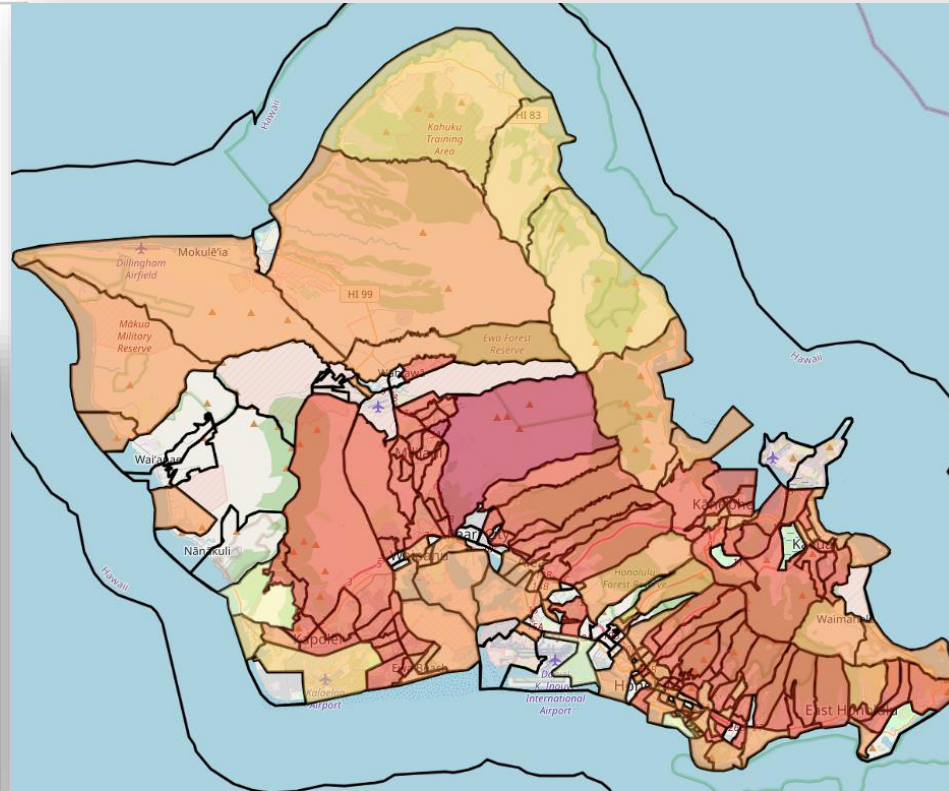
## INTERNET FIRST



## INTERNET CHOICE



## NO MAILING STRATEGY

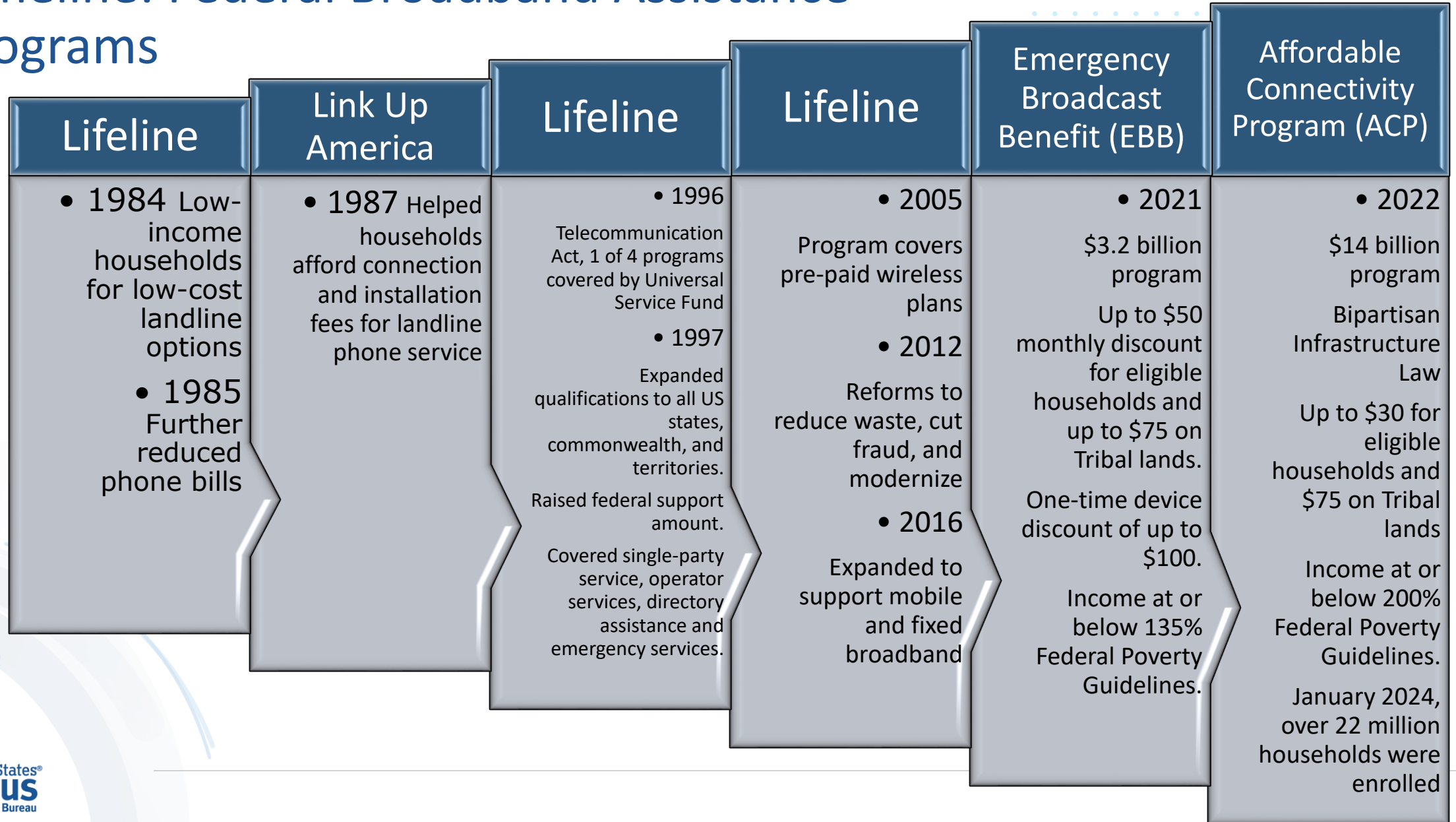


A doctor in a white coat is using a tablet computer in a hospital setting. The background is blurred, showing other people and bright lights. The text is overlaid on the image.

# Bringing Long-Term Broadband Access to Hawaiian Households



# Timeline: Federal Broadband Assistance Programs



# Affordable Connectivity Program for Hawaiian Residents

By the end of December 2021,

- more than 17,000 Hawaiian households enrolled in the EBB program
- more than \$3 million in benefits locally

By the end of January 2024

- more than 60,000 Hawaiian households enrolled in the ACP program
- more than \$32 million in benefits locally

