ʻAuamo Collaborative

Hawaii Rural Broadband Mapping Project

2022

ʻAUAMO COLLABORATIVE

Kānaka Maoli Nonprofit (501C3)

`Auamo Collaborative is committed to assisting underserved indigenous and indigent communities and families through direct service projects to meet immediate areas of need, free educational and social programming to promote community resilience, connection to community resources, and compassionate educational and community advocacy. Auamoʻs flagship program is the Kuauli Digital Opportunities Initiative, formed to remove existing physical and logistical barriers that prevent our keiki, kupuna, and communities from accessing digital resources and educational opportunities through moku-based solutions and iterative design. Kuauli is a grassroots group of diverse community leaders from the public and private sectors united to address digital and broadband inequity.

He aupuni palapala koʻu; o ke kanaka pono ʻoia koʻu kanaka

Kauikeaouli

Funding Partners: Kamehameha Schools, Papa Ola Lōkahi, Internet Society, Pacific Basin Telehealth Resource Center

In Kind and Design Partners: Hawaii Office Of Planning and Sustainable Development - GIS (Arthur J. Buto), University of Hawaii JABSOM (Dr. Kelley Withy), Hawaii Broadband and Digital Equity Office (Burt Lum), Hawaii County Department of Research and Development (Riley Saito), Dr. Christina Higa, Lihla Noori

PARTNERS

The COVID-19 pandemic has exposed large swaths of Hawaii that have poor or non-existent broadband service in rural areas. The lack of access affected families' ability to access educational opportunities, telehealth services, and government assistance, made even more acute by lockdown regulations and travel restrictions that hinder people's access to in person services.

In a recent statewide survey, supported by Kamehameha Schools and conducted by Marzano Research, 34% of Native Hawaiians and 35% of non-Hawaiians reported insufficient access to digital devices and Internet connectivity *('Imi Pono Hawaii Well-Being Survey, 2021)*. This reflects deeper digital inequalities than previously indicated in sources like 2019 American Community Survey data that found only 12% of Hawaii households lack Internet access (55,000 households in Hawaii have no internet subscription of any kind). For those households struggling economically, almost one in three have no Internet service.

The 2020 State of Hawaii Broadband Strategic Plan discusses the challenges in obtaining accurate data for grant purposes:

"Federal (FCC and USDA) identification of unserved and underserved areas only go down to the census block level. Although this is an easy method for calculating funding and potential locations in a given area nationwide, there are significant variances at a local level which in some cases completely bypass areas needing investment. As an example, the federal government will not provide grant funding for any census block where at least one location is determined to be serviced by broadband. In an area of multiple square miles and several tens of unserved locations, they will be completely bypassed because of a single customer"

Higher quality and more specific data is needed to inform appropriate solutions, however, private carriers do not share coverage data at the household level which would facilitate analysis and discovery of the true need. Since carriers consider this data proprietary, identifying unserved and underserved communities across rural and remote areas of Hawaii, has relied on indirect deduction. To this we add crowdsourcing and grassroots organization with this project.

PROJECT DESIGN

To better inform the extent of broadband coverage at a household level, this project will utilize ʻAuamo Collaborativeʻs extended network to gather data on broadband access in rural communities across Hawaii, by deploying community members to monitor quality of coverage, ability to access broadband services, and gauge broadband utility.

Providing a clear map of actual vs. claimed coverage will better address the needs of communities by informing policy efforts that aim to create community-led solutions. The map will allow us to better address the needs of communities who do not have broadband access and no infrastructure to allow access to existing services. The data will inform efforts towards creative solutions in creating community networks, advocacy for underserved communities, as well as providing a look at why community members need access to the internet.

PURPOSE OF STUDY

It is important to note that our project was never designed to point fingers or find blame for lack of adequate broadband connectivity. Much has been written about the challenges of infrastructure faced by governmental agencies and service providers, and this study was not undertaken as a means of giving critics the ammunition they need to attack those groups. We have always chosen to reject deficit models and approach our shared challenges from a standpoint of abundance. That is to say, rather than dwell on what we do not have, we would like these findings to drive discussion and collaboration between all stakeholders to see how we can come together as a community to share resources and solutions. The data should be seen as a "third point" that holds no specific bias, and used to recognize the reality while inspiring hope for innovative approaches that benefit those in need of relief.

