

STATE OF HAWAII
BEAD FIVE-YEAR ACTION PLAN
DRAFT (JULY 10, 2023)

Internet For All

Add Hawaii State Seal

**Include reference to NTIA/Dept of Commerce
(including seals/logos)**

FORMATTING for final draft release

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1 Executive Summary

[Insert summary of Five-Year Action Plan, restating purpose and key points of the plan - TO BE DONE LAST]

2 Overview of the Five-Year Action Plan

2.1 Vision

Hawaii will provide meaningful access to high-speed Internet for all residents by 2030. Our public sector - state and counties - together with our community of private employers and service providers, will work to maximize the benefits of the once-in-a-lifetime investment of public funds in order to achieve this vision. All residents will be connected via modern fiber optic or similarly capable service connections to guarantee high-speed (100Mbps or better) Internet access.

The University of Hawaii leads the state's broadband effort while closely collaborating with the community of stakeholders, including the Department of Business, Economic Development, and Tourism (DBEDT), the Department of Hawaiian Home Lands (DHHL), the Department of Transportation (DOT), the four Counties (Hawaii, Kauai, Maui and Honolulu), incumbent and competitive telecommunications providers, and statewide grassroots community organizations, to ensure that our collective efforts deliver maximum benefit from the numerous federal funding programs. Work on the infrastructure elements will be closely accompanied by thoughtfully implemented digital equity programs to promote the necessary digital skills development for residents, enhancement of our local workforce, and stimulation and diversification of our state's economy.

BEAD represents the largest of the federal broadband funding programs, and prioritizes last-mile support for our unserved and underserved communities. Taken together, the long list of federal programs will ensure we have robust, reliable, affordable and sustainable efforts that are all-inclusive of first-, middle- and last-mile infrastructure, combined with supporting community-based services aimed to achieve digital equity and literacy, and support for a digitally literate workforce of the future.

By 2030, Hawaii envisions a community where every resident will have meaningful access to reliable and affordable high-speed Internet bolstered by a dedicated digital equity program that enables all of our residents to succeed in digital space. All communities will have ready access to local resources including wrap-around services supporting digital equity and digital literacy. Broad geographic coverage of traditional Community Anchor Institutions together with newly minted Community Digital Hubs provide residents with neighborhood digital resources.

'Apakau ka lā (translation: 'spreading of the sun's rays') - this metaphoric expression captures the State of Hawaii's vision to build out super-fast, reliable and affordable broadband infrastructure to every community and guarantee accessibility for every resident. The investment in broadband begins at the first mile, where reliable Internet infrastructure must first reach our state through trans-Pacific connections; is extended to our islands and neighborhoods via the middle mile, and fills any gaps in the last mile, where the Internet reaches every resident, community anchor institution, and business on our islands.

2.2 Goals and Objectives

Hawaii's overall goals of the comprehensive statewide investments of federal broadband program funds are to:

- (a) *Ensure sustainable, reliable and affordable access to high-speed internet for all Hawaii residents;*
- (b) *Enable digital equity for all Hawaii residents;*
- (c) *Build community capacity to strengthen and support digital literacy for all Hawaii residents through community-based digital navigator and related wrap-around support programs;*
- (d) *Expand and sustain a network of community-based digital access hubs to support statewide digital equity and literacy initiatives;*
- (e) *Maximize benefits to Hawaii's future through effective orchestration of efforts to implement projects supported by the range of federal broadband programs; and,*
- (f) *Establish sustainable public sector oversight and management of Hawaii's digital infrastructure and assets to ensure we can always support a fully connected and empowered society.*

These objectives collectively support the goal of providing each and every resident in Hawaii with a reliable and affordable home Internet connection of 100Mb or better, along with broadly available digital literacy support in all communities.

Hawaii's investment strategy first utilizes key public investments to reset the small/mid-market capital investment paradigm to remediate the most critical failings of the "fully competitive" US telecommunications market. Magnified by our isolated island geography, the aging and brittle threads that interconnect our islands with one another and the rest of the global Internet are in need of direct public investment to ensure their continued use and longevity. The state's investment in key inter-island and terrestrial middle mile infrastructure will both lower the capital cost of Internet access for all providers - and as a result, for all residents - and increase the capacity and resilience of the critical middle mile infrastructure serving the state. Refreshed investment in Hawaii's key middle mile routes also has the desirable benefit of eliminating the most significant hurdle to landing new trans-Pacific systems on our shores.

The broad injection of public capital and wrap-around support services will reinvigorate the competitive commercial telecommunications market by making it more attractive for commercial telecom providers to make other investments that grow their business while also benefiting Hawaii at large. Business and government operations throughout the state will benefit from lowering the cost of internal connections and access to an increasingly competitive telecommunications market. The state, by taking the initiative and building new key broadband routes to previously unserved areas, will expand Hawaii's direct-service market capacity and stimulate new economic prospects. A world-class high-speed Internet connection available to all Hawaii residents empowers the potential export of local products, services and talent.

Opportunities include both Hawaii-originated research and commercial entities, as well as peer-level collaboration with existing and new entities from regional and global sources.

Building on the foundational middle mile investments funded by the CPF and MMG programs, and the legacy last mile investments funded by RDOF and CAF, Hawaii will utilize BEAD and TBC funds to fill remaining gaps in our rural last mile infrastructure. Many of those areas that were uneconomical service locations for private carriers can now be fully served by robust and affordable Internet access. While benefiting incumbent service providers, the comprehensive middle mile and last mile investments will also significantly lower the capital cost hurdles for new competitive service providers and other community-based networks to enter the market, benefiting consumers. Direct public investment in strategic middle mile routes are intended to lower the capital and operating costs incurred by telecommunications providers, to encourage new competitive market entrants, and encourage new interest in commercial investments in Hawaii-beneficial assets, including critical needs such as the construction of new trans-Pacific first mile submarine cable landings.

All of this infrastructure investment will only be fully converted into real benefits for residents with the simultaneous statewide provisioning of digital equity and literacy services. These wrap-around support services are critical to overcome the many hurdles to adoption that are most prevalent in our underrepresented communities. The wrap-around strategy is centered around support for community digital hubs, and community digital navigators that can provide in-person, on-site support for our communities with the greatest need.

To achieve these goals, Hawaii will work to successfully complete a number of objectives consistent with the guidance offered under the BEAD program. Support for achieving these objectives includes support from a range of federal broadband funding sources such as the US Treasury Coronavirus Capital Projects Fund, the NTIA Digital Equity programs, the NTIA Tribal Broadband Connectivity program, and various other programs under the FCC, EDA and USDA. Hawaii's BEAD-specific Internet-for-All objectives include:

- (a) Identification of BSLs with no service, are unserved, or are underserved based on BEAD standard requirements;
- (b) Identification of other candidate service locations that are priority service locations and for whatever reasons are excluded from (a) - subject to available funding and resources;
- (c) Build-out of last-mile infrastructure, and interconnection with service provider networks to resolve (a) and (b), including provisioning of alternative access to service for locations that are cost prohibitive for BEAD funding support, e.g., specialized wireless or satellite access;
- (d) Engage with grassroots community leaders and organizations to ensure sustainable supports for Internet-for-All activities;
- (e) Identification and service provisioning for community digital hubs, including suitable community partner organizations and sourcing of necessary wrap-around support services;

- (f) Support for state implementation of projects and efforts identified and prioritized in Hawaii’s Digital Equity Plan, and in coordination with efforts funded by the state Digital Equity Capacity grant program;
- (g) Coordination of IT/Cyber workforce development initiatives with BEAD and DE investments;
- (h) Leveraging combined efforts supporting (d), (e) and (f) to create sustainable, statewide community digital navigator program; and,
- (i) Achieve all of these objectives while orchestrating the maximum benefits from the range of other federal broadband programs.

3 Current State of Broadband and Digital Inclusion

3.1 Existing Programs

Table 1: Current Activities that the Broadband Program/Office Conducts

Activity Name	Description	Intended Outcome(s)
<i>Community Convenings, Conversations and Outreach</i>	<i>Lead community convenings focused on engaging localized public on broadband and DE needs and program support. Includes statewide volunteer efforts founded out of necessity during the pandemic, including sustained public conversations like the Broadband Hui</i>	<i>Increase the public’s understanding of broadband and support for engagement and input regarding broadband and DE programs in their local communities</i>
<i>State Broadband Staff Coordination</i>	<i>Comprised of B&F staff, University grant program staff, and the NTIA BEAD Federal Program Officer (FPO), who meet on a monthly basis to coordinate on ongoing and planned broadband initiatives</i>	<i>Enable a coordinated and streamlined effort to advancing broadband and digital equity conversation and action</i>
<i>Act 231 Broadband Working Group</i>	<i>Statutorily established working group to recommend structure and makeup of public entity to hold state broadband assets</i>	<i>Provide recommendations to legislature prior to the start of the 2024 legislative session</i>

	<p><i>constructed or acquired as a result of federal program investments; in support of the working group, convene an industry advisory group of industry and enterprise representatives to provide recommendations to the working group</i></p>	
<p><i>Statewide Coordination of Broadband Investments</i></p>	<p><i>Under the delegated authority of the Governor, together with the executive leadership of the Lt. Governor, work to orchestrate applications and implementation of public broadband investments by and on behalf of the state</i></p>	<p><i>Maximize the benefits to the state resulting from public broadband investments. Support the overall objective of sustainable, high value, investment activities with the goal of reliable and affordable internet access for all residents. Coordination of efforts to apply for available formula and competitive grant programs to support end-to-end sustainable broadband infrastructure in support of the state’s vision of reliable and affordable internet for all</i></p>
<p><i>Oversight, monitoring and management of execution of grant funded efforts</i></p>	<p><i>For grant awards/sub-awards under CPF and BEAD, directly execute any planning and execution of the projects under these awards/sub-awards; includes periodic reporting and compliance activities</i></p>	<p><i>CPF: Execution of the two approved program plans; BEAD: Execution of the five-year activities funded under the BEAD Planning Funds award, including completion of the required planning phase efforts (Five Year Action Plan, Initial Proposal, State Challenge, Final Proposal), and oversight, monitoring and management of the implementation projects approved under the Final Proposal DE: Collaboration with DBEDT to support statewide DE work and integrate efforts with BEAD planning and execution</i></p>

			<p><i>TBC: Collaboration with DHHL to support work in support of Native Hawaiian community on DHHL lands, including integration with statewide BEAD, CPF and DE efforts.</i></p>
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Table 2: Current and Planned Full-Time and Part-Time Employees

Current/Planned	Full-Time (FT)/Part-time (PT)	Position	Description of Role
<i>Current</i>	<i>FT</i>	<i>Broadband Infrastructure Architect</i>	Technical infrastructure advisor with general telecommunications background, local knowledge of existing infrastructure and established contact with telecom providers.
<i>Current</i>	<i>FT</i>	<i>Broadband Research Analyst</i>	Provides program management support for the UH broadband and critical infrastructure working group. Functions as a research analyst covering all State, Federal, and privately funded critical infrastructure projects supporting statewide broadband services in Hawai'i.
<i>Current</i>	<i>FT</i>	<i>Broadband Grant Program Coordinator</i>	Responsible for the management of all fiscal, human resource, travel and recording keeping of the project transactions. Responsible for all facets of program management and administrative support for the Principal Investigator (PI), staff, faculty, and researchers associated with the project and other related grant initiatives.

			Contributes to the overall broadband project coordination and communication through work on project planning, creation of project reports and presentations, and maintaining social media and web presence.
Current	FT	Communications Specialist	Experienced media and social platform communications specialist; also will engage in community outreach activities.
<i>Current</i>	<i>FT</i>	<i>Data Specialist</i>	This position requires technical, research, analytics, visualization and data gathering skills, to support collection, analysis and visualization work with the range of data to be collected over the performance of the grant project works.
<i>Current</i>	<i>PT</i>	State Broadband Leadership	UH program management support (grant management and program design)
<i>Current</i>	<i>PT</i>	(Multiple) UH/RCUH Support	UH/RCUH administrative and compliance support (administrative support, fiscal and procurement, personnel/HR, financial management, compliance reporting)
<i>Current</i>	FT	Community Outreach and Engagement Specialist	Increases and broadens community engagement to help support planning, deployment and adoption on a statewide basis.

<i>Planned</i>	<i>FT</i>	<i>Compliance and Contract Manager</i>	Oversees compliance and contracting activities in support of federal broadband grants.

Table 3: Current and Planned Contractor Support

In general, all of the deployment and related support efforts funded by BEAD will be executed by organizations contracted under the BEAD award funds (together with state matching funds). Additional matching funds will be provided by organizations as part of their contract commitment to execute the agreed upon scope of work. This approach is generally true for all of the federally funded broadband grant programs.

Contracted support is included in the BEAD Planning Funds award, to provide a range of services at the grassroots level on a statewide basis. These contracted services include training, outreach, communications and data collection and analysis roles.

