# Free Apartment Wi-Fi

## How States Can Close the Digital Divide in Affordable Multi-Dwelling Units (MDUs)

Education SUPERHIGHWAY

NO HOME LEFT OFFLINE

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# A Letter from Founder and CEO
## Evan Marwell

**Twenty to twenty-five percent of the digital divide is concentrated in affordable multi-dwelling units (MDUs).** Without home broadband, these households are shut out of economic security and opportunity. Students can't complete school work outside the classroom, and families can't work remotely or access healthcare, job training, the social safety net, or critical government services.

Improvements in Wi-Fi technology have made it possible to connect units in these buildings to reliable broadband service by deploying Wi-Fi access points throughout the property and then connecting the building network to a fiber connection. Modeled after how Wi-Fi is delivered in most hotels today, **Free Apartment Wi-Fi programs can connect 6.5 million unconnected people in 4 million households to reliable high-speed home internet — closing 23% of the broadband affordability gap.**

The $1.2 trillion Infrastructure Investment and Jobs Act (IIJA) includes $45 billion in the Broadband Equity, Access, and Deployment (BEAD) program and Digital Equity Act (DEA). The IIJA designates the installation of Free Apartment Wi-Fi networks in substantially unserved affordable multifamily housing as a priority broadband deployment.[1] **By allocating less than 18% of their BEAD funds to deploy hotel-style Wi-Fi networks in these buildings, states can quickly and cost-effectively impact the digital divide for millions of unconnected households.**

**BEAD requires states to connect 9,417 MDUs that the FCC National Broadband Map has identified as unserved and underserved.** Free Apartment Wi-Fi is the most cost-effective way to meet this requirement. In addition, 75,378 additional MDUs are eligible to have free Wi-Fi networks installed as a priority use of BEAD funds. Many of these buildings are highly likely to be unserved or underserved, and states should follow the National Telecommunications and Information Administration's (NTIA) MDU challenge process guidance to determine which of these additional buildings need to be prioritized for BEAD funding.

The potential economic impact of Free Apartment Wi-Fi programs amounts to $7.8 billion every year, with access to home internet increasing the annual income of low-income American households by $2,000,[2] three times the $650 average cost to connect an apartment. To take advantage of this opportunity to connect 6.5 million people, states should:

1. Commit BEAD and DEA funding to deploy Free Apartment Wi-Fi programs.
2. Include all Free Apartment Wi-Fi eligible MDUs in BEAD Initial Proposals.
3. Follow NTIA's guidance to go beyond the FCC Broadband Map and determine the connectivity status for priority MDUs.

**EducationSuperHighway is ready to support states with data and model language for Volume 1 of their Initial Proposals to maximize BEAD funding for Free Apartment Wi-Fi programs.** Our Free Apartment Wi-Fi Dashboard also provides planners with state- and city-level data on the number of buildings eligible for BEAD funding, the unconnected households and populations reached, and the estimated costs of deployment. Our program experts can also directly help states develop Volume 2 of their Initial Proposals and their Five-Year Action Plans and budgets, and design their Free Apartment Wi-Fi procurement processes. Lastly, EducationSuperHighway can help states implement their Free Apartment Wi-Fi programs by supporting building owner and service provider outreach and developing awareness campaigns for resident adoption — all at no cost.

We look forward to working with states, municipalities, building owners, property managers, providers, and communities to seize this unprecedented opportunity to close the digital divide.

