

**INTERNET
FOR ALL**

Asset Mapping Guide

Data Equity
Gathering
Best Practices



**National Telecommunications and
Information Administration**

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Introduction

With the passage of the Bipartisan Infrastructure Law (BIL), the federal government is making historic investments in broadband technologies and infrastructure. The COVID-19 pandemic made it clear that too many households in America lack access to dependable, affordable, high-speed Internet. In many cases, Americans lack access because their home is in a location that is not connected to high-speed service, or they may be unable to afford the cost of a monthly high-speed internet connection.

To identify where high-speed internet is needed, an approach called asset mapping is used to collect, organize, and track data for building digital equity strategies and plans for new and improved infrastructure.

Whether focused on a single neighborhood or an entire state, digital inclusion coalitions, organizations, and public agencies across the country use asset mapping to identify resources, build partnerships, and plan for future work.

Through this guide and the accompanying Digital Equity Guide for States, the National Telecommunications and Information Administration (NTIA) has developed a set of practical guidelines designed to support asset mapping efforts by digital equity practitioners. The guidance and guidelines are comprehensive and flexible enough to accommodate varying geographic scales and levels of detail.

An Overview of Asset Mapping

Asset mapping at the state level helps to identify and build on the state's existing resources, networks, and strengths; these are the assets. This process helps emphasize capacity building and community-based solutions, and it works with community members and organizations as partners invested in solutions, rather than as problems to be solved. By mapping the connections of core assets in a region or community, and then expanding iteratively, the asset mapping process can generate a robust network of potential partners and stakeholders. Asset mapping is also particularly effective at uncovering resources in the community that would not otherwise have been invited to "a seat at the table" in a more traditional planning or engagement approach. Identifying the opportunities, interpersonal networks, and resources already present in a community will help identify areas to support and scale strategies that are already in place – which reduces duplicative efforts. In turn, asset mapping supports the empowerment of community institutions and people by sharing ownership in the local coordination efforts.

When undertaking any planning project or effort to bring about community change, understanding the current state through a needs assessment, existing conditions analysis, or another, similar method is a common early step. These approaches, however, often employ a deficit-based perspective - seeking to describe and quantify the problems to be

fixed in a community (for example, poverty rate, people experiencing homelessness, or households without a broadband subscription). While typical, this approach to understanding and framing an issue has several inherent challenges:

- It marginalizes those most in need of support (such as people experiencing digital inequities) by emphasizing their adverse outcomes rather than the systems that contribute to those outcomes.
- It frequently pays insufficient attention to the resources and expertise within a community that can be leveraged to produce desired outcomes.
- And finally, it can lead to a bias toward external solutions imposed on a community rather than solutions built within and by the community.

Asset Mapping & the Bipartisan Infrastructure Law

Asset mapping can help local governments conduct more impactful, long-term, high-speed internet infrastructure and digital equity planning. Critically, asset mapping data can be used to help ensure that governments are able to incorporate the local, regional, and community needs, and elevates the voices/needs of underrepresented communities into planning and implementation efforts. By adapting and building on the opportunities and resources already present in the community, governments can avoid unnecessary duplicative work and intentionally build the relationships necessary for local coordination.

A Better Lens: Mapping Digital Equity

Whether gathering information on a single neighborhood, tribal lands, across a city or even statewide, an individual or entity seeking to identify community assets must first define their geographic parameters to sharpen focus. In addition to defining a geographic area, it is also helpful to categorize assets in the inventory by the type(s) of digital equity activities each relates to. Comprehensive mapping of digital equity assets allows communities to measure investments and the impact of those investments. Crucial to this process are the five elements of digital equity, which are:

- Affordable, robust broadband internet service;
- Internet-enabled devices that meet the needs of the user;
- Access to digital literacy training and advanced digital skills training;
- Quality technical support;
- Applications and online content designed to enable and encourage self-sufficiency, participation, and collaboration.

Digital equity asset mapping is not only about mapping resources in the community but also about identifying impact and desired outcomes digital equity initiatives at the community level.