Current/Planned	Full-Time (FT)/Part-time (PT)	Position	Description of Role
<i>Current</i>	<i>FT</i>	<i>Community Engagement and Outreach Coordinator, ~2 month term</i>	<i>Increases and broadens community engagement to help support planning, deployment and adoption on a statewide basis.</i>
<i>Planned</i>	<i>FT</i>	<i>Public Relations firm</i>	<i>Fulfill communications and outreach for state communications</i>
<i>Planned</i>	<i>FT</i>	<i>County Assistance</i>	<i>Additional manpower to assist counties with outreach, engagement, and mapping activities</i>

Table 4: Broadband Funding

Source	Purpose	Total	Expended	Available
<i>Broadband Equity, Access, and Deployment Program</i>	<i>Funds will be broadly used to provide last mile connectivity to unserved and underserved homes throughout the state, to be followed by connecting community anchor institutions, and will supplement digital equity, workforce development and other related connection gaps and needs. Funds will also cover Department of Hawaiian Home Lands locations (to the extent not already covered by Tribal Broadband Connectivity program funds, or other federal funded programs).</i>	<i>\$149,484,493.57 (plus State match of \$33,000,000 together with additional public and private sector match)</i>		
<i>Coronavirus Capital Projects Fund (States)</i>	<i>The state CPF allocation will be used towards two primary activities. The first major investment is projected to attract and leverage private investment in new subsea construction, with state allocations planned to support design, permitting and construction of a new inter-island submarine fiber optic cable system, together with associated terrestrial assets to provide interconnection with terrestrial telecommunications network backbones. The second major investment will be the creation of community hubs at HPHA public housing</i>	<i>\$115,475,318</i>		

	<p><i>facilities, coupled with free and reduced access to broadband for public housing residents for a limited term through ACP enablement.</i></p>		
<p><i>Coronavirus Capital Projects Fund (DHHL)</i></p>	<p><i>DHHL proposes to utilize CPF funds for the pre-construction engineering and design to support deployment of infrastructure delivering service under multiple 2.5GHz licenses allocated under the FCC 2.5GHz Rural Tribal Window program, together with the potential for unlicensed CBRS 3.5GHz use. The engineering and design outcomes will be utilized to support the construction of the wireless ISP deployment as an integral part of the DHHL effort to deploy comprehensive last mile services consisting of hybrid fiber and wireless infrastructure; the buildout will primarily be funded by the \$90m allocated to DHHL under the Tribal Broadband Connectivity (TBC) program (\$30m under CAA2021, and \$60m under IJA statutory allocations to DHHL for the benefit of the Native Hawaiian communities). The robust combination of the hybrid fiber and wireless infrastructure deployments under TBC, together with braided</i></p>	<p><i>\$167,504</i></p>	

	<p><i>support from the State of Hawaii’s BEAD, CPF and ARPA funds, will ensure that all of our Native Hawaiian communities are fully connected to robust, resilient and affordable broadband infrastructure.</i></p>			
<p><i>Coronavirus State and Local Fiscal Recovery Funds</i></p>	<p><i>State inter-island submarine cable system desktop design and cable landing station site surveys and pre-permitting work.</i></p>	<p><i>\$1,500,000 COMPLETED</i></p>		
<p><i>Enabling Middle Mile Infrastructure Grant Program</i></p>	<p><i>On September 29, 2022, the University of Hawaii submitted their competitive application in collaboration with Hawaiian Electric Co. UH and HECO proposed to build terrestrial fiber along the public right-of-ways and offer open-access access at reasonable cost to the dark fiber infrastructure. The resulting terrestrial fiber assets would combine with the subsea build to create new, robust and geographically diverse routes to stabilize and enhance Hawaii’s critical middle mile broadband infrastructure. All broadband uses, including access by incumbents and new competitive entrants, would benefit from the significant increases in capacity and reliability, and the significantly lower capital cost,</i></p>	<p><i>\$43,941,543 NOT AWARDED</i></p>		

	<i>resulting from the public middle mile investments.</i>		
<i>Enabling Middle Mile Infrastructure Grant Program</i>	<i>Project URGENT by Hawaiian Telcom awarded under the program on June 16, 2023. Builds a combination of subsea and terrestrial middle mile segments.</i>	<i>\$37,356,955 Total project: \$87,466,529</i>	
<i>FCC, ACP Outreach Grant Program</i>	<i>Facilitate promotion, awareness, and participation in the Affordable Connectivity Program (ACP). Two awards were issued, one to DBEDT and the other to Elepaio Social Services.</i>	<i>\$740,000 (DBEDT) \$350,000 (Elepaio Social Services)</i>	
<i>Rural Digital Opportunity Fund (Hawaiian Telcom)</i>	<i>In February 2021, \$24 million in RDOF funding was awarded to Hawaiian Telcom for the purpose of deploying fiber broadband service to over 8,000 unserved and underserved locations in rural areas of Hawaii. By 2027, all identified locations will be serviced with speeds of 1Gbps/500Mbps.</i>	<i>\$24,000,000</i>	
<i>State Digital Equity Planning Program (State)</i>	<i>The Department of Business, Economic Development, and Tourism’s Broadband and Digital Equity Office, will lead the charge in the Digital Equity Program. The Digital Equity Plannings funds will be used to hire a contractor to assist in</i>	<i>\$570,883.08</i>	

	<i>developing the plan, with other labor contracted out as necessary to deploy data collection initiatives to develop the plan accordingly.</i>			
<i>State Digital Equity Planning Program (DHHL)</i>	<i>In July 2022, DHHL submitted a Letter of Intent to receive funding under the tribal allocation of the Digital Equity Planning Grant. These funds will be used to develop a unique digital equity plan for the Hawaiian Home Lands.</i>	<i>~\$50,000</i>		
<i>Digital Equity Capacity Grant Program</i>	<i>Following the completed State DE Plan, states will be allocated formula funding to support DE capacity building.</i>	<i>~\$14,000,000</i>		
<i>State Digital Equity Capacity Program (DHHL)</i>	<i>TBD - subject to funding availability</i>	<i>TBD</i>		
<i>Tribal Broadband Connectivity Program</i>	<i>Use and adoption plus mapping. Infrastructure assessment and last mile deployment awarded following the initial NOFO. Award amount \$17.2m (deployment will be in the follow-up award subject to the tranche 2 NOFO).</i>	<i>\$90,000,000</i>		

3.2 Partnerships

Table 5: Partners

Partners	Description of Current or Planned Role in Broadband Deployment and Adoption
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<i>Department of Business, Economic Development, and Tourism (DBEDT)</i>	<i>Lead applicant in the State Digital Equity Programs. Collaborator on DE requisites specified under BEAD</i>
<i>Department of Hawaiian Home Lands (DHHL)</i>	<i>Native Hawaiian state office and collaborator for outreach and engagement to address infrastructure, access and DE programs on Hawaiian homelands</i>
<i>Sandwich Isles Communications</i>	<i>ILEC, ISP, Last mile connectivity</i>
<i>Hawaiian Telcom</i>	<i>ILEC, ISP, Last mile connectivity</i>
<i>Charter Communications</i>	<i>CLEC, ISP, Last mile connectivity</i>
<i>Lumen Technologies</i>	<i>CLEC, Last mile connectivity</i>
<i>ServPac</i>	<i>CLEC, Last mile connectivity</i>
<i>Ocean Networks</i>	<i>First mile connectivity - design and site surveys</i>
<i>Kauai Island Utility Cooperative</i>	<i>Middle mile connectivity (dark fiber only)</i>
<i>Hawaiian Electric Company</i>	<i>Middle mile connectivity (dark fiber only)</i>
<i>Chamber of Commerce of Hawaii</i>	<i>IT Sector Partnership (workforce development)</i>
<i>Island and regional chambers of commerce</i>	
<i>County of Kauai</i>	
<i>City & County of Honolulu</i>	
<i>County of Maui</i>	
<i>County of Hawaii</i>	
<i>County Economic Development Boards</i>	
<i>Regional Chambers of Commerce</i>	
<i>CIO Council of Hawaii</i>	
<i>Non-Profit Service Providers</i>	
<i>Philanthropic Organizations</i>	

<i>Educational Institutions and Organizations</i>	
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3.3 Asset Inventory

The current state of broadband infrastructure investments in Hawaii place the vast majority of assets in the hands of commercial carriers. The largest portion of broadband infrastructure capital assets sit with Hawaiian Telcom (ILEC) and Charter Communications (CLEC), with relatively small assets held by other CLECs (mostly Lumen, Servpac). The majority of statewide utility pole and distribution/transmission towers are owned by the two electric utilities, with a limited number of poles owned by a mix of other owners. A limited amount of private telecommunications network assets are owned by large enterprises, telecommunications carriers, electric utilities, and government (including government contractors). Radio tower assets are owned by commercial tower asset managers, mostly working with the major cellular service providers. A handful of satellite ground station operators also are present throughout the state, including those owned and operated for the federal government. The state does own and operate some key middle mile assets in statewide licensed microwave radio networks, inclusive of some of the supporting tower infrastructure.

The majority of inter-island submarine cable system assets are owned by Hawaiian Telcom (including the Paniolo submarine cable system purchased by Hawaiian Telcom in recent bankruptcy auction proceedings). Trans-Pacific cable landing station sites are currently all owned by the system’s consortium ownership, and in most cases managed and operated by one of the consortium members. Terrestrial backhaul from all trans-Pacific cable landing station sites is generally limited in supply and access, and historically have been priced at a significant premium as compared with comparable terrestrial backhaul capacity in California and Oregon. Colocation space in the cable landing stations has also been available in limited conditions, and generally at a premium cost. In recent years, there have been improvements in access and costs, although still at a level significantly higher than our CONUS counterparts.

The availability of the statewide Institutional Network (INET) supports significant fiber based connectivity between and among nearly all major public facilities, and includes inter-island connectivity. The INET is a provision of service for the public good as an integral part of the statewide cable television franchise operation, with oversight by the Department of Commerce and Consumer Affairs. Since the INET is delivered as connectivity provisioned off the statewide Charter Communications infrastructure, it is not considered an asset owned by the State. Note that Hawaiian Telcom also operates a “cable television” operation under a franchise agreement, its service franchise area is currently limited to Oahu, and has opted to provide limited network resources as a portion of its franchisee commitment.

The State did receive ARRA BTOP funds to complete connections to a handful of rural schools and libraries. Those funds were invested as incremental cost extensions under the statewide INET program; the resulting assets were extensions of the Charter Communications infrastructure, but held for the benefit of the State INET operation.

Current digital equity and literacy efforts are supported mostly by existing programs within the Department of Business Economic Development and Tourism, with additional projects funded

by other federal grants (mostly telehealth outreach programs run by a combination of non-profit organizations and units of the University of Hawaii).

As a part of its current operational network infrastructure, the University of Hawaii owns IRUs on AAG (2x10Gb HNL to CONUS) and SEA-US (100Gb HNL to LA, HNL to Guam). It also has long term agreements for colocation space at the Guam GNC/Piti CLS, and the Hawaiki Kapolei CLS, and right of entry to the Southern Cross Kahe CLS. In partnership with AARNet, the University of Hawaii has access to capacity on SCCN (2x100Gb, AU to HNL to CONUS + AU to Mauna Lani to CONUS; note: AUP for R&E traffic only). In partnership with REANNZ, the University of Hawaii peers with REANNZ at the Hawaiki Kapolei CLS. The University of Hawaii also maintains multiple racks at DRFortress for backup facilities, operation of the HIX, and network interconnection with carriers and the DRFortress commercial IX. Commercial telecommunications operators also own similar assets and capacities to support their operations.

3.4 Needs and Gaps Assessment

>> insert baseline internet service and adoption stats citations, including citations from DE works

Since March 2020, Hawaii has had many individual efforts to collect data on the broadband and digital equity landscape as a result of a societal push to remote work, education, and telehealth during the global health crisis. A few reports have been published since then, with a focus on digital literacy and workforce. To date, Hawaii has released the following studies:

Digital Workforce Hui – 2022 State of Hawaii 5-Year Strategic Plan for a Digitally Ready Workforce – published October 2022

In November 2021, the National Governors Association awarded the state of Hawaii and five other states \$100,000 to develop a strategic state plan for increasing access to digital skills necessary to perform education, training, and work. The Digital Workforce Hui, comprised of various leaders in the state from both state offices and nonprofit sectors, published a final report in October 2022. This final report featured input from communities statewide to create a 5-year strategic plan to close digital skills gaps in the state's workforce.

State of Hawaii – Hawaii Digital Literacy & Readiness Study – published September 2021

Published in September 2021 by the State of Hawaii's Department of Labor & Industrial Relations' Workforce Development Council, this study aimed to establish an initial benchmark on Hawaii's digital literacy and digital readiness following federal and national level studies that some two-thirds of Americans had poor to no computer skills. This study measured the digital literacy and reading of Hawaii's working age population with consideration of various demographic markers, such as education, occupation, industry, and geography.