Further, the initial study was designed to identify "if" connectivity was available and if so, what that connectivity looked like for that particular respondent. While we asked what type of connectivity was being tested and for the speed (if available), the purpose behind the initial data collection was simply to determine where connectivity was or wasn't. Further iterations of the survey tool will be refined to dig deeper into questions of type, quality, and speed, as well as to possible solutions for lack of broadband coverage.

Broadband Availability

Survey results indicate that only 22.6% were in the unfettered use category, while 37.1% had some need to prioritize internet use to ensure everyone could do what they NEEDED to. Alternatively, 40% reported problems with connectivity (getting kicked offline or slow speeds) or lack of internet service at all.

Everyone (adults and keiki) who WANTS to use Internet can use it at the same time with no problems	**22.6%**
Everyone who NEEDS to use Internet can use it at the same time without any big problems	**37.1%**
Sometimes we don't have enough Internet for everyone who needs to use it (it's slow, people get kicked offline, or we all can't get online when we need to)	**25.3%**
We don't have adequate Internet access at home	**14.7%**

We differentiated between "NEEDS" and "WANTS" to use the internet at any given time to recognize that many families in Hawaii prioritize their use of available bandwidth within the family structure to ensure efficiency of use.

Broadband Quality

The FCC considers a download/upload speed of 25/3 mbps as the definition of what constitutes broadband connectivity *(2021 FCC Broadband Deployment Report)*. This standard was adopted in 2015 and has been unchanged since, though FCC Chairwoman Jessica Rosenworcel herself has publicly advocated for a 100mbps download minimum and a revisiting of the minimum upload speeds. Our results indicate that 27.4% of Hawaii residents fall below the minimum threshold of 25/3 mbps. Further, if we use the Canadian standard, adopted in 2016, which defines "basic service" as 50/10 mbps *(CRTC Communications Monitoring Report 2017)*, 36.8% of Hawaii residents fall below that threshold. Utilizing Chairwoman Rosenworcel's suggested minimum of 100 mbps download speed as a definition of basic connectivity, **a shocking 66.7% below the standard.**

Download Speed	Hawaii Residents (percentage)
Under 25 mbps	**27.4%**
Under 50 mbps	**36.8%**
Under 100 mbps	**66.7%**

"Many households with multiple users are calling, watching, listening, gaming, and searching online all at the same time. But the FCC has been sticking with a download standard of 25 megabits per second that it adopted more than five years ago. We need to set audacious goals if we want to do big things. With many of our nation's providers offering gigabit service, it's time for the FCC to adjust its baseline upward, too. We need to reset it to at least 100 megabits per second."

Jessica Rosenworcel - FCC Chairwoman (FCC 20-112)