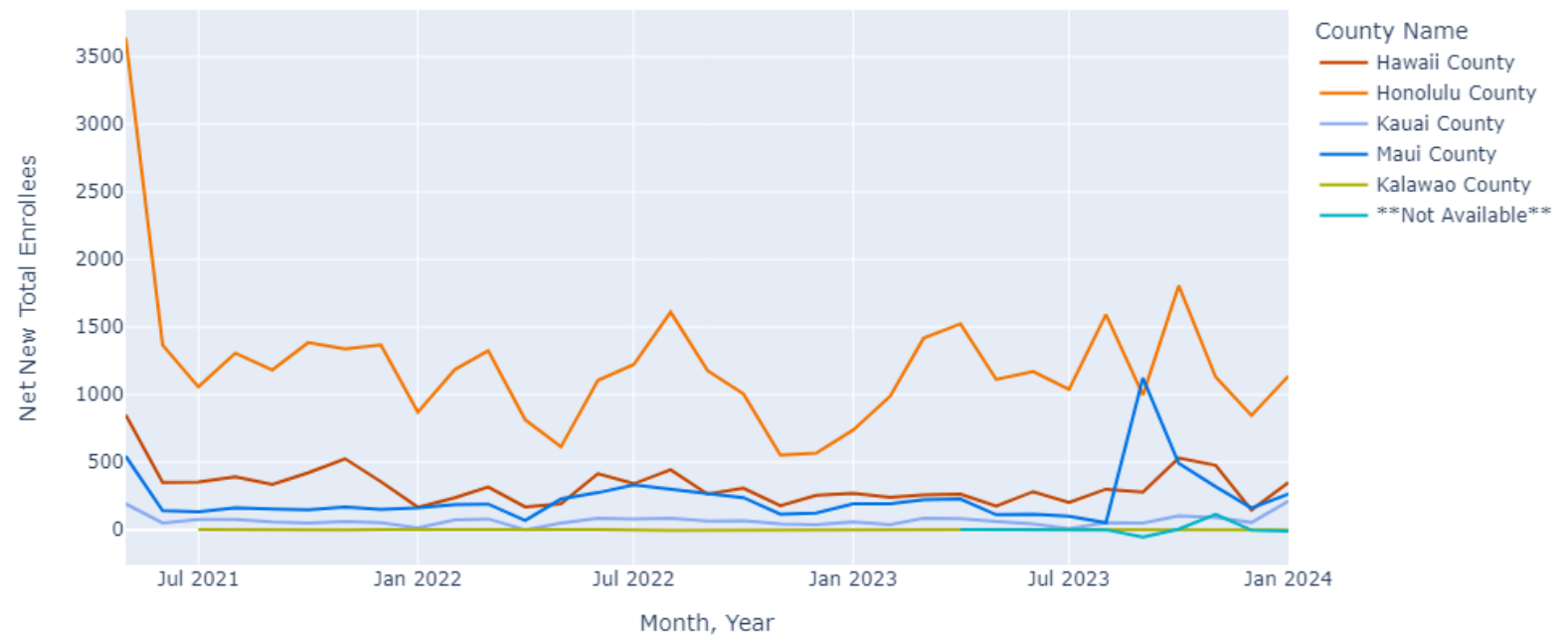
Community outreach

- Burt Lum, State Digital Equity Coordinator at the Hawaii Broadband and Digital Equity Office
- <https://broadband.hawaii.gov/acp/>
- <https://www.affordableconnectivity.gov/>
- Social Media Posts

# EBB/ACP Enrollment in Hawaii

- Program enrollment for Emergency Broadcast Benefit (EBB) start high