Building the Network & Engaging New Partners

On top of compiling useful geographic and activity-type information about individual organizations and programs, the network-building aspect of asset mapping is vital to the digital equity field. Once coalition members, digital equity practitioners, and other obvious entities have been added, the research turns to finding individuals and organizations that are doing work (or that could be doing work) in at least one of the five elements of digital equity and engaging those individuals and organizations to build your network of resources to aid in the planning and implementation processes. For example, leveraging existing relationships with community anchor institutions, such as public libraries, helps broaden the asset map network to find, engage, and educate new partners.

In the case of an organization like a workforce development agency, they may see their work strictly through the lens of job seeking. For instance, helping an individual find gainful employment involves teachable moments such as cover letter and resume writing in a word processing application, understanding internet search engines, and how to use online employment application forms and job search sites. Not to mention the reality that in the COVID-19 pandemic, organizations began doing this work remotely, which commonly required supplying devices like laptops or tablets for their clients.

This approach covers five elements of digital equity: devices, digital literacy/digital skills-building, tech support, applications, and meaningful use or adoption. Therefore, if a workforce development agency is doing digital equity work, it should be invited to the table as an asset in workforce development and digital equity in any ongoing or future projects.

Reaching the Right Populations

A strength of asset mapping is its ability to reduce the marginalization of vulnerable populations by lifting up community voices. Defining a diverse network of partners encourages outreach and engagement with a broad array of communities while limiting the emphasis on deficit-based approaches. This can be especially critical for reaching groups for whom engagement and trust in established institutions are challenging.

Identifying trusted entities, that can include community-based organizations, community anchor institutions, or even informal gathering places, brings these communities into the fold while also elevating the mission of a like-minded organization in the digital equity space.

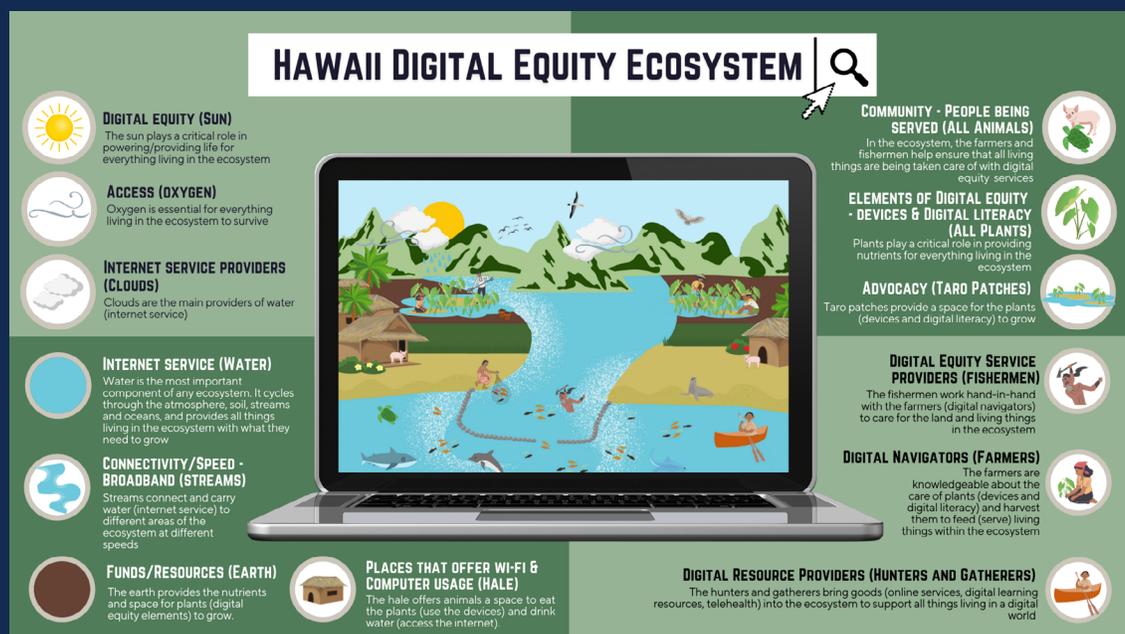
Understanding the Digital Equity Ecosystem

When asset mapping is well organized, incorporates comprehensive data sources, and benefits from strong engagement throughout the community, the result is greater than a set of individual data points.