Vibrant Hawaii – Digital Literacy Project – published September 2021

This report was published by Vibrant Hawaii, a nonprofit based in Hawaii County focusing on increasing equitable opportunities. This project covers Hawaii County only, and occurred over the period of January 2021 – March 2022 in which digital literacy workshops convened across the island with two core focus demographics: the unprepared and the Old Guard (mostly Native Hawaiians and those with business/trade school educations). As secondary outcomes, Vibrant Hawaii identified programmatic feedback to gauge project scalability and sustainability, program effectiveness, incubating on island job creation alongside refurbishment of computers, increasing enrollment in EBB and ACP, and increasing equity for Hawaii County residents in telehealth, online education, and online benefit and employment applications.

Collectively, these larger scale studies have demonstrated lower literacy rates among distinct communities and the benefit of digital literacy programs to advance individual confidence in digital skills for both leisure and professional tasks. All three reports can be found online. In addition, DBEDT’s work on the state DE Plan also features an assessment on digital equity measures. This data will inform BEAD, and the completion of the assessment is expected in Summer 2023.

Further data collection for BEAD purposes addressing the needs and gaps will be a joint venture of UH, DBEDT, and the counties, with funding provided to counties for use towards data collection efforts, among other pre-approved activities detailed in this plan. In addition, contracted aid is also planned to assist counties and the state in the data collection process, with data visualization of all data components to be fulfilled by the UH team and presented collectively on behalf of the state. County efforts to collect data will be largely guided and supported by UH to ensure that the same types of data are collected across all counties for the most concise scope of the state’s broadband and digital equity landscape.

The state has already begun work on data collection, with DBEDT currently working on the state’s Digital Equity Plan, conducting focus groups to gather information on internet use habits, challenges and barriers to use and adoption, and digital equity solutions to ensure that the digital equity programs created focus on meeting the needs of the represented communities. In addition, DBEDT is creating a historic log of digital equity-related events that have been conducted and future events.

To date, the following activities have been completed or are ongoing at state and county levels:

- FCC unserved/underserved location vetting, including removal of incorrectly identified sites (e.g. water towers and other non-residential structures marked as residences)
- Identification of CAIs and other potential locations considered for the definition of CAI
- Mapping of federally funded project areas, Hawaiian Home Lands, public housing facilities, statewide CAIs, and “sanitized” unserved and underserved locations
- County broadband story maps, created by the counties, detailing county-wide DE projects, CAIs, unserved/underserved locations and or other fields

These ongoing data projects are comprised of publicly available data, using the following existing data layers:

- Schools, including public and charter schools, private schools, preschools and early childcare centers, and postsecondary institutions
- County parks (C&C Honolulu)
- Hospitals and clinics, including community health centers and rural health centers
- State libraries
- State parks
- Hawaiian Home Lands
- State-owned public housing

These data layers can be found on the City and County Open Spatial ARCGIS Data Portal (C&C Honolulu) and the State Office of Planning and Sustainable Development GIS Portal. In addition, U.S. census data, the FCC broadband map, the NTIA Indicators of Broadband Need map, the USAC ACP tracker, and others will determine what other information the state has and what is lacking (i.e. data AND community needs).

The state will continue to refine location data to support its upcoming Initial Proposal to be submitted at the end of December. Information gathered during the location updates will also inform the range of services required for statewide wrap-around services, including plans and partners that may deliver the services to statewide communities. The state anticipates partnering with a range of non-profit organizations that are positioned to effectively deliver services to their network of communities. It is also expected that increasing demand for services will arise during the various projects to build access into unserved and underserved locations. Subject to available funds, and in partnership with other philanthropic funding sources, the state expects to be able to provide device and potentially service subsidy supports for communities and individuals with need.

Throughout the execution of projects funded by BEAD and other federal broadband sources, the state and Counties will look to be thoughtful of means to sustain delivery of services and supports to communities with need. Private supports will also be encouraged to help ensure that services do not expire once available public funds are exhausted.

3.4.1 Broadband Deployment

BEAD program guidelines are clear as to the identification of eligible locations for building infrastructure to achieve the state's goals and objectives. As advised by NTIA, the state will submit its defined process to refine the FCC map data submitted with its Initial Proposal. We expect to specify a methodology to provide fact-based corrections to remove non-residential locations, amend likely service locations that are served but marked as unserved, and are hopeful to insert any locations missing from the FCC map data at the point of submission. The state also desires to set aside a small contingency fund to be able to handle additional locations identified post-Initial Proposal submission (throughout the construction and implementation phase). The state also expects to expand on the definition of CAIs with the assistance of the

Counties and their community partners. This expanded list will be submitted with the state's Initial Proposal.

In order to help manage and monitor location data throughout the process, the state will layer its additional data together with FCC data (from CQA and NBAM), in particular to help visualize progress during the implementation projects post-Final Proposal. The consolidated map will also reflect progress on other funded efforts, including RDOF, CAF and CPF projects. Based on current intentions of several public sector organizations, we also expect that the availability of public wifi to increase in particular as DE and related outreach activities are underway.

3.4.2 Broadband Adoption

>> *Insert relevant information from Digital Equity Plan findings related to digital literacy.*

Hawaii's unserved and underserved location counts are lower than many other states considering our relative population and household counts. While the highest priority for BEAD funds will connect the unconnected locations, we must account for the range of additional barriers to adoption that contribute to the higher percentage of lack of use (versus lack of access). These barriers include affordability, in particular when considering Hawaii's very high cost of living, including for food, healthcare and other essentials. Other factors include lack of access to useful devices and need for training or support to properly utilize devices and access online services.

The NTIA Internet Use Survey reported in November 2021 that as many as 100,000 survey respondents reported no home Internet use by anyone in their household, meaning that there are likely tens of thousands of households that may have access to Internet but have not yet adopted it. In addition, the survey reported the top three reasons for non-use of Internet at home in Hawaii as: (1) don't need or not interested; (2) too expensive; (3) and privacy or security concerns. While we recognize that there are residents who will choose not to adopt broadband, we will work within our communities to continue to educate on the need for broadband adoption by building a positive rapport on the uses of Internet for everyday means (e.g. work, education, healthcare, banking, social networking, etc.) and the basic cybersecurity precautions that can be taken to protect one's identity and data online.

3.4.3 Broadband Affordability

>> *Insert relevant information from Digital Equity Plan findings*

If we are to achieve meaningful success, the state's work to achieve universal access to the Internet must include affordability as a critical success factor. For the purpose of establishing a measurable baseline, the state will set its affordability floor at \$30/month for a minimal service level of 100Mbps/20Mbps service (100Mbps downstream, 20Mbps upstream), based on the federal ACP basic subsidy rate and the generally agreed upon "threshold" to high-speed Internet service. The state expects to be able raise this threshold for service over time as technology and use cases drive higher performance requirements.

Even at the \$30/month level, the state expects a material number of residents to struggle to pay for basic Internet service. For now, ACP will provide "net free" access to the Internet for

qualifying residents. Hawaii is tracking enrollment in ACP, currently just over 40,000 households. DBEDT has received an award of over \$700,000 from the FCC to continue ACP promotion and sign up activity, together with a second award to Elepaio Social Services of \$350,000. Given the expansion of promotional activity, we expect to see a continued rise in ACP enrollment.

Programs such as the ACP will be a requirement to ensure that those with the greatest financial needs remain connected to online information and services. While the current ACP program funding is expected to be exhausted in 2024, the state is hopeful that additional funding will be available to continue the program, at least through the point at which the FCC is successful in rethinking the federal universal service fund structure and supports. Legacy programs such as (telephone/voice) Lifeline support should be expanded to ensure that all Americans have *affordable* access to the Internet. The state may also consider a supplemental program of its own, subject to availability of a sustainable source of funds.

In addition to subsidy and similar buy-down programs to support residents with need, the state's investment in broadband infrastructure is also intended to lower the cost of competitive entry to the Hawaii market, and to spur increased competition in the ISP space. If successful, such an increase in competition should help consumers through reduced costs of service, and/or increased capabilities without increases in subscription costs.

3.4.4 Broadband Access

>> *Insert any relevant information from Digital Equity Plan findings about Public Access Points*

For our rural census areas (we have eight that are classified as urban), many of whom see lower numbers in Internet access and adoption, it is imperative that these communities have alternative means to access broadband. Currently, these communities rely largely on Internet in the home or at public libraries. These communities require at least a few other alternative locations (e.g., CAIs) where they can access the Internet at any time of the day with access extending beyond the confines of a structure (i.e. to the parking lot). Rural communities may also benefit from increased cellular connectivity to reduce the dead spots that may exist within their communities.

The state will need to engage medical clinics, federally qualified health centers (FQHCs), hospitals, and health insurance companies to identify households that do not have access to telehealth services because they have: (1) unreliable internet service; (2) no devices with internet connectivity capacity; (3) or do not know how to use a computer, tablet, or other mobile device with internet connectivity. Likewise, the state will need to engage the library system to determine the total number of patrons who visit the library because they cannot or do not have access to reliable internet service at home. Additional work with the Hawaii Department of Education and within the UH System and alongside private colleges and universities will hope to provide a clearer understanding of the limitations of technology and internet access to participate in online schooling.

Special consideration is needed in the state's overall strategy to support residents that may live in locations with suitable access to high-speed internet, but that may not have suitable space or arrangements in their residence to support meaningful use of that access. There are also residents that are homeless or houseless, without access to a traditional residence, who would potentially utilize CAIs or other public wifi locations as their preferred (or only) means to access high-speed internet service.

Both public and private organizations already offer free access to wifi based service at a growing number of locations throughout the state. The growth of capacity at CAIs, together with increasing desire to utilize free wifi access as a means to attract customers will help to accelerate that growth. The state may consider the addition of such free wifi access locations as a useful layer to its comprehensive public outreach efforts. While typical wifi offerings have limited range and performance, and would otherwise be considered unserved by the strictest NTIA definition, the mesh of public wifi services would add to the convenience of access for the general public.

3.4.5 Digital Equity

>> *Insert executive summary from Digital Equity Plan findings, including reference to how findings will inform administration of Capacity Grants. Include full DE Plan as an appendix.*

>> from DE Plan >> covered populations, e.g., unemployed ... The NDIA State Scorecard reports that of the 50,910 unemployed individuals in our state, roughly 16,800 lack foundational digital skills, and around 19,900 (72.4%) of job openings in the state require digital skills (as of July 2021). There must be a major push for digital skills acquisition over the next few years to keep up with the demands of the workforce and to ensure that all residents have at minimum basic computer skills required to perform these in-demand jobs. The current Good Jobs Hawaii program provides an ideal immediate opportunity to fill the gaps in digital skills training in advance of any workforce support under BEAD (Good Jobs Hawaii is already funded by other sources).

- Increased **workforce development** training and employment services related to broadband deployment and adoption;
- Increased participation in the digital economy by communities traditionally disengaged;
- Greater resources to support digital inclusion (i.e., organizations and/or funding for Digital Navigators); and/or
- Increased engagement with community-based organizations, CAIs, digital inclusion/equity coalitions, state agencies, local community champions, tribal leaders, and federal landowners

The National Skills Coalition reports that nationally, 1/3 of Asian American and Pacific Islands (AAPI) workers need digital skills.

Hawaii Literacy, a local nonprofit reported 539 digital literacy sessions for adults, with 146 adults participating in Digital Literacy classes in 2022 (Impact Snapshot 2022, January 2023). (Insert work that Kaala Souza has done) (any other state-led DL sessions and their attendance rates) that shows local landscape. Can report by state or county.

The Eligible Entity may identify and detail the needs and gaps in the State or Territory, which may include, but is not limited to the following need for:

- Increased workforce development training and employment services related to broadband deployment and adoption;
- Increased participation in the digital economy by communities traditionally disengaged;

- Greater resources to support digital inclusion (i.e., organizations and/or funding for Digital Navigators); and/or
- Increased engagement with community-based organizations, CAIs, digital inclusion/equity coalitions, state agencies, local community champions, tribal leaders, and federal landowners

>> Need for devices and systemic access to training and wrap-around support services AND a safe place to use the services

4 Obstacles or Barriers

4.1 *Understanding Broadband and Internet Access and the “\$ Why \$”*

While most everyone acknowledges the need for universal access to high-speed internet service, in particular following the experiences through the pandemic, the vast majority of stakeholders and general public do not understand the need for highly reliable and high performance (and high cost) infrastructure required to support such widely available universal service access. A large portion of resources will be expended in outreach and educational efforts to ensure a reasonable understanding of the upstream elements of the new high-speed internet “utility”, in particular, to ensure high reliability expected from utility class services. This Five-Year Action Plan is a perfect example of something with large amounts of information packed into a document, but including high levels of terminology and technical jargon so as to make it un-consumable by a general public audience. The summarized and geek-to-english translation applied in the executive summary of this document, provides an example of the need to craft suitable messages for the general public reader.