  - Highest in Honolulu County
- Steady continued net new enrollment throughout EBB and Affordable Connectivity Program (ACP)
- High peak enrollment in Maui County September 2023

EBB/ACP Enrollment, Jan 2021-Feb 2024





# Ordinary Least Squares Regression Analysis



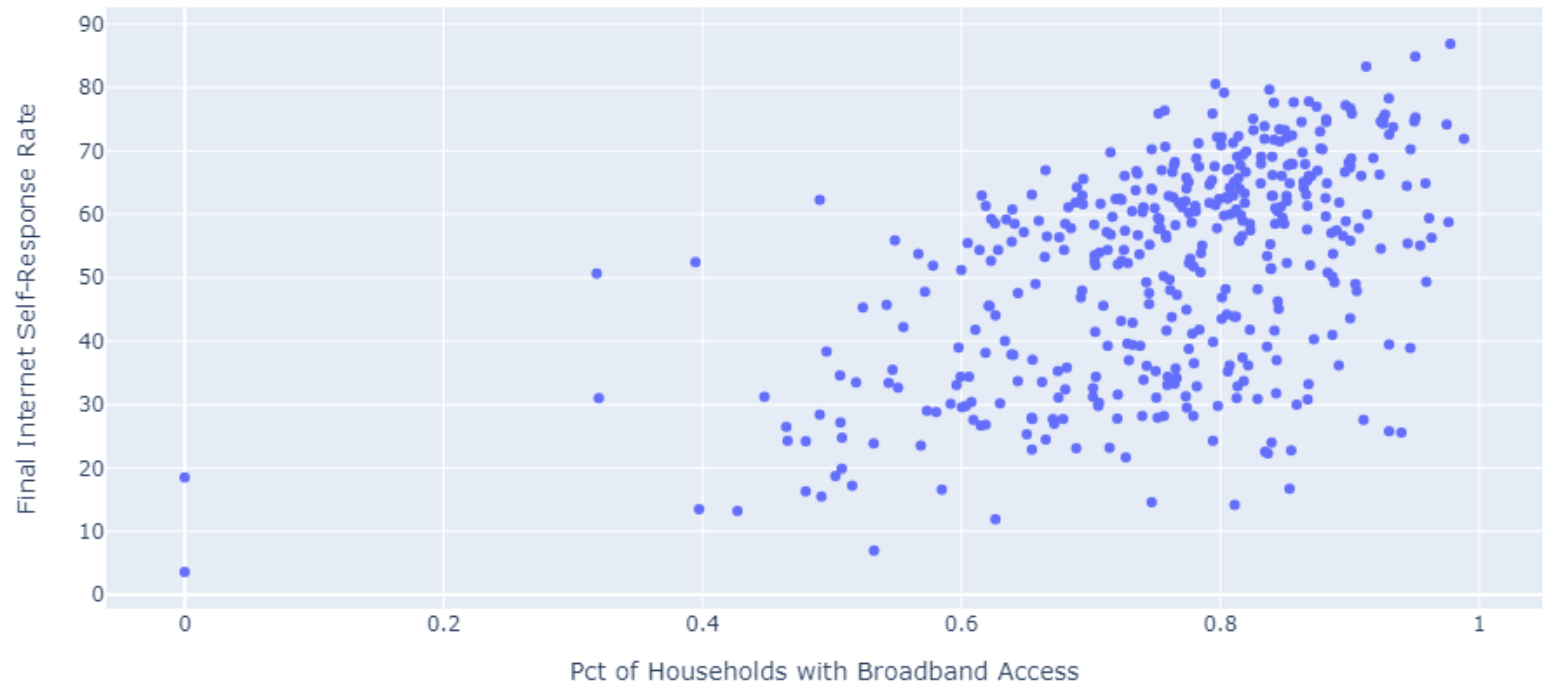
# Evaluation Correlation of Hawaiian Census Tracts