A “digital equity ecosystem” is a combination of programs and policies that meet a geographic community’s unique and diverse needs. In a digital equity ecosystem, coordinating entities work together to address all aspects of the digital divide, including affordable high-speed internet, devices, and skills. One key component of an effective digital inclusion ecosystem is collaboration among partners to co-create solutions within the

community rather than one entity designating actions from the top down. While the purpose of the asset mapping process is to document the resources in a community, it can also uncover the ecosystem that currently exists and help set the course for further evolution through continued network building and collaborative, community-based solutions. Informed by their own asset mapping efforts, the **State of Hawaii Broadband and Digital Equity Office** has developed infographics and a report detailing the components of the digital equity ecosystem in their state.

Figure 1: A Digital Equity Ecosystem¹



¹ State of Hawaii, Hawaii Broadband & Digital Equity Office, Digital Equity Ecosystem Map, <https://broadband.hawaii.gov/deemap/>.

Conducting Asset Mapping

To assist digital equity coalitions, organizations, state leaders, and others interested in better understanding the digital equity ecosystem in their community, NTIA has developed a set of asset mapping guidelines. Every community has a wealth of assets that contribute to the character and resources of a place: institutions, individuals, formal and informal networks, physical spaces, and shared culture, to name a few.

While all are essential components, NTIA's asset mapping guidelines are focused on documenting the organizations and programs that provide (or potentially could provide) digital equity services and support in a community.

It may also be beneficial to communities that have not previously conducted asset mapping to connect other communities who have experience in asset mapping for advice on potential outreach strategies. These suggested guidelines are designed to support a wide array of needs and experience levels.

Key Guidelines for Digital Equity Asset Mapping Initiatives

Establish standard data fields and terminology

Collecting the same types of information about digital inclusion resources and services across different communities will develop shared languages and understanding across the field. It will facilitate the comparison of strategies and best practices between communities and states and supply or development of the digital inclusion field. Use your communication and local coordination outreach activities to inform your data collection.

Maintain flexibility to meet specific user needs

Recognize the diversity of potential contributors; the asset mapping guidelines were designed to be customizable. There are bound to be varying interests in the types of assets gathered, levels of detail in the information collected about assets, and intended uses of the result.

Comprehensively include all components of digital equity work

Covering all types of digital inclusion services allows for information about various organizations and programs to be compiled in one place. Additionally, many organizations provide multiple services (e.g., affordable devices, training courses, and technical support), and it is vital to reflect all aspects of an organization's digital inclusion work.

Populating as much or as little information in the asset mapping guidelines as is necessary for user needs

Fields may be skipped, and standard response options may be overwritten by user organizations if desired. For example, a state broadband office may choose to only map organizations and the categories of digital equity work they do. In contrast, a local coalition may decide to track detailed information about each program in their community, resulting in some organizations appearing in the asset inventory multiple times.

Provide free and accessible resources

Extending resources to as many entities working for digital equity is fundamental to NTIA's work. NTIA encourages contributors to translate their choice of resources into whatever platform best fits their needs, the selected formats do not require additional software or subscriptions. Resources are accessible to contributors with moderate digital skills.

Information to Collect

For each asset mapped, governments can consider the type and granularity of information to collect.

- **Basic Information:** This includes information such as organization name, website, point of contact, operating hours, organization mission or purpose, organization type, constituents, and website links.
- **Covered Populations:** Identify the groups that are already serving the covered populations in different localities and regions and areas of the state. Identify how these different organizations overlap to identify unserved populations and regions.
- **High-speed Internet specific data points:** These data points may differ based on organization type, but could include data points around the following:
 - Broadband access & affordability (e.g., local advocacy groups)
 - Device access (e.g., schools or other entities providing devices)
 - Digital skills & technical support (e.g., workforce development or job training organizations)
 - Public device & internet access (e.g., local libraries with community computer access)
 - Digital equity funding (e.g., local foundations funding digital equity efforts)
 - Digital equity/broadband adoption (e.g., meaningful use and improved outcomes data)
- **Other community assets:** such as existing partnerships, coalitions, and resources

Remember data collection is an iterative process and should be customized to meet the needs of the community. Using these best practices can help ensure a comprehensive approach that allows input from a wide range of stakeholders within the community.