OTHER HIGHLIGHTS

Respondents by Racial Background

Unidentified
1.6%

Asian
20.7%

Native Hawaiian
26.6%

Other Pacific Islander
11.9%

Caucasian
37%
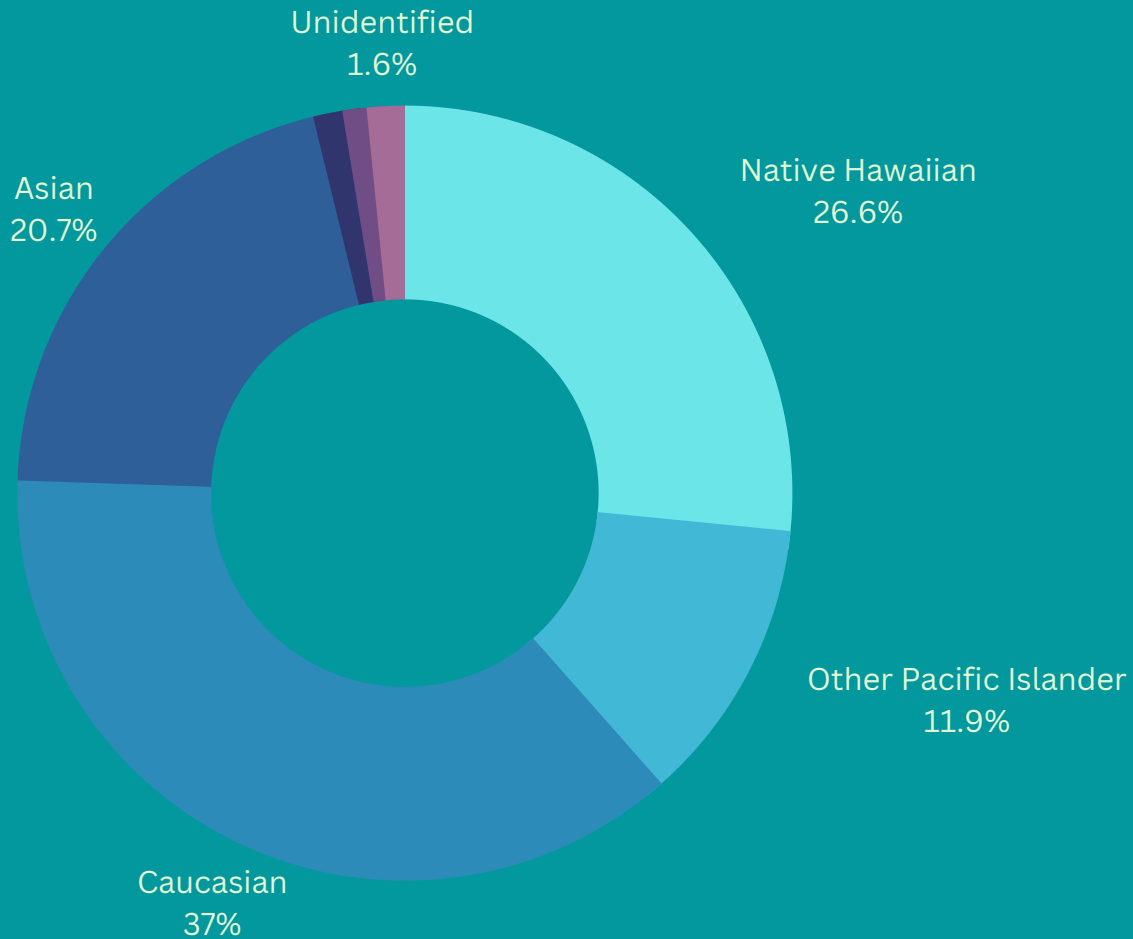
Cost vs Infrastructure

Of those who have no broadband service at home, 49.4% of respondents say that it was due to cost of available service and 50.5% due to lack of available service at their residence

Device Availability

Only 11.3% of respondents report lack of devices available to them for their needs while 38.8% report that all household members have their own personal device

Connection Types

The vast majority (85.6%) of respondents tested on a Wireless connection (WiFi or Cell Phone provider)

Telehealth

21.4% of total respondents indicate they have utilized telehealth and another 10.4% indicated a desire to. Less than 1% said they had no interest. However the design of the survey was such that interaction with the telehealth question was not required to continue, *so of those that interacted with the question*, 66.5% had utilized the internet for telehealth services, while 32.2% indicated an interest in doing so.

Telehealth Use by Respondents
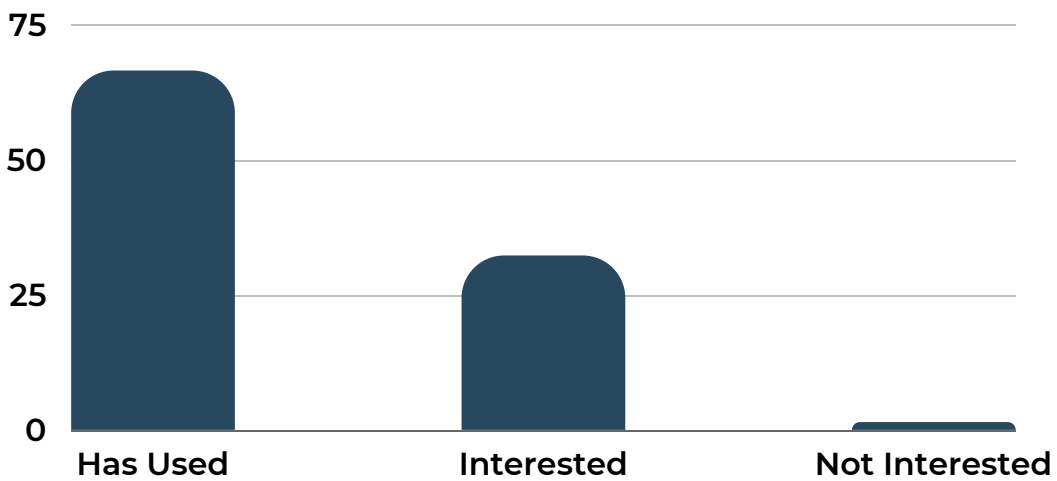
"What is telehealth?