4.2 *High-Cost Geographic and Topographic Barriers*

Serving geographically remote rural areas, including extended residential setbacks, will be amongst the greatest and highest cost barriers to achieve ubiquitous Internet-for-All. Of note, in August 2022, the FCC disqualified Starlink’s RDOF bid set to cover all locations on the island of Niihau—a privately owned island which supports a small population. BEAD is expected to provide service to those sites instead under the high cost and extreme high cost area designations. The generally high cost of last mile infrastructure for Hawaii’s unconnected locations, anticipated to be well above the national average for high cost areas, will likely impact our ability to fully serve all residents without requiring significant non-federal matching funds. Recognized remote areas such as east Maui, and the northern and southern ends of Hawaii island, will present similar cost challenges, including factors such as lava-impacted regions. Niihau island presents a special case cost challenge to support approximately 20 households separated by any current broadband middle-mile infrastructure by dozens of miles of ocean.

Finally, to restate the impact of extended residential setbacks, those unserved or underserved locations with extended setbacks will likely end up in the extremely high-cost group given the additional distance requirements (potentially over a mile in some cases) that also have substandard or no existing pathway supports.

4.3 *Service to Locations Lacking Reliable Power*

Some of the most remote locations may also lack a source of reliable power. Regardless of the means by which internet service is delivered to the location (fiber, coax, wireless, satellite), connection to the internet and any device(s) to be used will require reliable access to power. While some locations may be able operate independently, a reliable and stable source of power is necessary to ensure access to reliable internet service. Off grid sites will also likely be without any accessible pole line or conduit pathway, making it extremely difficult and very expensive to build service into such locations.

Highly remote or off-grid locations may be a better use case for LEOsat service (e.g., Starlink). While generally not at the “affordable” cost level, LEOsat could provide a useful service offering that runs on an as-needed basis given need and power source(s).

4.4 Resistance to Adoption and Change

The state anticipates that one of the most difficult barriers to overcome will be negative perceptions of Internet technologies together with fears related to use of the Internet. The primary approaches to overcoming these barriers are based on educating and informing individuals as to the value of Internet access, and the benefits associated with meaningful use of the Internet. The ideal delivery mechanism requires effective, person-to-person interaction, favoring individuals with pre-existing relationships with the individual being trained, or at least with that individual’s community.

Our approach to overcome resistance to adoption begins with close collaboration with each county to help forge broad community partnerships to first identify the needs at communities across the state, and second to help identify organizations that may be able and willing to support community-based digital literacy and related training programs. Ideally, the organizations would work to recruit, train and support efforts by community members to support their own relatives and neighbors. This approach leverages the existing trust fabric of each community to help overcome historically unsuccessful educational efforts by “imported” trainers. Additional incentives that may be available include access to devices for those in need, and discounted or subsidized service offerings (e.g., ACP).

4.5 Cooperative Collaboration Among Range of Diverse Stakeholders

(Insert any relevant information from Digital Equity Plan about challenging populations to reach i.e. communities that distrust government and technology; unhoused populations i.e. homeless and working homeless who live out of their car and other disadvantaged persons who do not have physical residences to wire up.)

The state is largely served by two ISPs who provide residential service (Charter and Hawaiian Telecom). The state’s competitive landscape is significantly smaller than other states and territories, and there will be a heavy reliance on these providers to collaborate with the state to ensure service to residents with no last mile connectivity or underserved status across all islands, regardless of cost for deployment and topographical barriers. A handful of small and potentially new startup ISPs may be able to help fill gaps subject to sufficient capacity and capability to deliver services.

4.6 Access to sufficient (human, technical and contract) resources for deployment of community wrap-around services

The anticipated spike in construction activity to build telecommunications infrastructure will stress local capacity both within the ISP enterprises, as well as in the supply chain of subcontractors commonly used by industry. Large utility operations, inclusive of the telecommunications and electric utilities will feel the impacts of the spike in activity funded by the large federal infrastructure investments. While many of the construction workforce needs may be transient in nature, we do expect to see an overall increase in the steady state demand for engineers and technicians that will be responsible for operating and managing expanded broadband networks, as well as the staff of repair and maintenance, customer service, and other related staff to support the increased demand for services.

Some of these classes of employment should see gains in demand over the immediate term as ISPs ramp up in preparation for the increased work. Short term training and workforce development efforts are already in-place in Hawaii, pre-dating the federal broadband investment, courtesy of other funding sources, and in comprehensive recognition of the already chronic IT sector workforce shortage. Employers can (and are) already take advantage of these training and certification opportunities to pre-position skilled labor in anticipation of the spike in projects.

Besides the expected increased demand for utility construction and technical skills required to build, maintain and operate the expanded telecommunications infrastructure, the state anticipates the need to support broad additional classes of skilled workers to support the state's goal of meaningful universal access to the Internet. Widely available digital literacy, training and support services are critical to that success. These wrap-around services must be readily available statewide in order to ensure that residents will be fully capable of utilizing access to high-speed internet service.

>>additional inputs from DE team

4.7 Supply Chain Delays (and inflation impacts)

Supply chain issues are anticipated with the overwhelming influx of interest in broadband deployment, with multiple federally funded programs underway at once for all states. Backlog is largely expected across all fronts, including fiber and device purchases, with evidence already from approved Capital Projects Funds and other programs of significant delays in the global supply chain, in particular for products including fiber optic cables, fiber transceivers, and network equipment. The delays that have been impacting the IT supply chain have not improved since the beginning of the pandemic; with the climbing demand such delays are expected to further degrade over the next few years. Build America, Buy America (BABA) requirements may exacerbate supply chain issues, in particular when all states and territories work to build infrastructure in the same timeframe. Any material delays in work, whatever the reason, will increase the impacts of inflation on project costs.

4.8 Inconsistent or Competing Funding Priorities

Every county is working towards identifying the most prevalent gaps in broadband and digital equity for their respective communities. Each county's population experiences the issue of lack of broadband differently, with community varying demographics, cost of service, and geographic challenges differing across the islands and their respective county. The state recognizes that this will vary from county to county, and that funding priorities may not necessarily be consistent

across the four counties, nor will the funding awarded be proportionate to the size of the county (i.e. there will not be a state-level formula for proportionate allotment across counties eligible for award) but available competitively to the state as a whole. Counties will be provided support from the University of Hawaii and additional contractor support to ensure that their funding priorities are identified and that any concerns are accounted for in the implementation work.

4.9 Federal grant compliance and monitoring, and need for patience in arrival of implementation funding

It is important to note that funding will not be as readily available as may be publicly perceived. Parties interested in funds or considering applying for funding at a later date are encouraged to remain patient as the largest portions of BEAD funds to be used to construct new connections to residences and CAIs will not be under contract until at least the second half of 2024, and potentially 2025. Once contracted, there may be further delays due to supply chain and permitting process requirements before actual new connections materialize. Digital equity and potentially other wrap-around services may be available sooner (i.e. mid-2024) provided the state is able to properly navigate and receive required approvals for its Initial Proposal and State Challenge process.

4.10 Permitting delays and impacts to construction

The anticipated amount of construction activity resulting from the collective investments could be impacted by any delays or bottlenecks in the required permitting processes. The simple impact of a large number of construction efforts happening during a short period of time will stress the capacity of permitting agencies statewide. The state and counties may jointly consider some manner of relief for broadband construction efforts in order to mitigate the timing impacts, provided safety and prudent business practices are not ignored.

5 Implementation Plan

5.1 Stakeholder Engagement Process

Hawaii has initiated outreach via known public and organizational networks, requesting assistance in identifying bonafide community grassroots organizations that can assist with outreach and engagement directly at the affected community level. Together with existing grassroots outreach under the Hawaii Broadband Hui (over three years running), we expect to bring broad inputs and feedback to the planning and implementation efforts. We will overlay a public service announcement outreach effort, together with providing briefing information to legislators to connect with their constituents, to fully connect with statewide stakeholders and special interest groups. All outreach efforts will be fully coordinated with the State Digital Equity Plan effort (already underway), together with the DHHL outreach efforts under the TBC program.

Initial efforts will be structured around public sector engagement and outreach, together with strategic networks based on organized non-profit and service providers that have reach into grassroots, neighborhood organizations. Public sector engagement will be driven through state executive department and county designees to help identify known connectivity, equity and literacy gaps, and to connect us with their set of community organizations already engaged for outreach and general community engagement activities. Since many of these organized entities already hold regular member or public meetings, we will utilize those existing events to help us push information broadly throughout the state. We expect to also leverage elected officials, including legislators and county councilmembers, to help us reach out broadly to neighborhoods around the state.

The non-profit sector outreach begins with organized statewide and countywide entities, such as the Chambers of Commerce, Economic Development Boards, state and county business and community organizations. The group will be extended to start with large philanthropic service providers, such as Aloha United Way, Catholic Charities and the Institute for Human Services. Specific regional or neighborhood non-profits that have previously participated in our broadband outreach activities will also be connected, including Vibrant Hawaii, Hawaii Literacy and Lanakila Pacific. In parallel with these efforts, we will continue to leverage the work of the Broadband Hui to keep connected with statewide grassroots participants.

While some of the informational and discussion sessions will be held online (via Zoom), we expect that many of the discussions will be held in smaller, neighborhood centric in-person convenings. Likely locations will include public (e.g., public libraries, schools or University locations) or community centers. We will utilize a “local host” organization whenever possible in order to keep the focus at the grassroots level. Some larger informational type meetings will also occur; the smaller meetings will help to encourage a greater degree of participation by attendees.

Once the team completes a suitable public communications campaign, we will hold a statewide in-person public listening tour to reinforce the statewide education and outreach process. The goals of the statewide listening tour will be to share information regarding work funded by the multiple federal programs, including what work and support will be covered by public funds. The public listening tour will include stops on all islands (one or more sessions per island), to held in the Fall after the start of Fall semester classes, and before the start of the winter holiday season. The public listening tour will be held in conjunction with a traditional media outreach campaign, to include legacy print and media channels. The public media campaign will be

developed over the Summer months, by broadband office staff with the assistance of contractors and public sector external communications offices.

5.1.1 Partnership with Counties

All four counties are actively partnering with the state's broadband office to provide local outreach, engagement and support for the Five-Year Action Plan along with the subsequent detailed planning and implementation efforts. The efforts include engagement with the state's digital equity efforts, informational and outreach briefing activities, and active engagement of local stakeholders and community groups to provide broad and comprehensive reach for the state's broadband efforts.

In order to help maximize the effectiveness of the collaborative efforts with the Counties, the state broadband office will provide financial support in the form of four sub-awards to the counties, to enable funding of supplemental staffing and direct support for local non-profit and community groups - that funding support was in the approved BEAD Planning Funds proposal, and will be distributed as sub-awards to the Counties for each to use to help maximize local engagement activities. In addition to the sub-award funding, the state broadband office will provide financial support for technical assistance and training in support of both statewide and county efforts (also as provided for in the BEAD Planning Funds award).

In addition to the direct funding to the Counties, the state broadband office will provide financial support for technical assistance and training in support of both statewide and county efforts (as provided for in the BEAD Planning Funds award). The state recognizes that the initial funding commitment of \$100,000 per County will likely need to be supplemented within 12 to 18 months subject to spend-down by County. This initial sum is intended to allow counties to fund the initial activities and or aid they identify they require to fulfill project demands. In addition, the state broadband office will provide ongoing support to counties in data collection and visualization when needed, additional support for outreach and engagement activities, and identifying the measures required to meet Hawaii BEAD's programmatic goals and individual county priorities. The BEAD Planning Funds include consideration to fund contractor support to aid with activities such as data collection, coordination, outreach, and local project management to assist the limited County staff.

Over the course of the Five-Year Action Plan, the Initial Proposal and State Challenge process, and the Final Proposal, the state will work closely with the counties to gain context of community infrastructure and digital equity needs to ensure those county-level priorities are met. Throughout the next few months, our partnership with county leadership will provide the groundwork for informational briefings across the state, where the public will have an opportunity to learn more about the funding going into the broadband space to ensure that all residents have the opportunity to be connected and have the necessary skills to make the most of the Internet. Each county has unique issues challenging their communities, and as such will inform the planning and implementation efforts necessary to see broadband flourish in those communities they serve. Counties will assist in identifying the gaps in broadband coverage and reconcile unserved and underserved communities, as well as identify and support community digital hubs, service providers and partners for wrap-around support services. Collaboration is integral to ensuring ongoing support for access and wrap-around support services in local communities.

Finally, partnership with the counties is expected to streamline the required construction and implementation activities in their respective localities in support of effective implementation of new and improved telecommunications infrastructure.