## Linear relationship

- *Not considering contact strategy*
- Pearson correlation coefficient
- Percent of households in Hawaiian census tracts with broadband access and cumulative internet response rates

For internet response rates, we saw a moderate, positive correlation,  $r = 0.53$ ,  $p < 0.001$ )

Scatterplot: Internet RR by Pct HHD Broadband



# Ordinary Least Squares (OLS) Regression Analysis Results

Predicting for the cumulative internet response, an OLS model returns:

$$y = 68.19(x) - 0.13$$

- $y$  is the predicted cumulative internet response rate
- $x$  is the percent of households within a Hawaiian census tract with broadband access.

Measures	Statistics	P-Value
Pearson correlation coefficient	0.53	<0.001
R <sup>2</sup>	0.28	
Regression coefficients		
Intercept	-0.13	
Slope	68.19	<0.001
90% Confidence Interval	(59.34%, 77.04%)	

# Ordinary Least Squares (OLS) Regression Analysis Results

County	Total Subscribers (Feb, 2024)				
Hawaii County	10,518				
Honolulu County	40,028				
Kauai County	2,241				
Maui County	7,628				

# Ordinary Least Squares (OLS) Regression Analysis Results

County	Total Subscribers (Feb, 2024)	Households <sup>2</sup> with Broadband Access	Total Occupied Households <sup>3</sup>	Percent of County Households with Broadband Access
Hawaii County		48,156	71,747	67.12%
Honolulu County		247,068	316,928	77.96%
Kauai County		16,599	23,331	71.15%
Maui County		42,721	55,620	76.81%

# Ordinary Least Squares (OLS) Regression Analysis Results

County	Total Subscribers (Feb, 2024)	Households <sup>2</sup> with Broadband Access	Total Occupied Households <sup>3</sup>	Hypothetical Upper Bound of Households with Broadband Access
Hawaii County	<b>10,518 +</b>	48,156 /	71,747	<b>81.78%</b>
Honolulu County	<b>40,028 +</b>	247,068 /	316,928	<b>90.59%</b>
Kauai County	<b>2,241 +</b>	16,599 /	23,331	<b>80.75%</b>
Maui County	<b>7,628 +</b>	42,721 /	55,620	<b>90.52%</b>

# Ordinary Least Squares (OLS) Regression Analysis Results

County	Total Subscribers (Feb, 2024)	Households <sup>2</sup> with Broadband Access	Total Occupied Households <sup>3</sup>	Percent of County Households with Broadband Access	Hypothetical Upper Bound of Households with Broadband Access
Hawaii County	<b>10,518</b>	48,156	71,747	67.12%	<b>81.78%</b>
Honolulu County	<b>40,028</b>	247,068	316,928	77.96%	<b>90.59%</b>
Kauai County	<b>2,241</b>	16,599	23,331	71.15%	<b>80.75%</b>
Maui County	<b>7,628</b>	42,721	55,620	76.81%	<b>90.52%</b>

# Ordinary Least Squares (OLS) Regression Analysis Results

$$y = 68.19(x) - 0.13$$

*predicted internet self response = 68.19(pct households with broadband access) - 0.13*

County	Hypothetical Upper Bound of Households with Broadband Access	Hypothetical Upper Bound Predicted Internet Self-Response Rate
Hawaii County	81.78%	55.64%
Honolulu County	90.59%	61.64%
Kauai County	80.75%	54.93%
Maui County	90.52%	61.60%

# Ordinary Least Squares (OLS) Regression Analysis Results

$$y = 68.19(x) - 0.13$$

*predicted internet self response = 68.19(pct households with broadband access) - 0.13*