Telehealth is the use of digital information and communication technologies to access health care services remotely and manage your health care. Technologies can include computers and mobile devices, such as tablets and smartphones. This may be technology you use from home. Or a nurse or other health care professional may provide telehealth from a medical office or mobile van, such as in rural areas. Telehealth can also be technology that your health care provider uses to improve or support health care services."

Mayo Clinic.org

Why do we connect?

Respondents were allowed to choose as many as applied. The top choice was entertainment at 73.2%, with Ecommerce/Shopping in 2nd place, being selected by 60.8%. Just behind was Work From Home/Entrepreneurship/Home Business at 59.8%. The least frequently chosen answer was Telehealth coming in at 32.5%.

5.3/10
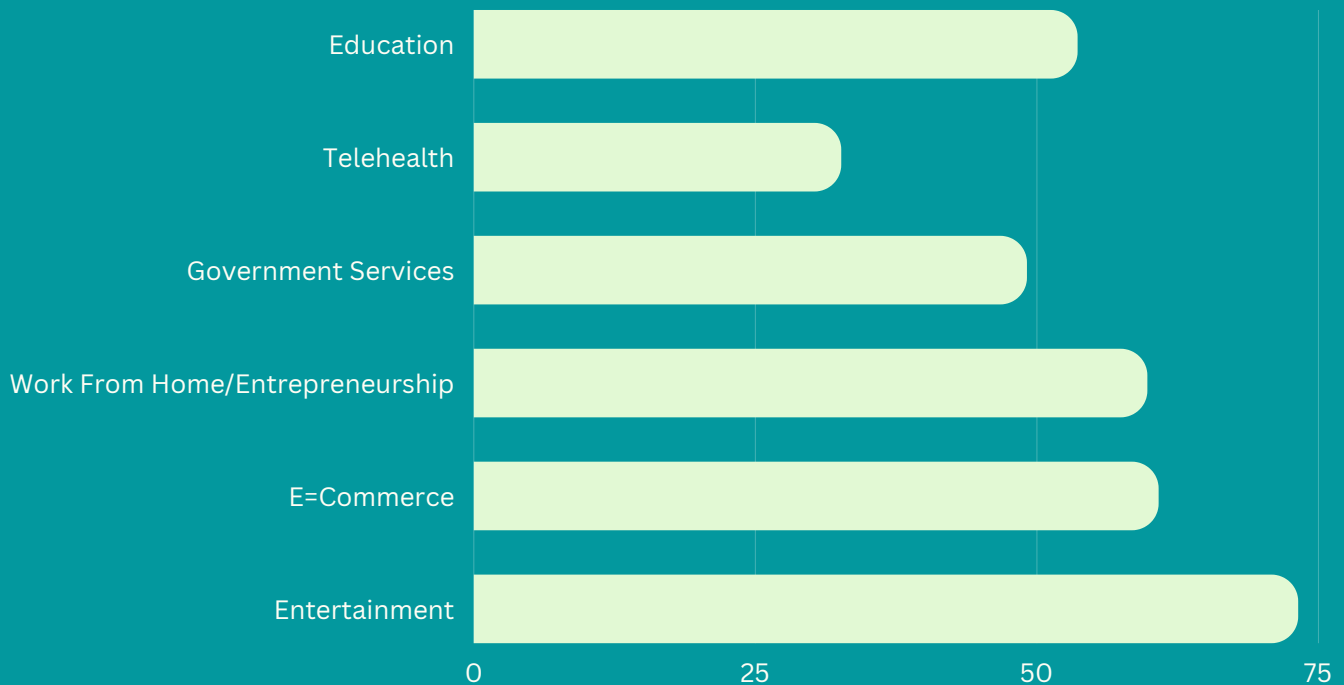Education

5.9/10
Work from home/Entrepreneurship

3.2/10
Telehealth

6/10
E-Commerce

4.8/10
Government Services

7.3/10
Entertainment

Education

Telehealth

Government Services