**Evan Marwell**
Founder and CEO
EducationSuperHighway

# 2 Executive Summary

# Deploying Free Apartment Wi-Fi networks can close 23% of the Broadband Affordability Gap.

## Total Opportunity

**85K**
Eligible[3] Apartment Buildings Nationally

**11.5M**
Households In Eligible Apartment Buildings Nationally

## Impact of Connecting 9,417 Buildings Required By The FCC National Broadband Map

**700K**
Unconnected People Connected With Free Apartment Wi-Fi

**450K**
Unconnected Households Connected With Free Apartment Wi-Fi

## Impact of Connecting 75,378 Buildings Requiring Challenge Process Review

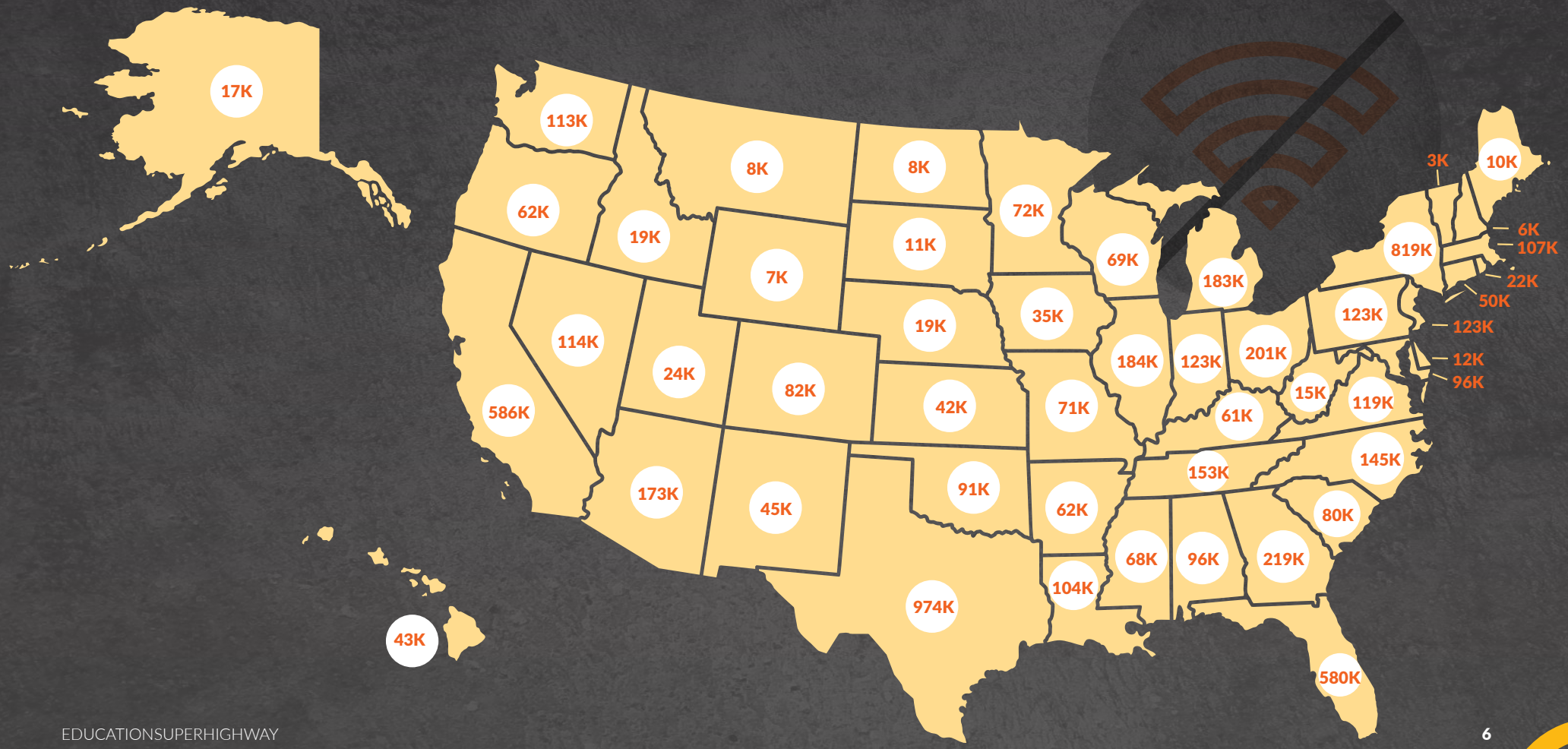
**5.8M**
Unconnected People Connected With Free Apartment Wi-Fi

**3.5M**
Unconnected Households Connected With Free Apartment Wi-Fi

# Free Apartment Wi-Fi networks are the most cost-effective strategy for states to close the digital divide.

Twenty to twenty-five percent of the digital divide is concentrated in affordable MDUs. By allocating less than 18% of their BEAD funds to deploy hotel-style Wi-Fi networks in these buildings, states can quickly and cost effectively impact the digital divide for millions of unconnected households.