5.1.2 Coordination with DHHL TBC efforts

Historically, residents on Hawaiian Home Lands have experienced poor access to robust, reliable broadband that was unfortunately exacerbated by their contracted LEC, who effectively failed to install and provision sufficient last mile service assets on Hawaiian Home Lands. The state broadband office is working closely with DHHL to ensure that programmatic objectives of TBC are met, and that work in that space is fully coordinated and braided with BEAD and other sources of public investment to ensure that all of the unmet needs of Hawaiian Home Land residents are fulfilled within the program's period of performance window. UH and DHHL entered into an MOA in Fall 2022 to formalize an existing effort by the UH state broadband team to lend technical and programmatic support to DHHL. The overall coordination effort will also ensure that duplication of effort is avoided in accordance with the requirements of the set of federal programs - this includes overlay of RDOF, CAF and other legacy broadband infrastructure programs.

As an integral part of the statewide coordination effort, DHHL outreach and community engagement will be conducted in collaboration with other state broadband outreach and community engagement efforts included as part of the state's CPF, BEAD and DE programs (note: some duplication of effort has occurred over the startup period during the first half of 2023 as each of the programs was initiated at different times, as overlaid with the legacy Broadband Hui coordinated efforts for outreach and information gathering). While some differences exist across the various program requirements, the core outreach and community engagement efforts will benefit with greater efficiencies and orchestration of solutions to statewide residents. The overall coordination efforts by the state broadband office will also serve to ensure that statewide BEAD and DE funds are available to fully complement TBC funded work. State CPF and BEAD investments are also intended to support closing DHHL middle mile gaps in coverage.

5.1.3 Engagement with business and community groups, including active non-profit organizations (also tied to 5.1.1. and 5.1.2.)

Extensive community engagement and outreach is critical to ensure that the state's BEAD effort can achieve the objective of meaningful robust, reliable and affordable Internet-for-All Hawaii's residents. In addition to simply provisioning required telecommunications infrastructure to establish access to the Internet, it is critical that Hawaii build and maintain a rich and robust social infrastructure of digital equity and digital literacy wraparound services, with statewide reach supporting all of our communities. Building on the concept of Community Anchor Institutions (CAIs), Hawaii looks to establish and work to sustain widespread Community Digital Hubs to provide community-based access and support in every statewide community.

Community Digital Hubs may be sourced from a range of public and private non-profit organizations. These may include public and private educational institutions, community centers, non-profit service centers, business organizations, economic and community

development entities - any gathering place that has some kind of sustainable organizational support. Community Digital Hubs may also be mobile, or even “pop-up” provided there is some kind of foundational support to the operation.

Community engagement at the highest level (i.e. counties) is underway to identify and organize around key community players who can reach into their local communities and further pinpoint the needs of a community, determine which residences may be unserved or underserved but do not have a proper street address to be accounted for in the FCC maps, and as the programs progress, impart digital literacy and workforce development skills with residents. Together with the CAIs and Community Digital Hubs, these communities will be the roots to create Community Digital Navigator programs that will be critical to build sustainable community-based wraparound service delivery systems.

The state and counties have identified a number of nonprofits already working in this space, including, Vibrant Hawaii, Hawaii Literacy, Lanakila Pacific, Catholic Charities, Institute for Human Services, Aloha United Way, Hawaii Foodbank, and Hawaii Community Foundation, with additional organizations continually being added to the group. We expect that the counties will be able to add a significant number of grassroots type organizations to the group, given their existing community relationships. As our outreach and engagement efforts ramp up over the coming months, we expect to build a substantial web of community partners who will help us gather information and ideas to formulate project ideas and broadly encourage participation across our diverse statewide communities.

The state broadband office has also connected with the already existing IT sector workforce development efforts underway by the CIO Council of Hawaii and the Chamber of Commerce of Hawaii. The CIO Council of Hawaii has an ongoing effort to improve the alignment between education and industry, in order to increase the number of students in IT related education pathways and programs, and to improve the overall employment-ready quality of the workforce pool. The current effort originated several years ago, and has the full support and participation of the CIO Council of Hawaii membership (100+ industry CIOs representing Hawaii public and private sector organizations). The current effort includes engagement with educators and student groups in IT sector programs, focused on alignment of curriculum, and participation by industry in education delivery, internships and apprenticeship-like programs. The direct result of the effort has been a substantial increase in internship and employment training activities, funded by a variety of sources. A stellar example is the Good Jobs Hawaii program that brings together funding from multiple sources to directly support training of students AND incumbent workers, in high-demand IT topics. One of the four explicit target areas for Good Jobs Hawaii is the IT sector space, to include support for workforce critical to broadband infrastructure design, deployment, operations and maintenance - this effectively provides a headstart on the BEAD workforce development activities that will be integrated with the ongoing community activities as BEAD funding reaches the implementation stage.

Together with the CIO Council of Hawaii, the Chamber of Commerce of Hawaii has also been executing a workforce development initiative of its own, also in coordination with the UH system. The IT Sector Partnership has been underway for two years, and continues to run with three working groups led by community leaders (ref. cochawaii.org/itsector/). As the primary convener of the IT Sector Partnership, the Chamber of Commerce brings its large statewide membership of over 2,000 organizations to the table to ensure broad participation by statewide

employers. The state broadband office will also leverage the opportunity to bring the BEAD workforce development activities in alignment with the ongoing IT Sector Partnership program.

5.1.4 Orchestration of Statewide Efforts

All active broadband programs in the state are coordinated by UH, to include BEAD, CPF, DE (DBEDT), ACP (DBEDT) and TBC (DHHL assisted by UH). Additional federally funded efforts are also in-flight by DOT (FHWA funds) and Hawaiian Telcom (RDOF+CAF funds). All funded efforts are expected to complement each other and result in effectively braided efforts to minimize gaps in coverage, eliminate duplication of efforts, and maximize the overall benefit to the state. The overall effort is focused on achieving robust, reliable and affordable Internet-for-All.

All active efforts are in regular communication to coordinate efforts, and maximize efficiencies. In addition, the state broadband office is in the process of collecting an inventory of current broadband related efforts across all state executive branch departments (under GM 23-03, directing cabinet members to provide project information to the state broadband office).

5.1.5 Hawaii Act 231 Broadband Working Group

The State convened the initial Act 231 Broadband Working Group meeting on March 30, 2023. The meeting was convened via Zoom, with a handful of participants present in person at the University of Hawaii, Information Technology Center. The meeting included representatives of UH, DBEDT, B&F, DCCA, DAGS, DOH, DOE, DHHL, Kauai County, City and County of Honolulu, Maui County, Hawaii County, and the Lt. Governor. A recording of the meeting is posted at the UH /broadband/ site, along with meeting materials. The Act 231 Broadband Working Group will continue to meet as needed to determine the appropriate governance structure to implement, operate, and maintain state-owned broadband infrastructure assets.

In order to provide broad industry input to the process, the Act 231 Broadband Working Group is organizing an industry advisory group that will include representatives from key telecommunications providers and large industry representatives. The industry advisory group will be convened by state broadband staff to collect and assemble inputs for consideration by the Act 231 Broadband Working Group. The initial participants of the industry advisory group have been identified and an initial meeting is scheduled for July 21 to brief members on the current state of the broadband investment effort, and to seek industry inputs and recommendations for the Act 231 Broadband Working Group. The industry advisory group includes representatives from all major wireline and wireless carriers, local colocation and internet exchange operators, and selected large enterprise operators.

The charter of the Act 231 Broadband Working Group is to examine the oversight and management of the public assets created by and under ownership of the state and submit its recommendations as to the structure of a public entity to hold and manage those public assets, in a report to the legislature of its findings and recommendation, including proposed legislation, to the legislature no later than twenty days prior to the convening of the regular session 2024.

5.1.6 Ongoing Engagement and Monitoring

The university alongside DBEDT began meeting with counties in March 2023 to establish county roles to contribute to the overall success in BEAD implementation, identify staff members fulfilling broadband and digital equity leadership in their respective counties, determine technical assistance and programmatic knowledge requiring clarification, assigning tasks contributing to the overall success of BEAD and the Digital Equity plan (e.g. story maps, identification of smaller non-profit and local philanthropic organizations, etc.), and coordinating outreach activities to identify community needs and inform communities on the importance of fast, reliable internet access and digital literacy skills. Counties will receive a sum of planning funds to enable them flexibility to meet local staffing or contractor help for project fulfillment, fund county-wide outreach, fund mapping efforts, and other activities that are pertinent to the success of BEAD. A lump sum of \$100,000 will be granted to each individual county with an eighteen (18) month period of performance extended to them. Scheduled weekly meetings with counties include county report-outs and are used to regroup, provide county and state updates, and continue team coordination.

UH is releasing funds under a Memorandum of Agreement, requiring that counties provide quarterly reports on spending, activities, data and metrics on community engagement activities. In addition, UH is required to fulfill reporting requirements to the State Department of Budget & Finance, and NTIA.

5.2 Priorities

Table 6: Priorities for Broadband Deployment and Digital Inclusion

Priority	Description
<i>Unserved and Underserved Last Mile</i>	<i>BEAD NOFO highest priority. An estimated 13,000 residences in the fabric are considered unserved or underserved, and do not fall under CAF, RDOF, or Hawaiian Home Lands. As underscored by the BEAD program, our ultimate priority is to build out last mile connectivity to these unserved locations first, and underserved residents next. Service solutions will look primarily towards fiber, hybrid and satellite in cases of isolated high-cost locations, as well as the necessary infrastructure upgrades for underserved residents.</i>
<i>Digital Equity and Digital Literacy (Wrap-Around Services)</i>	<i>Ref. BEAD and DE NOFOs. Internet access alone is not enough to ensure that residents benefit from the BEAD program. It is imperative that the necessary skills to make use of technology offering Internet connectivity are developed, and that healthy relationships between residents and technology are established. This includes a thorough education on navigating devices and digital skills development that allows use of online services (e.g. telehealth,</i>

e-learning, telework) and supports a digital workforce.

Expansion of Community Hubs

While access to the home is of primary importance under BEAD, offering an alternative location to access the Internet at community digital hubs offers an added layer to support individuals that need location alternatives (due to lack of suitable space within the home, or as to individual preference). Residents should have the opportunity to visit local community digital hubs offering robust Internet access, digital literacy classes, technical support, and telehealth support services.

Community Digital Navigator Program

Community Digital Navigators will play a critical role in closing the digital chasm, assisting their respective community members with all matters digital literacy, online security, and awareness as to use of services and protection of personal and financial information. They will be the frontline in guiding late adopters to devices, getting them connected, teaching technical skills, and providing technical assistance. Support for Community Digital Navigators will be instrumental in advancing the state digital equity goals under both the BEAD and the DE programs. Community Digital Navigators ideally support a wide range of topics and supports, many requiring appropriate training and (in some cases) certifications to support the trust fabric of the program. Current efforts around micro-credentials, stackable credentials and skill badges should be an ideal part of the Community Digital Navigator program. These individuals should also be supported by stipends - volunteers are great, but the stipends will help to ensure the program can be useful for sustaining community support, and an integral part of community workforce development efforts.

High Cost LEO Satellite Support

A number of Hawaii's unserved and underserved locations fall under the high-cost and extremely high-cost designations, and are severely challenged by topography and rurality (including large property setbacks). LEO satellite support is critical to reach those extremely high-cost areas, ensuring they have equitable access to robust, high-speed Internet while maximizing funding for the state's other unserved and underserved locations. Note the higher subscription costs will have to be mitigated via some measure of affordability support.

IT/Cyber Workforce Development

Hawaii's IT and Cyber workforce remains considerably small, with development a priority to

ensure a reliable local workforce capable of sustaining our evolving infrastructure and demand for connectivity, and diversifying our tech landscape through quality education and training programs.

Filling Connectivity Gaps for Service and Resilience

Middle-Mile and related infrastructure supports to ensure reliable and resilient connections for remote areas of the state, in particular to provide upstream connectivity and reliability to maximize outcomes for last-mile investments.

5.3 Planned Activities

During the Initial Proposal development, and the subsequent State Challenge Process, the State’s primary planned activity is the identification and vetting of FCC map data (FCC FABRIC MAP) in order to identify ACTUAL prioritized locations for last mile deployment. This process to update the FCC MAP data will be fully described in the state’s Initial Proposal, for approval by NTIA. Subject to that approval, the state will apply additional fact-based filters to the list of locations downloaded from NBAM and submitted with the Initial Proposal to establish a cleaned-up list of eligible unserved and underserved locations to submit to the State Challenge process.

The state intends to fully adopt the NTIA Model State Challenge process (subject to its release in June 2023). Based on the NTIA Model State Challenge process, and the current state of the FCC map data, Hawaii intends to pursue additional outreach processes to help ensure that the full set of eligible locations is identified. The goals of running these outreach processes are to:

- (a) Validate the operational readiness of the NTIA Model State Challenge process, including to determine if any adjustments need to be made in the state’s procedures.
- (b) Work to refine the identified unserved and underserved locations in order to help prepare the Hawaii Initial Proposal, and to ensure it is based on location and service data of sufficient accuracy to better guide last mile investment planning and determine the necessary matching funds financial model required.
- (c) Accept broad public input as a part of the information gathering process.