Work From Home/Entrepreneurship
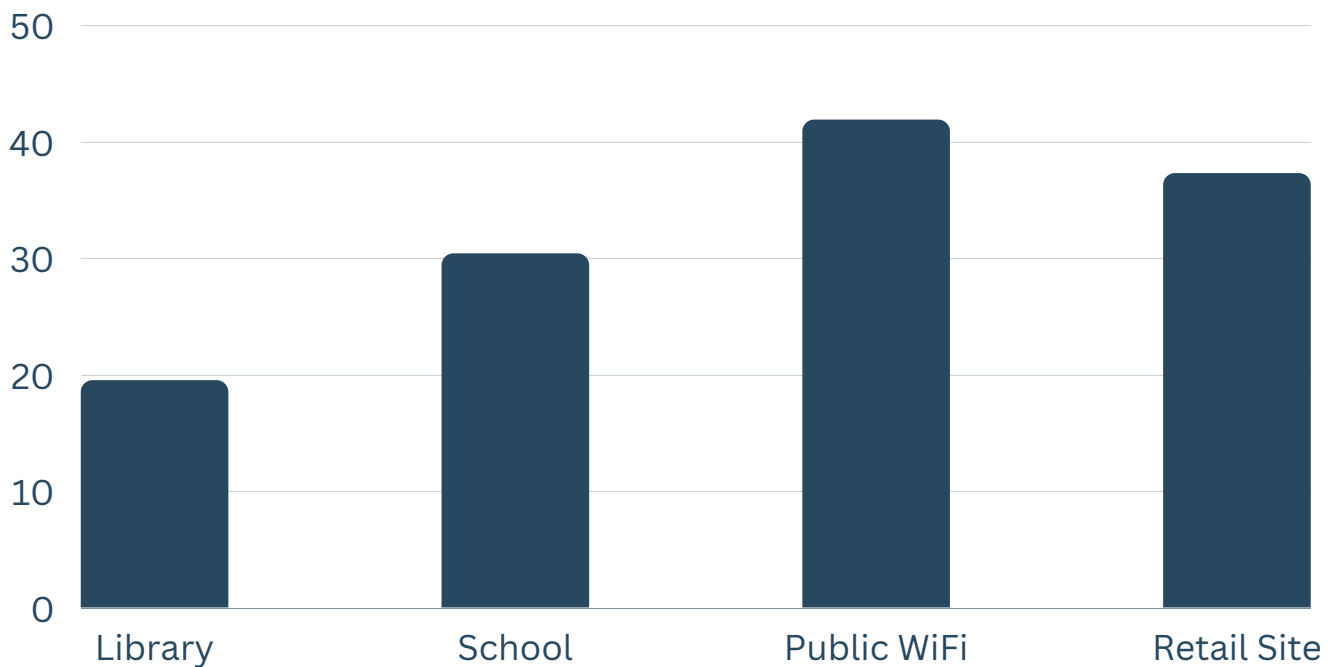
E=Commerce

Entertainment

0   25   50   75

Where do we connect if we have no service at home?

When asked where they go to connect if there was no home service available, 19.5% reported going to a public library, 30.4% to school, 37.3% to a commercial/retail establishment with free wifi, and 41.9% utilized other public wifi connections.

Locations (Percentage 0f Respondents)

Respondents were asked to share the distance they needed to travel for alternate connectivity. 43.2% traveled less than 10 miles, while 20.4% needed to travel over 20 miles to access the internet. Other alternative connections reported (in small numbers) were utilizing family or neighbors connections and cell phones when possible.

INDIVIDUAL DATA POINTS

Survey points are visualized on the State of Hawaii GIS platform located at https://geoportal.hawaii.gov/. Scroll down and look for the "Broadband Connectivity Dashboard". Each survey point can be drilled down to see the survey responses given for that location.