Guidance and Usage Tips – Community Data Collection Tool

An asset map may be created by the state, a local or regional coalition representative, a statewide convening entity, or an individual or organization looking to find digital equity partners. The creation of a tool, like a spreadsheet or a fillable form, for an individual or small group to enter multiple records for different assets can help ensure comprehensive data collection. Ideally, the state will have a tool that will allow it to fill out the form on behalf of an organization, person, or resource, and will also permit people and community organizations to fill it out for themselves.

This tool, and all the data entered in it, can be owned and managed by the organization or entity compiling the information. Therefore, individuals within the organization or entity have complete control over access and editing controls of their copy of the tool. Currently, there is no national data repository for asset mapping tools, so each tool should be managed locally by the organization or entity compiling the information.

A data collection tool should have the following features:

- Be publicly accessible and either free or available at a nominal cost;
- Have an interactive, user-friendly query capability with downloadable data;
- The capability to integrate with other GIS information, such as broadband access and availability, to create visual overlays;
- Offer a companion training guide;
- Regular updates with tagged data sources and dates.

In addition to the features listed above, project teams must determine which features best fit their individual needs and resources. One method is to build out an initial asset mapping tool and expand upon its capabilities over several projects.

Project Execution

The asset mapping project leader should bring together a team with partners who can provide additional resources, knowledge, and connections. This will ensure the team captures all relevant assets, opportunities, and people. Executive buy-in from government leaders is helpful to encourage cooperation and raise the project's profile.

One office (e.g., Department of Transportation planning) should lead the asset mapping process. Key considerations for selecting project leadership include:

- Access to or ownership of public assets and data
- Existing relationships with relevant partners
- Data collection, curation, and visualization expertise

Asset Mapping Benefits from the Participation of Key Public and Private Sector Stakeholders

Project Leadership

One office should lead the process. It should:

- Have access to or ownership of public assets
- Leverage existing relationships with relevant partners
- Include data collect, curation, and visualization expertise

Partnerships & Project Team

The project leader should bring together a project team:

- Find partners who can provide additional resources, knowledge, and connections
- Ensure that they capture all relevant assets
- Create buy-in from government leaders

Data Use & Access

The project team should decide how to use the resource:

- Determine which information is appropriate to share:
 - Consider critical infrastructure security concerns
 - Consider proprietary business data
- Have an internal version and a public version

Data Management

A successful asset mapping project needs to consider several elements of data management.

Data Management Elements

Managing the Process

The project leader should clearly communicate to stakeholders the ask, costs involved, and the data collection and transfer process. They should also listen to stakeholders and adjust processes as needed.

Data Collection

Standardize and validate the data collection process from the outset. This work may involve digitizing paper records, which usually require multiple agencies to provide access to the project team. In addition, the project team can include physical records and conduct field visits to physical assets as part of local coordination efforts.

The Asset Mapping Tool

The project team should be able to access data visualization capabilities to share information with stakeholders through the tool of their choice. Critically, they should have appropriate cybersecurity, data integrity, and privacy provisions while embracing collaborative and accessible tools.

Asset Mapping Data & Inventory

It is best to create a flexible framework for organizations to identify and organize digital equity resources, programs, and funding sources within a geographic area. Asset mapping information should be organized into sections and fields according to common types of digital equity work.

Given that not all sections of an asset map will be applicable to every organization, NTIA recommends that the organizations or individuals compiling the asset mapping tool populate only the fields and cells within the map that apply to a given asset. NTIA also suggests that if an organization or individual cannot edit the asset mapping tool to input their own information directly, the team should provide a way through which organizations can submit their own information or information about other organizations and programs they are familiar with. This approach can dramatically expand the digital equity resources captured during the asset mapping process.

The key takeaway is to create an asset mapping tool that permits the team to capture the information in whichever ways are most useful to understand how a key resource fits within the community and its relationship to state planning goals and needs.