The outreach processes would be run in the Fall 2023 to assist with the preparation of a well crafted Initial Proposal. Hawaii would run its official State Challenge process upon release and approval of the Initial Proposal to further refine the last mile and overall BEAD investment strategy.

One of the critical elements to inform the state’s Initial Proposal will be the degree to which additional (over the required 25% match) matching funds may be required to fund the state’s overall BEAD investment strategy. There are significant elements of the overall strategy, in addition to the basic (and highest) priority to address universal access at the 100/20Mb floor (unserved + underserved). In particular, the need to sufficiently provision widely distributed Community Digital Hubs, statewide wrap-around support services, and integration of statewide IT/Cyber workforce programs, and close potential gaps in terrestrial middle mile facilities, will be absolutely necessary to achieve meaningful Internet-for-All.

Once the State Challenge process is complete, Hawaii would proceed with its competitive procurement activities to identify the contractors that would complete the required last mile implementation efforts. The competitive procurements will be structured to help ensure all locations receive proposals. The competitive procurement process may include additional rounds of responses by potential contractors in order to establish the state's extreme high cost threshold, and to help manage the overall cost of last mile deployments (including the impact of high setback distances on the cost of construction). Also If required, additional design and engineering efforts would be conducted during this period to refine the requirements for the competitive procurement activities. Areas that are particularly isolated (from geographic and existing infrastructure perspectives) may require special consideration as to technical and business strategy. Once all contractors have been identified, along with the necessary financial requirements, the Final Proposal would be completed and submitted for NTIA review and approval.

On receiving approval of the Final Proposal, the state would proceed with the required last mile implementations, as well as any of the other funded activities under the Final Proposal. Depending on the funding available, these efforts would include provision of wrap-around support services in our statewide communities of need, adding support for Community Anchor Institutions and Community Digital Hubs, enhancement of in-flight IT/Cybersecurity workforce development activities, and potentially close any critical gaps in middle mile terrestrial facilities. Further information on planned activities are detailed below.

5.3.1 Unserved and Underserved Deployment

BEAD prioritizes service to unserved locations before funding under BEAD may be used toward underserved locations and digital equity programs. Beginning in 2024, Hawaii plans to release multiple RFPs grouping various unserved locations together state- and county-wide, ensuring that even the most costly of locations in the hardest to reach places are accounted for. This will be followed by RFP releases for eligible underserved locations. A rigorous subgrantee selection process will be established and applied to both unserved and underserved deployment to ensure that selected subgrantees' commitment to the program is fulfilled with care to all locations at a reasonable cost as we work together to attain universal service for the state of Hawaii.

Work is ongoing to identify unserved locations that will need to be serviced before any other funding may be used towards underserved and digital programs funded out of BEAD. Unserved locations and respective RFP terms will be introduced in the Initial Proposal, including a feasible match requirement and other requirements for prospective applicants.

Partners: Counties, ISPs
Funding: BEAD

5.3.2 Community Access Hubs

Community anchor institutions (CAIs) are well-known common access points for digital literacy project deployment and promoting outreach efforts for broadband equity, literacy, and access. This term encompasses schools, libraries, community health centers, and public housing among others, many of which have seen pilot projects for broadband that can be replicated at other community access locations for greater reach to populations that may still see limited access to existing services. Hawaii has compiled a list and created a map of potential CAIs (pending definition in Initial Proposal) across the state. As another priority of the BEAD program, Hawaii must identify which of these CAIs do not offer over 1GB of service and ensure that these sites

also have the necessary speeds to serve their publics. This list can be found in the appendix.

In addition to these traditionally defined CAIs, Identification and adoption of additional community access hub locations - over and above the defined Community Anchor Institutions, these Community Digital Hubs would consist of non-profit locations with missions consistent with delivery of wrap-around support services to their communities; e.g., community centers, community support facilities, service centers, private schools, and other similar community centered facilities. Hawaii looks to other community serving organizations such as the Institute for Human Services (IHS), Goodwill, Salvation Army, Aloha United Way, Economic Development Alliance of Hawaii, and the various Hawaii Chambers of Commerce as alternative last mile connectivity and digital equity access points. Other sites of interest include the above organizations operating mobile or “on-wheels” programs, and CAIs under the Department of Education and HSPLS that do not currently participate in any community access programs.

Using funds on a one-time basis to deliver equipment (e.g. computers, laptops, routers, etc.) to these sites for public use would potentially enable new locations to serve communities previously unserved, or otherwise provide an alternative site to connect to the internet for communities. Additionally, by executing a multi-year contract, broadband access can be provided to sites that do not currently have the bandwidth to sustain a public network. Each site participating as a community access location will also be a candidate site for digital literacy training, and other educational and public (government) support services, including remote education and workforce development. Community members will have access to technical support on-site and remotely should it be required.

Partners: Listed above and others

Funding: BEAD, DE

5.3.3 Data Collection and Visualization

Beginning in the second half of 2023, the state will make a big push towards data visualization and collection during the Initial Proposal and BEAD challenge process, with the primary goal of preparing the State for RFP releases in 2024 first tackling our unserved and underserved locations, with attention to CAIs with less than 1Gb service as well. Hawaii recognizes the need to establish a transparent broadband landscape that encourages improvement of broadband service, promotes education on access and availability, and drives down costs of broadband service. One of the planned efforts to do this is to create a “living” state broadband map. Mapping efforts will include layers with data on community outreach efforts and response, human barriers to adoption, federally funded project areas, state funded project areas, CAIs, and reported unserved/underserved locations. Efforts will be largely collaborative between UH, counties and DBEDT for completion of the state portion, with data and mapping specialists from both organizations fronting the effort and additional voluntary effort from UH to support the initiative. Finally, mapping on Hawaiian Home Lands is planned for completion under the Tribal Broadband Connectivity Program’s first tranche of awarded funding, again with support from UH as needed.

Partners: Counties, DBEDT, DHHL, others

Funding: BEAD (state), TBC (DHHL)

5.3.4 Inter-Island Submarine Cable Ring

The state of Hawai‘i currently has three operational carrier-owned and operated inter-island

fiber systems, all of which are halfway through or past the end of their planned service lifetime. This puts the state in an immediate and dire need to construct a new inter-island fiber system with capacity to sustain the state for transformational decades to come with reliable and affordable broadband access for all. At the forefront again is the necessary long-view needed to ensure the state has reliable, affordable and future-proof broadband infrastructure in place.

Incorporated in the inter-island subsea fiber buildout is the identification of several potential landing sites that could be enhanced to support new trans-Pacific fiber system landings. As work on the inter-island system progresses, we anticipate renewed interest in landing a Hawaii facing branch off planned trans-Pacific subsea cable systems (note: the news of the White House press release approving CPF funding for Hawaii together with our completed desktop design effort appears to have triggered interest by at least three potential partners with existing trans-Pacific routes).

In May 2022, the University of Hawai'i awarded a contract to Ocean Networks Inc. to survey at least twelve (12) potential CLS locations across the islands and complete a desktop design study for the inter-island submarine fiber cable route(s). The study has since been completed and was the first step towards both progress on building a new inter-island subsea system, and as noted above, renewed interest in landing a Hawaii facing branch off planned trans-Pacific fiber routes. These additional builds will significantly increase capacity, diversity and design resilience from today's existing routes and CLSs. Hawaii's CPF submission in September 2022 included program plans to execute the permitting and construction of the northern path of the inter-island submarine cable ring. An RFP to secure a private partner to build, construct and operate the new subsea system was released in June 2023, with proposals due from Offerors on July 17, 2023. Subject to selection and favorable execution with a selected private partner, this northern path is expected to be ready for service in 2026.

Partners: TBD
Funding: CPF

5.3.5 Terrestrial Middle Mile Buildout - Cable Landing Stations and Other Front Haul

The state of Hawaii currently has eighteen privately owned and or operated cable landing stations across Kauai, Oahu, Maui, Molokai, Lanai, and Big Island. Currently, no cable landing station is fully carrier-neutral, limiting the appeal of landing new transpacific submarine fiber systems to the islands and effectively limiting competition. While the Hawaiki CLS at Kapolei is mostly carrier-neutral in ownership and operation, the lack of additional seaward bores and limited terrestrial backhaul facilities make its carrier-neutral status mostly symbolic. In introducing carrier-neutral CLS infrastructure to Hawaii, the state is able to foster competition by lowering capital costs and increasing access through open-access principles, and to promote a future-proofed broadband infrastructure landscape.

Work on terrestrial middle mile design is already underway, with ARPA funds supporting a RFP awarded to Ocean Networks to complete a desktop study identifying potential cable landing sites across all islands that offer diversity and functionality to the current broadband landscape by means of accessibility in the seaward approach as well as terrestrial backhaul. Twelve (12) sites were identified to include in the engineering study, the first step in this process for site identification, procurement, and eventual construction. This includes potential Hawaiian Home Lands locations, which would benefit in building up interconnectivity for their services.

Several new CLS sites are intended to be designed in preparation for the proposed new

inter-island fiber build and ahead of planned trans-Pacific routes with potential to land in Hawaii. The State may consider expansion of existing CLSes, including those with wet segments nearing their end-of-life (e.g., JUSCN, SCCN), plus, the Hawaiki Kapolei CLS (as noted above), beach manholes at HECO Kahe, and Kakaako Look Lab / JABSOM, pending results of the engineering study, cost estimates, and viability of existing sites for future use.

Partners: Ocean Networks, TBD
Funding: ARPA, CPF

5.3.6 Terrestrial Middle Mile Buildout - New Fiber

In September 2022, the University of Hawaii, in partnership with Hawaiian Electric, submitted a \$44 million proposal to the NTIA Middle Mile grant program. This application proposed support for new, high-capacity terrestrial fiber routes to support dark fiber IRUs for carriers and large enterprise customers. An additional competitive grant was submitted by Hawaiian Telcom to support non-duplicative festoon and terrestrial routes to key areas via a combination of subsea and terrestrial segments to enhance the reach of its current statewide network.

Additionally, ARPA/CSFRF/BEAD funds are planned for use in providing tail connections to integrate with key network interfaces and or handoffs, or to connect with other middle mile connections. In a limited number of cases, ARPA/CSFRF/BEAD funds will build middle mile gaps as required.

Partners: UH/Hawaiian Electric *MMG Proposal not funded
Funding: Middle Mile Grant Program, ARPA/CSFRF/BEAD

5.3.7 Trans-Pacific Fiber

Since 2018, the State of Hawaii has been bypassed by all new trans-Pacific fiber systems (five in total). While today's fiber capacity is sufficient to support Hawaii's need for broadband over the next decade, the increase in demand for broadband and the approaching end of service dates for the two older trans-Pacific fiber systems (JUSCN, SCCN) factor heavily into the necessity of future-proofing Hawaii's connectivity to the global landscape. Work is underway to begin choosing the next sites for carrier-neutral cable landing stations across our islands to bolster traffic to Hawaii for new trans-Pacific fiber. Of note, preliminary efforts to date on the inter-island subsea fiber system have attracted multiple parties interested in potentially landing branch segments off new trans-Pacific systems. Multiple conversations are underway to determine the feasibility of bringing branch segments ashore in Hawaii.

Total projected costs for just one new trans-Pacific fiber system are expected to exceed \$500 million, and when partnered with a new inter-island fiber system, will ensure a robust, reliable fiber first-mile and middle-mile infrastructure to and within our state for years to come.

Partners: Multiple private sector potential partners
Funding: TBD, private

5.3.8 Community Digital Navigator Program

(Insert any relevant information from Digital Equity Plan on what the Digital Navigator Program will look like.)

As detailed above in Table 6, digital navigators are critical to closing the digital chasm. Digital navigators will be deployed to libraries & established community centers (CAIs), along with a

broad range of community digital hubs beyond the traditional CAI. At these sites, they will aid residents in gaining access to devices, helping them get connected, teach technical skills necessary for independent technology use for personal and professional tasks, and provide continued technical assistance to late adopters. The state will leverage statewide IT/Cyber workforce development efforts to enhance and expand the available staffing pool to support community access locations and community digital hubs.

The Community Digital Navigator Program will serve as the umbrella program to provide consistency of purpose and process to serve the range of needs to overcome broadband use hurdles to adoption. Within the program, various level and types of training and certifications will tie each individual's skills to the matrix of needs. The already existing Digital Navigator program supporting ACP outreach and enrollment provides some basis for building layers of skills to broadly support statewide wrap-around service requirements. These layers may include, in addition to ACP, skills supporting digital literacy, use and connections, cybersecurity, and other similar services that may be useful in our communities across the state. Tracking of the mix of skills and certifications may occur using a standards based micro-credential tracking system (that's a common need for systems of higher education - we will work to leverage micro-credential tracking effort already underway for the University community).

The Community Digital Navigator Program was originally modeled based on the Community Telehealth Navigator pilot program supported by HUD and its non-profit partner, Hawaii Literacy. The Community Telehealth Navigator program recruits, trains and supports (via stipend) individuals from the identified community of need, in order to leverage the beneficial network effects of individuals known to their community that may best provide insights and most effective delivery of wrap-around support services - in the case of the HUD pilot, for telehealth supports to public housing residents.