https://www.arcgis.com/apps/dashboards/33d942b438d448e59d389be6d4e3953e
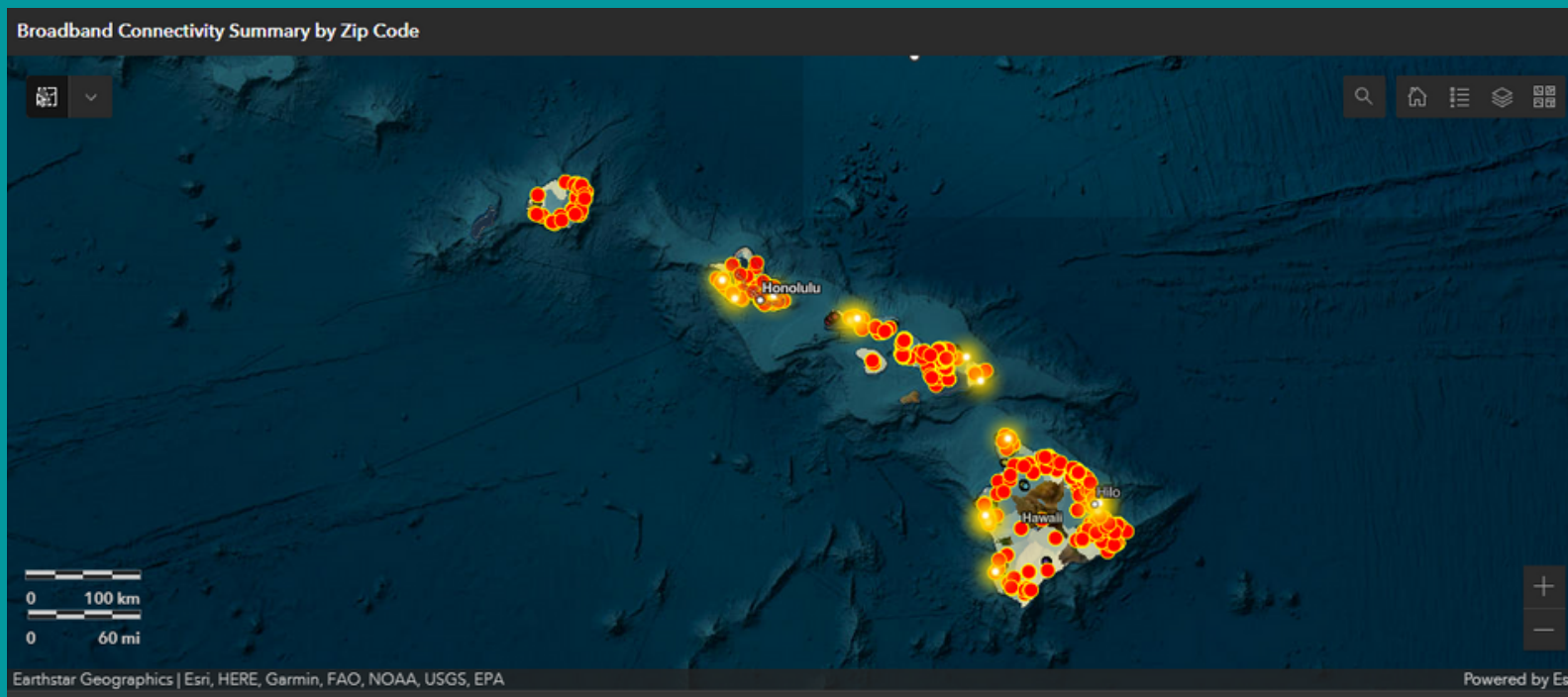
In November of 2020, in the midst of the COVID-19 pandemic, the State of Hawaii released the 2020 Hawaii Broadband Strategic Plan. At it's announcement, Hawaii Governor David Ige stated, "Broadband connectivity is the critical infrastructure that builds resilience and ties all of Hawaii's residents to the global economy — from businesses in our urban centers to remote workers and content creators in our rural communities. Broadband and digital equity are the foundations upon which we can build a Hawai'i for the future..." *(Press Release, Nov. 18 2020).*

The plan recognized that broadband connectivity was key to the economic future of our state. Goal 1 in the plan was to Ensure Robust Broadband Infrastructure to All Hawaii Residents, with objectives that included:

- Advance policies, programs and initiatives to public and/or private investment in broadband infrastructure;
- Foster public/private partnerships to develop broadband infrastructure;
- Increase transpacific submarine fiber connectivity;
- Secure broadband access sites on each island