County	Percent of County Households <sup>2</sup> with Broadband Access			Predicted County Internet Self-Response Rate	
Hawaii County	67.12%			45.64%	
Honolulu County	77.96%			53.03%	
Kauai County	71.15%			48.39%	
Maui County	76.81%			52.25%	



# Ordinary Least Squares (OLS) Regression Analysis Results

$$y = 68.19(x) - 0.13$$

*predicted internet self response = 68.19(pct households with broadband access) - 0.13*

County	Percent of County Households <sup>2</sup> with Broadband Access	Actual County Internet Self-Response Rate	Predicted County Internet Self-Response Rate
Hawaii County	67.12%	36.0%	<b>45.64%</b>
Honolulu County	77.96%	56.7%	<b>53.03%</b>
Kauai County	71.15%	42.8%	<b>48.39%</b>
Maui County	76.81%	38.5%	<b>52.25%</b>

# Ordinary Least Squares (OLS) Regression Analysis Results

$$y = 68.19(x) - 0.13$$

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County	Percent of County Households <sup>2</sup> with Broadband Access	Hypothetical Upper Bound of Households with Broadband Access	Actual County Internet Self-Response Rate	Predicted County Internet Self-Response Rate	Hypothetical Upper Bound Predicted Internet Self-Response Rate
Hawaii County	67.12%	81.78%	36.0%	45.64%	55.64%
Honolulu County	77.96%	90.59%	56.7%	53.03%	61.64%
Kauai County	71.15%	80.75%	42.8%	48.39%	54.93%
Maui County	76.81%	90.52%	38.5%	52.25%	61.60%

# Future State of the Affordable Connectivity Program (ACP)

- Jan 11<sup>th</sup>, 2024: FCC announced wind-down requirements, due to lack of additional funding from Congress
- Feb 8<sup>th</sup>, 2024: No longer accepting new enrollments
  - Over 23,269,550 households enrolled in the program nationwide
    - 22,940,091 were non-Tribal
    - 329,459 were Tribal
- April 2024: Last fully funded month

Providers currently participating in the ACP are strongly encouraged to review the FCC's Order and Public Notice, which set out requirements regarding the specific and frequent notices to enrolled ACP households about the end of the program.

# Future State of the Affordable Connectivity Program (ACP)

- Congress representation: U.S. Senator Mazie Hirono joined 31 colleagues in Oct. 2023 to urge fellow senators to extend funding for the ACP.
- Current House and Senate bill, introduced 2024, S3565 sponsored by Vermont Senator Peter Welch, and HR6929 sponsored by House Representative Yvette Clarke, both titled the "ACP Extension Act of 2024," to extend and provide FY2024 funding.
- Hawaii Senate and Hawaii House of Representatives are bringing similar resolutions urging Congress to continue funding for the ACP.

# ACP Alternatives in Hawaii

May 2024: Alternative funding available for Hawaiians that qualify

- **Lifeline**

- qualifying low-income Hawaiians (gross household income at or below 135% of the Federal Poverty Guidelines) that qualify, covers fixed and mobile broadband.

- **Internet Kokua**

- qualifying low-income Hawaiians (gross household income at or below 135% of the Federal Poverty Guidelines) that qualify, for both copper-served and fiber-served addresses. The drawback is that the address needs to have the broadband architecture in place.

More information and follow-ups regarding the status and funding of the ACP can be found at <https://www.fcc.gov/acp>

# QUESTIONS?



Thank you!

Point of Contact:

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Decennial Statistical Studies Division

[Megan.b.parker@census.gov](mailto:Megan.b.parker@census.gov)

# Data Reference Links

## U.S. Census Bureau Data:

<https://www2.census.gov/adrm/PDB/2022/>

<https://www2.census.gov/adrm/PDB/2022/pdb2022tr.csv>

<https://www2.census.gov/programs-surveys/decennial/2020/data/2020map/2020/?C=M;O=A>

<https://www.census.gov/geographies/reference-files/time-series/geo/relationship-files.2020.html#tract>

## EBB/ACP Program Data:

<https://www.usac.org/about/affordable-connectivity-program/acp-enrollment-and-claims-tracker/>

<https://www.usac.org/wp-content/uploads/about/documents/acp/EBB-Households-by-County-May-2021-Dec-2021.xlsx>

<https://www.usac.org/wp-content/uploads/about/documents/acp/ACP-Claims-by-County-January-December-2022.xlsx>

<https://www.usac.org/wp-content/uploads/about/documents/acp/ACP-Claims-by-County-January-December-2023.xlsx>

<https://www.usac.org/wp-content/uploads/about/documents/acp/ACP-Households-by-County-January-February-8-2024.xlsx>