Partners: Various non-profit organizations and others
Funding: BEAD, DE

5.3.9 Pre-Construction Engineering and Design on Hawaiian Home Lands

DHHL proposes to utilize CPF funds for the pre-construction engineering and design to support deployment of infrastructure delivering service under multiple 2.5GHz licenses allocated under the FCC 2.5GHz Rural Tribal Window program, together with the potential for unlicensed CBRS 3.5GHz use. The engineering and design outcomes will be utilized to support the construction of the wireless ISP deployment as an integral part of the DHHL effort to deploy comprehensive last mile services consisting of hybrid fiber and wireless infrastructure; the buildout will primarily be funded by the 90m allocated to DHHL under the Tribal Broadband Connectivity (TBC) program (30m under CAA2021, and 60m under IIJA statutory allocations to DHHL for the benefit of the Native Hawaiian communities). The robust combination of the hybrid fiber and wireless infrastructure deployments under TBC, together with braided support from the State of Hawaii's BEAD, CPF and ARPA funds, will ensure that all of our Native Hawaiian communities are fully connected to robust, resilient and affordable broadband infrastructure.

Under its initial TBC award, DHHL expects to conduct site and feasibility assessment in order to deploy significant last-mile (preferably) fiber infrastructure with its remaining TBC allocation. The initial award includes a number of use and adoption projects, in addition to the infrastructure planning and design effort. With an initial contract (pending execution), DHHL expects to be informed as to the state of existing support infrastructure on DHHL lands, and to integrate those findings with other information already available from incumbent carriers.

Based on these inputs DHHL, with assistance from the state broadband team, will seek to design and engineer a suitable infrastructure solution that can be used to deliver modern, high-speed Internet service to residents of DHHL lands. Based on the new infrastructure, DHHL anticipates seeking one or more concession-type agreements with carriers to operate reliable and affordable high-speed Internet service for residents of its lands.

As noted in other sections, the DHHL TBC funded efforts will be coordinated with the anticipated delivery of new infrastructure and service funded under RDOF and CAF legacy programs, as well as support from BEAD and DE programs for infrastructure and wrap-around support services.

Partners: UH, Private partners to be determined

Funding: CPF (DHHL), TBC (DHHL)

5.3.10 Hawaii Public Housing Authority (HPHA) Connections Program

The objective of the Hawaii Public Housing Authority (HPHA) Connections Program is to incrementally upgrade residential connection facilities in all HPHA owned units, to be immediately eligible for full ACP subsidy coverage, initially at a minimum performance floor of at least 100/20 Mbps for all residents. The lower performance floor is the initial delivery threshold to accommodate time to upgrade existing end-to-end network or infrastructure upgrades that may occur in phases over the project execution. Over the period of performance, the minimum performance floor will be increased to 100Mb symmetrical (or better) as increased upstream capacity is fully allocated to the HPHA facility nodes, and as the carrier facilities are fully upgraded to support the necessary capacity via direct fiber uplink or updates to system standard protocols over existing hybrid fiber-coax infrastructure. The approach will hopefully avoid high cost and/or significant disruption to residential units, including any potential hazmat material mitigation and abatement activities required (due to the age of most of the HPHA facilities). Any new HPHA housing units, or those that will be subject to other substantial renovation efforts will be eligible for replacement fiber optic infrastructure or high performance hybrid fiber-coax infrastructure as best suited to the individual properties.

The program will also enable any designated common use room(s) to be connected at symmetric gigabit-class performance for the shared use of residents - initially including 41 HPHA facilities that have identified available common use spaces. Upgrades to facility entry infrastructure required to support gigabit access to the common use rooms will also increase the performance floor for all residents of those facilities.

The HPHA Connections Program will be coordinated with the recently announced capital construction program by HPHA in order to build for maximum benefit of HPHA residents. Any new HPHA construction will incorporate modern utility infrastructure by design.

Depending on the availability of funds, the state may request amendment to the HPHA Connections Program to include County owned public housing facilities under the same design principles.

Partners: HPHA

Funding: ACP, CPF

5.3.11 Outreach and Communications

(Insert any relevant information from the Digital Equity Plan on outreach and comms.)

UH and Hawaii's Broadband and Digital Equity Office in collaboration, must engage the community in a meaningful way that allows for a two-way flow of communication, one where the public can be educated on topics of broadband and equity, and a chance for the public to provide community feedback and to collaborate in imagining the next community hubs. These convenings from UH are expected to run concurrently with the Broadband Hui's Ho'ike subcommittee, another public-facing convening expected to supplement equity and literacy. Convenings may potentially be supplemented on the day of the respective event with a poster session featuring organizations who want to promote their AEL programs to residents. Furthermore, island-wide poster sessions unaffiliated with the convenings should be held at large public centers (e.g. shopping malls and centers, libraries) as a low-cost, low planning method to promote programs in the community with greater community exposure in heavily trafficked common areas, where even without access to the internet, residents may choose to engage and learn more about the programs in their locale that may appeal and apply to them, or pass on the information to someone they may know.

Moreover, in addition to previously stated efforts, the University of Hawai'i intends to maintain the www.hawaii.edu/broadband/ website with the most up to date information on broadband projects in the state, with a focus on the infrastructure projects planned in both middle mile and last mile networks. UH maintains that digital equity and literacy efforts are primarily supported by the Broadband and Digital Equity Office, who must maintain their website with all relevant materials in that space. Both websites will function as the "first stop" for informing the community and maintaining transparency. An online presence casts a broad reach to the public, and with planned social media presence (Instagram, Facebook, Twitter) in addition to physical outreach, outreach and communications will be leveraged to their fullest potential.

Partners: Counties, planned contractor
Funding: BEAD, DE

5.3.12 Free or Reduced Access for Qualifying Residences

On December 31, 2021, the ACP officially replaced the Emergency Broadband Benefit (EBB) to become the permanent program for cost reduction of broadband services for low income and tribal households. This program is available to any household that meets 200% or less of the 2022 Federal Poverty Guidelines, dependent on the household size. At the end of 2021, household enrollment in EBB concluded at 18,430, a participation count that has since increased under the ACP and is at 45,000 as of June 5, 2023, with plenty more residents who still qualify for the program unenrolled as of date ([USAC tracker](#)).

ACP enrollment in Hawai'i relies on "Digital Navigators", who work hands-on with the community to get households enrolled. This process can be improved to maximize engagement and program information awareness through solicitation of translated outreach materials to ensure all households have equal access to this program. Outreach materials should be shared at community access locations in addition to community anchor institutions to ensure visibility within the community. Primary and secondary schools can participate in informing their students' families by distributing a general news release of the program in print form to their students and families. All community sites participating in distributing or displaying outreach materials should be considered for in-person ACP enrollment help sessions, where Digital Navigators are present to assist in the enrollment process. Cultural centers and heritage community centers may also be beneficial to reach populations that may otherwise face language barriers. Additionally, online promotion of the ACP should resemble that of previous EBB efforts in the state, with additional promotion of this permanent program on public access wifi networks.

Plans to support and boost ACP enrollment will see assistance from BEAD and DE funding, and, if awarded, the ACP enablement grant program.

Partners: HPHA, Counties, HUD and others

Funding: ACP, ACP Enablement Grant Program, BEAD, CPF, DE Programs

5.3.13 Digital Equity and Literacy Content Creation; Leverage Existing Programs

(Insert any relevant information from the Digital Equity Plan on DE content creation.)

Digital literacy skills are gained through instruction and hands-on educational methods with supporting tutorials or other educational content that shows users how to perform such tasks. This may include at the most basic level, how to navigate digital devices, perform basic computer functions, utilize different applications including the web, job search functions such as creating a resume, searching for jobs, and applying for jobs, or more advanced technical workforce skills to meet industry demands. The Workforce Development Council, HSPLS, and Hawaii Literacy are all organizations with sufficient means to provide educational content for introductory and intermediate technical skills development. This includes creating publications as well as courses that may be hosted in person or independently online for the purpose of developing literacy skills for all residents.

Currently, Workforce Development, HSPLS, and Hawaii Literacy all offer or have offered digital literacy training to various extents with geographic restriction being the greatest inhibitor to reaching across the state. Provided proper funding from the Digital Equity Act, unserved, underserved, and remote communities will ideally be able to visit their nearest CAI (e.g. library, school, community health center, public housing facility) for access to these programs if they do not have access from their residence.

Further instruction in advanced, technical skills development may be pursued through UH Community Colleges offering courses at their home campus or education centers, and pending the implementation and success of the proposed Pahoehoe Library project from the University of Hawaii's system's submission for Connecting Minority Communities, may see other CAIs provide access to community college courses for the purpose of IT skills development.

Partners: HPHA and others

Funding: ACP, ACP Enablement Grant Program, BEAD, DE Programs

5.3.14 Digital Literacy Outreach, Training and Education, Connect with Community Access Locations

(Insert any relevant information from the Digital Equity Plan for these types of projects.)

Under the coordination of the overall broadband investment leadership by the UH state broadband office, the DBEDT Digital Equity Office under leadership from Burt Lum will construct and vet the state's digital equity plan. DBEDT, together with Hawaii County, continues to convene the weekly Broadband Hui, that functions as an open forum for stakeholders in the broadband and digital equity community to share project updates of all ongoing, completed, or planned digital equity programs. Outreach efforts should continue to be perpetuated through the Broadband Hui and its participating stakeholders by means of televised, radio, print, and word-of-mouth means. Outreach should be accessible to all sectors of the public, and includes

exposure through public spaces, such as public transportation, public housing, public libraries, community centers, and schools.

With participation from the Department of Education, HSPLS, DHHL, HPHA, the four Counties, and other organizations with community-wide presence, outreach materials should be readily available for distribution from any of the aforementioned entities. Furthermore, distributing entities should have representatives on-site who are readily available to speak about the programs available to residents or refer residents to the appropriate individual for more information if they are uncertain of what a program may entail. The driving principles for outreach should engage communities by organizations closest to the community itself to take advantage of existing trust relationships to the greatest degree possible. While generalized, mass-media approaches are useful, we expect that the highest value outreach will occur at the grass-roots level.

Outreach efforts in the state should promote maximizing application of federal programs like the Affordable Connectivity Program (ACP) along with local digital literacy training and education opportunities hosted by local nonprofits and state entities. This includes digital literacy training sessions hosted at community colleges or other CAIs and other programs intended to provide training, education, and access to digital technology and broadband. Digital literacy outreach materials should be translated in, at minimum: Hawaiian, Thai, Ilocano, Khmer, Kosraean, Marshallese, Samoan, Tonga, Chinese, and Tagalog. This is to maximize the reach of access, education, and training information to populations facing language barriers.

Partners: UH, DBEDT, Counties, others

Funding: ACP, ACP Enablement Grant Program, BEAD, CPF, DE Programs

5.3.15 Community Access Locations

(Insert any relevant information from the Digital Equity Plan on gathering places recommended in DE plan outreach.)

Community anchor institutions (CAIs) are well-known common access points for digital literacy project deployment and promoting outreach efforts for broadband equity, literacy, and access. This term encompasses schools, libraries, community health centers, and public housing among others, many of which have seen pilot projects for broadband that can be replicated at other community access locations for greater reach to populations that may still see limited access to existing services. Distinct from CAIs are community access hub locations, which cover non-profit organizations with a statewide presence and reach. This includes the Institute for Human Services (IHS), Goodwill, Salvation Army, Aloha United Way, Economic Development Alliance of Hawaii, and the various Hawaii Chambers of Commerce as alternative last mile connectivity and digital literacy access points. Other sites of interest include the above organizations operating mobile or “on-wheels” programs, and CAIs under the Department of Education and HSPLS that do not currently participate in any community access programs.

Using funds on a one-time basis to deliver equipment (e.g. computers, laptops, routers, etc.) to these sites for public use would potentially enable new locations to serve communities previously unserved, or otherwise provide an alternative site to connect to the internet for communities. Where possible and allowable, the state may exert leverage for discounting or provision of some “free” services to help sustain public access (e.g., public wifi). Each site participating as a community access location will also be a candidate site for digital literacy training, and other educational and public (government) support services, including remote education, security training and workforce development. Community members will have access to technical support on-site and remotely should it be required.

A potential approach to minimize the ongoing operational cost liability for high-speed access to CAIs may include an interconnected dark fiber network infrastructure that could be fed via a shared ISP feed, or interconnected with a public ISP service. This would have the effect of establishing an INET-like infrastructure serving CAIs, to support high-speed connectivity for CAIs at a substantially reduced cost. Combination of CAIs with last-mile builds might provide a means to leverage the increase in residential reach to serve CAIs.