Our study helps to set the table for public/private collaboration towards achieving this goal. Following this, the Hawaii Broadband Hui created the Digital Equity Declaration, in alignment with the objectives contained in the Strategic plan. The document was borne out of the work of the Hui through weekly meetings that started in March of 2020 with 20 interested members and has since blossomed into over 200 individuals and organizations working to address broadband deficiencies across the state. The declaration states:

"This Digital Equity Declaration compiles the collective priorities articulated through months of thoughtful Broadband Hui conversations and, in alignment with the 2020 Hawai'i Broadband Strategic Plan, sets a foundation for collective action among private- and public-sector partners by providing a vision and goals that will move Hawai'i toward a more equitable digital future. This Declaration is a call to address this critical need by advancing the following three pillars of digital equity:

- Access: Affordable, quality broadband for all;
- Literacy: A baseline of digital competence for all; and
- Livelihood: Societal systems effectively leveraging digital opportunities to improve lives.

In reference to these pillars, we refer to this declaration as Broadband for A.L.L."

Hawaii Broadband Hui-https://www.broadbandhui.org

DISCUSSION

Like the Strategic Plan, the Digital Equity Declaration promised to address access, with the goal "By 2030, consistent, quality internet access is available to 100% of Hawaiʻi's residents". ʻAuamo Collaborative was honored to be a part of the group that wrote the Resolution on behalf of the Hui, and those discussions created the groundwork for undertaking this project.

Through our work with this team and our computer distribution efforts across the state during the pandemic (Kuauli Digital Opportunities Initiative), we understood that connectivity was the underlying prerequisite for all other aspirations around digital equity, and without accurate mapping of actual service availability and quality, any effort towards creating solutions would be guesswork. The combined synergy created by the Hui and itʻs members has created a perfect environment to make real and meaningful progress on the vision of the Huiʻs Declaration.

The opportunity is real. According to Forbes, the number of Digital Nomads in the United States rose by 50% to 11 million in 2020 and again to 15.5 million in 2021 *(Why The Digital Nomad Lifestyle Is On The Rise, Forbes July 2022)*. Hawaii is uniquely positioned to be a Digital Nomad haven in offering an exotic setting still located within the United States. A research brief released by MBOPartners reports "48% of digital nomads say they plan to spend at least some of their time over the next year outside the U.S., while 52% plan to stay exclusively domestic. **But even those saying they plan to travel internationally (69%) say they will spend most of their travel time exploring domestically.**" *(The Digital Nomad Search Continues, MBOPartners, September 2021)*.

Widespread availability of high speed broadband connectivity would not just draw new business opportunities to Hawaii but also obviously provide educational and academic benefits to existing residents. Both the 2020 State Strategic Plan and the Digital Equity Resolution aim to improve outcomes for Hawaii denizens through access to resources that will improve livelihood, government and educational access, and economic benefit through new employment opportunities. By providing actual internet quality and availability data, ʻAuamo Collaborative and it's partners hope to provide the impetus for further study and discussion around ubiquitous broadband connectivity.

DISCUSSION

NEXT STEPS/RECOMMENDATIONS

- Establish a standardized survey tool and cycle for data collection statewide, prioritizing unserved and underserved areas to measure effectiveness of improvement efforts
- Differentiate by connection type
- Governmental funding is key in supporting targeted mapping efforts at the state and county level. This will help these municipalities challenge FCC maps that are not necessarily accurate
- Partnership with existing and future service providers is key to collaboration on improving coverage and providing context to current challenges and community needs
- Continued outreach through Telehealth providers and social service organizations regarding the benefits of remote access to certain types of appointments
- In addition to current computer literacy efforts, training geared toward online home business and entrepreneurship seems to be an opportunity
- Continued outreach on federal ACP opportunities for those who indicate cost as a limiting factor in obtaining home internet
- It will be important to cultivate targeted partnerships with forward facing community organizations to spearhead both outreach and recruitment of community based team members.
- A longer "ramp up" period will benefit the project by allowing greater visibility and community education as to the process and purpose of the project

New Website for Data Collection

'Auamo Collaborative will also be launching hawaiispeedtest.org in January of 2023 to provide a central website for collection of user reported speed data across the State of Hawaii. The public will be able to take a speed test and report their results directly on the site, while being able to see theirs and others results on an interactive map. These results, along with data collected in Phase 2 of this project (launching in early 2023) will be analyzed and next reported on in the summer of 2023.

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Mahalo Nui for your continued support

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