Effectively capturing the relevant information about the resources, people, and organizations in the asset mapping tool should be done in ways that best fit the needs of the team. Information about a resource can be detailed in the asset mapping tool in a variety of ways with varying levels of specificity.

The following examples illustrate how information about the same asset might be captured in three different ways:

- A state library is conducting statewide asset mapping to identify which types of digital equity support each library system in the state offers. Given the scale of this effort, the state library would likely have a single record for each library system, with contact information for the library administration and the types of digital equity work the system does. Still, program information and other sections of the asset mapping guidelines may be left blank.
- A local digital equity coalition collects asset mapping information to create an online digital equity resource guide. As a critical community asset, the local library will be included. Because it would be necessary for organizations using the guide to know if a resource is close to them, the coalition will consist of each library branch location as a separate entry in the asset mapping tool. In this case, capturing days and hours of operation and crucial information about technical support, public device, and internet access would also be essential.
- Another coalition uses asset mapping to identify digital equity programming gaps in the community. Knowing that the local library offers a device loaning program, a digital skills program for older adults, and a program offering remote technical support, the coalition will document each program provided by the library as a separate record in its asset mapping. This means that the library will show up multiple times in the organization field, once for each program it offers. However, each record will only include information relevant to the program; the remaining areas will be left blank.

Examples

- **Capital Region Coalition for Digital Inclusion** (Sacramento, CA). The nonprofit mohuman worked very closely with community-based organizations and residents of digitally underserved regions to identify their needs and the digital services necessary to meet those needs. The result was the co-development of moDAT, the people’s digital advocate and navigator. This iteration of moDAT, developed for the Capital Regional Coalition for Digital Inclusion to serve the Sacramento area, is an intelligent platform designed to help navigate the digital equity resources in their community.
- **Digital Inclusion Network** (Portland, OR). The Portland Digital Inclusion Network maintains a searchable directory of local digital equity resources. In the spirit of collaboration, the Portland Digital Inclusion Network encourages members to share materials; identify opportunities, challenges, and resource gaps; and develop solutions to better serve digitally disconnected residents.
- Representatives from the **Cleveland Foundation** described creating an infographic to visually communicate information collected from the asset mapping guidelines. They also stated their intention to integrate the asset mapping tool and resources collected into their existing website for their digital navigator’s program. Representatives envision developing a network map to document Cleveland’s local digital equity ecosystem.
- A **Kansas City Digital Drive** representative shared their vision to evolve the inventory from a list into a resource that tracks the digital skills and digital training continuum. They described using the resource to help guide learners along a path suitable and appropriate for their abilities and interests and cited how television streaming services can “suggest” a similar movie based on previous views. Most working groups indicated that implementing the tool would result in a public-facing resource.
- **Long Beach, California’s** stakeholder engagement process convened a 50-person multidisciplinary committee that reflected the entire spectrum of digital equity. This committee provided strategic guidance to advance Long Beach’s digital equity plan. The stakeholder committee developed a common agenda, engaged in asset mapping, developed a shared measurement system, refined draft strategies, and reviewed community input. The community engagement process collaborated with trusted community partners to engage individuals impacted by the digital divide. Long Beach engaged the community through pop-up events, workshops, interviews, and a community survey.

As more organizations and digital equity coalitions engage in network mapping, identify new use cases, and produce new guidelines from the results, NTIA will continue to share best practices and guidance as this essential aspect of digital equity work evolves. NTIA will work with different states and territories to provide technical assistance, support, data, or programmatic requirements to produce State Digital Equity Plans that fully address gaps in broadband adoption, promote digital skills, advance equitable access to education, healthcare, and government services, and build information technology capacity to enable full participation in the economy for covered populations.

Conclusion

NTIA is here to help states to identify existing resources, people, and partnerships to build robust plans for broadband access, adoption, affordability, digital equity, and digital inclusion across the state. NTIA also requires local coordination; asset mapping is an effective strategy to collect data that will be used to show how funding can support broadband access, adoption, and use, as well as broader social, community, and economic outcomes. Through these methods, NTIA will empower states, tribes, territories, and local communities to achieve digital equity and Internet for All.