Partners: Listed above and others

Funding: BEAD, State Digital Equity Capacity Program

5.3.16 Integration with IT Workforce Development Initiatives

The IT/Cyber Leap-Start Experience Excelerator Program was launched in 2022 by the University of Hawai'i. It is a program for students close to graduating to gain meaningful experience in the IT and Cybersecurity workforce sectors through mentorship opportunities with partnering employers in the IT and cybersecurity fields. Participants will be hired by UH as student employees, or post graduation through RCUH (or potentially with a private sector employment partner) to perform duties under their mentoring entity on a rotational basis for a 12- to 24-month term. At any time during this term, they may be hired full-time by UH or the participating employers into the aforementioned sectors, effectively "graduating" from the Leap-Start program. Other similar programs, including private sector internship programs, may also be integrated into the state's digital equity and literacy efforts to develop a skilled, locally trained workforce.

5.3.17 Potential programs under the Digital Equity Capacity Grant Program

(Insert any potential programs that may be funded under the Digital Equity Capacity Program.)

- Community Access Locations Program
- Data Collection Grant Program: The Data Collection Grant Program is proposed to provide funding to non-profit organizations interested in deploying data collection efforts to support the Hawaii State Broadband and Digital Equity mapping effort.
- Digital Literacy Community Grant Program: Over the next few years, the state expects to release multiple requests for proposals (RFP) under the Research Corporation of the University of Hawaii (RCUH) to fund access, equity, and literacy efforts, as well as last mile projects that are innovative and target communities that do not currently have local community broadband access points or access to digital literacy and skills training. This opportunity will allow for non-governmental entities with prior experience providing broadband service, broadband infrastructure, and other communication services and literacy programs to residential customers within the state of Hawaii, to apply for funding to establish tech centers, digital literacy programs, and create outreach materials to inform the public about federal support programs and local last mile and access, equity, and literacy efforts.

5.4 Key Execution Strategies

Investments will be guided by the declared BEAD priorities, focusing first on extending last mile infrastructure to cover unserved areas, in coordination with statewide strategies for interconnecting with middle mile infrastructure (supported outside of BEAD) and statewide

wraparound services to support meaningful adoption of high-speed Internet access. Also per the statutory requirements, BEAD investments will not over-build or duplicate efforts funded by other federal funding sources, including but not limited to, RDOF, CAF and TBC programs.

Second priority is to shore up the underserved areas around the state, create and connect a broader spectrum of community hubs to extend the reach of grassroots community support, and statewide wrap-around services in support of the state's digital equity and digital literacy goals, and continuous support of IT/Cyber workforce development programs (also funded outside of BEAD).

The state broadband office support funded under BEAD will continuously monitor the overall efforts funded across all federal broadband programs. BEAD Planning Funds included support for state broadband office capacity through the five-year term of award to support oversight of projects funded under BEAD, and compliance and monitoring of efforts through the term.

>>Efficiently allocate funds in the construction priorities to ensure there are sufficient funds available to fill both anticipated and unanticipated gaps over the course of the next five years, aiming at the target goal of meaningful universal service; work on strategy for high setback properties, extreme high cost threshold, and last-mile contingency reserve

>>Integrate with already existing statewide and regional IT/Cyber workforce development efforts/ leverage concept especially for other programs that are already underway

5.5 Estimated Timeline for Universal Service

Hawaii's overarching goal is to achieve meaningful universal access to reliable and affordable high-speed Internet service by 2030. In order to achieve that goal, the state expects to rely on the combination of BEAD investments (through 2026-2027), completion of the RDOF and CAF commitments by Hawaiian Telcom (~2027-2030), and the ability to overlay effective and affordable LEO satellite service (Starlink, Project Kuiper, etc.) for very high-cost areas (2026-2027).

Related investments in key middle mile assets are expected to be online by the end of 2026; these investments are expected to lower the capital cost of provisioning to both incumbent and new market entrants. This factor will be key to increase competition, availability and affordability of high-speed Internet services throughout the state.

Long-term affordability will also be dependent on the continued availability of ACP or some similar program under the revisitation of the FCC's Universal Service program. Long term concerns and potential barriers to achieving Internet for All in Hawaii, include the unknown disposition of ACP and related subsidy programs, and uncertainties as to high-cost and ultra-high-cost last mile buildouts. We do also expect that the level of actual competition in our telecommunications market will continue to impact our overall reach and affordability goals. While there are significant public one-time funds available to incentivize achieving Internet for All in Hawaii, there may be conditions or issues that will impair our ability to succeed at this goal.

5.6 Estimated Cost for Universal Service

The aggregate sum of all federal broadband investment programs, including legacy funding sources (e.g., FCC, USAC, USDA, EDA) and programs (e.g., RDOF, CAF, ReConnect), plus leveraging a similar amount from commercial providers and private sector partners is our expected cost to achieve the desired goal of Universal Service AND ensure meaningful access to the Internet for all. Total costs will also include the level of funding provided as a match, both directly to our projects, as well as separate private direct investments into the state's broadband infrastructure, from carriers and providers operating in Hawaii.

We also expect to leverage some level of commercial investments into Hawaii's infrastructure as we directly reduce the impactful hurdles to participating in our broadband infrastructure market. Historically, the public sector entities in the state, inclusive of federal, state and county governments, have not made significant investments in telecommunications infrastructure assets; rather, the collective public sector "consumers" have been subscribers to commercially available broadband (Internet) service. This includes the use of public INET capacity made available via the state's cable television franchise agreements. There are limited investments of this type, mostly around public safety communications infrastructure that serves specific point-to-point needs for those uses.

The long-term sustainable business model is the biggest uncertainty, as many of the needs for wrap-around services and related supports will need to secure reliable funding commitments. One possible source of funds for these supports includes ACP-like support under a completely re-envisioned FCC Universal Service Fund offering. Other supports could come from non-federal public sources, including philanthropic sources to help sustain the non-profit service delivery community.

5.7 Alignment

Hawaii's BEAD Five-Year Plan is crafted as an integral part of the state's overall broadband investment framework (see ongoing developments of the investment framework at www.hawaii.edu/broadband/). The investment framework details priorities to address the current brittle and monopolistic middle mile infrastructure, that has long constrained our ability to grow our effective utilization of global class network services. The limited size of Hawaii's market is the primary factor that has limited the commercial investment in our state, that now threatens our ability to grow and thrive together with our CONUS neighbors. This critical middle mile infrastructure is the focus of our investments from the US Treasury Capital Projects Fund, and the submitted NTIA Middle Mile Grant competitive proposals. We intend to leverage these federal sources to incorporate matching or larger investments by commercial partners (the federal investments will lead by overcoming the high capital cost hurdles that have so far caused commercial partners to avoid future Hawaii investments in the middle mile and first mile space).

The BEAD Five-Year Plan effort is also directly integrated with the state's Digital Equity Plan effort, led by the Department of Business, Economic Development and Tourism. That state Digital Equity Plan effort is underway, with an expected completion by November 2023. While the BEAD Five-Year Plan will be submitted in July, the state Digital Equity Plan will be included by reference, and will also be integrated in the state's BEAD Initial Proposal and Final Proposal efforts.

Funding support from the Tribal Broadband Connectivity program will focus initially on five use and adoption projects to provide short term relief for the Native Hawaiian Community, and the effort to assess and plan deployment of last mile (primarily) dark fiber infrastructure for Hawaiian Home Lands (DHHL) locations are expected to bring the necessary layer 1 infrastructure to all locations within those areas. This effort fills the last mile promise, together with the statewide BEAD last mile infrastructure efforts. Note that it is expected that much of the middle mile infrastructure required to provide interconnection between and among the DHHL locations will be provisioned by a mix of incumbent carrier services and new middle mile builds supported by the state's overall investment strategy.

The final piece of the last mile matrix is fulfilled with the already contracted commitments by Hawaiian Telcom under its multiple RDOF and CAF awards. These awards will provide the necessary last mile infrastructure for the designated award areas, and like the TBC-DHHL deployments, dovetail with the state's overall investment strategy.

Hawaii's overall broadband investment strategy is crafted to maximize the collective benefits of the multiple federal programs by carefully braiding the efforts together to support the state's goal of robust, reliable and affordable access to the Internet for all.

5.7.1 Alignment - Workforce Development

Hawaii has significant statewide workforce development already underway in the IT sector, including cybersecurity. The Hawaii IT Sector Partnership is an ongoing effort convened by the Chamber of Commerce of Hawaii, and supported by a number of partners, including the University of Hawaii system. This IT Sector Partnership effort already includes several dozen public and private sector employers, and includes material consideration for broad IT skills enhancement across the full spectrum of the state's workforce, and considers the active participation of our K-12 sector, and both credit and non-credit elements of our post-secondary education providers. This multi-year effort also includes the participation of industry training providers, including a number of common use, high value, instructional intellectual property (i.e. course materials).

Hawaii will leverage this ongoing IT sector workforce development effort to help support the broad IT literacy requirements associated with our Internet for All statewide goals, and to help ensure a sufficiently broad and deep pool of technically skilled candidates for the future engineering, operation and management of the state's broadband infrastructure.

While much breath has been given to the need for developing installers and construction crews, we are reminded that Hawaii's market and likely job count for these specialized construction skills will be limited over the long term, i.e. past the construction spike funded by the one-time federal investments. Based on the existing staffing and contract firms already in place, we anticipate that we should continue to feed the current steady state of construction skills, but not overly add to the size of that skills pool - lest we later run into a lack of construction jobs following our public investment spike. We do require that the range of technical skills are fully maintained in our community, but caution that we keep a watchful eye on future demands.

<initial work under Good Jobs Hawaii and the IT Sector Partnership is already supporting training for telecommunications workers - HT/GJH pilot>

5.8 Technical Assistance

Given sufficient clarity and reasonable work by our federal partners, the state anticipates that it will require limited technical assistance for implementation of the planned projects. Depending on the mix of participating providers, we may require some technical assistance in support of compliance and regulatory efforts. We do expect that we will also require some technical assistance during the development of the Initial Proposal and through the State Challenge Process and procurement activities leading up to the Final Proposal.

6 Conclusion

[Insert Text - TO BE DONE LAST WITH EXEC SUMMARY]

<restate overall goals, investment framework, and execution strategy>
<achieve true Internet for All by 2027/2030>

7 Appendices

** Include the four **County Story Maps** (Hawaii County one is linked below to provide context for the Story Maps, and while each could play out differently, the core template for the Story Maps will be the the same, or at least very similar)

[County of Hawai'i Story Map](#)

[City & County of Honolulu Story Map](#)

Map/List of CAIs

Hawaii State Digital Equity Plan DRAFT (Very early draft; plan is due to be completed by November 2023)

(i) Glossary

- **ACP:** [Affordable Connectivity Program](#)
- **ARPA/CSFRF:** American Rescue Plan Act / Coronavirus State Fiscal Relief Funds
- **ARRA:** American Recovery and Reinvestment Act
- **BDA:** Broadband DATA Act
- **BEAD:** Broadband Equity Access and Deployment Program
- **BSL/BSLF:** Broadband Serviceable Location Fabric
- **BTOP:** Broadband Technology Opportunities Program
- **CAI:** Community Anchor Institutions (e.g. school, library, hospital)
- **CAF:** Connect America Fund
- **CLEC:** Competitive Local Exchange Carrier
- **CPF:** Coronavirus Capital Project Funds
- **CQA:** CostQuest Associates (the entity that FCC contracted to make the fabric map)
- **DBEDT:** Hawaii State Department of Business, Economic Development, and Tourism
- **DE:** Digital Equity
- **DHHL:** Department of Hawaiian Home Lands
- **DOT:** Hawaii State Department of Transportation
- **FCC:** Federal Communications Commission
- **FPO:** Federal Program Officer
- **HIDEC:** Hawaii Island Digital Equity Coalition
- **HPHA:** Hawaii Public Housing Authority
- **ILEC:** Incumbent Local Exchange Carrier
- **ISP:** Internet Service Providers
- **INET:** Institutional Network
- **IJA:** Infrastructure Investment and Jobs Act
- **MDU:** Multi Dwelling Unit (condo, townhouse, apartment, etc)
- **MMG:** Middle Mile Grant Program
- **MOU:** Memorandum of Understanding (sometimes referred to Agreement)
- **NOFO:** Notice of Funding Opportunities
- **NTIA:** National Telecommunications and Information Administration

- **ODEC:** Oahu Digital Equity Coalition
- **PIO:** Public Information Officer
- **RDOF:** Rural Digital Opportunity Fund
- **RFP:** Request for Proposal
- **SBLN:** State Broadband Leaders Network
- **TBC:** Tribal Broadband Connectivity Program

Table of Unserved and Underserved Locations by Island

Island	Unserved	Underserved
Hawaii	9054	335
Kauai	383	12
Lanai	41	0
Maui	1039	561
Molokai	400	28
Oahu	752	135
TOTAL	11,669	1,071

National Broadband Availability Map (NBAM) - June 2023 (FABRIC Data from 12/2022)

State BEAD Timeline (Rework image for this document)