**CHART 1 | Number of unconnected people that can be connected with Free Apartment Wi-Fi networks**



# Congress has designated Free Apartment Wi-Fi networks as a priority use of IIJA funds.

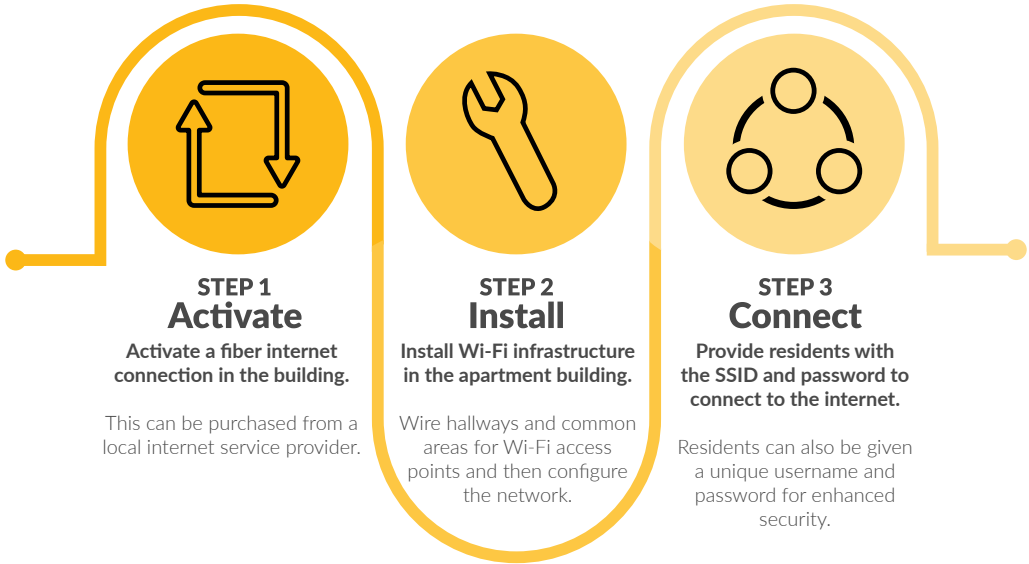
**The IIJA designates the installation of Free Apartment Wi-Fi networks in substantially unserved affordable multifamily housing as a priority broadband deployment.** This creates an unprecedented opportunity to bring affordable high-speed internet to historically marginalized communities and those living on lower incomes.

Improvements in Wi-Fi technology have made it possible to connect affordable MDUs to reliable broadband service simply by deploying Wi-Fi access points throughout the property and then connecting the Wi-Fi network to a fiber connection to the building.[4]

Free Apartment Wi-Fi is modeled after the way Wi-Fi is delivered in most hotels today (see Appendix 1). Rather than buy a separate internet connection for each room, the hotel buys a single internet connection for the building and then installs a building-wide Wi-Fi network. The hotel then makes it easy for guests to use the Wi-Fi by giving them the network name (SSID) and password when they check in. There are no complicated forms to fill out, and the demand from guests has now made Wi-Fi a standard, free amenity in virtually every hotel.

States have already started deploying Free Apartment Wi-Fi using the U.S. Department of the Treasury's American Rescue Plan Act's (ARPA) Capital Projects Fund (CPF). The Capital Projects Fund provides $10 billion to states, territories, freely associated states, and Tribal governments to fund critical capital projects with a key priority to make funding available for reliable, affordable broadband infrastructure. **Several states, including Nevada, New York, Maryland, and Massachusetts, are using CPF funds to install Free Apartment Wi-Fi networks in MDUs.**

**CHART 2 | How to make free Wi-Fi available to residents**



# BEAD requires states to connect 9,417 MDUs that the FCC National Broadband Map has identified as unserved and underserved.

Free Apartment Wi-Fi is the most cost-effective way to meet this requirement. In addition, there are 75,378 MDUs that are eligible for the priority use of BEAD funds. Many of these buildings are highly likely to be unserved or underserved and states should follow NTIA's MDU challenge process guidelines to determine which need to be prioritized for BEAD funding.

**CHART 3 | Buildings required to be connected by BEAD and eligible buildings requiring challenge process review**

| State Name | Buildings Required by BEAD | Eligible Buildings Requiring Challenge Process Review |
|---|---|---|
| Alabama | 336 | 1,044 |
| Alaska | 82 | 109 |
| Arizona | 129 | 1,888 |
| Arkansas | 113 | 691 |
| California | 247 | 8,293 |
| Colorado | 128 | 1,201 |
| Connecticut | 94 | 654 |
| Delaware | 44 | 135 |
| District of Columbia | 4 | 452 |
| Florida | 1,023 | 6,782 |
| Georgia | 183 | 2,398 |
| Hawaii | 385 | 251 |
| Idaho | 14 | 301 |
| Illinois | 749 | 1,863 |
| Indiana | 83 | 1,301 |
| Iowa | 14 | 601 |
| Kansas | 34 | 575 |
| Kentucky | 160 | 639 |
| Louisiana | 98 | 1,050 |
| Maine | 142 | 27 |
| Maryland | 64 | 1,270 |
| Massachusetts | 137 | 1,483 |
| Michigan | 233 | 1,953 |
| Minnesota | 128 | 1,237 |
| Mississippi | 45 | 853 |
| Missouri | 146 | 1,023 |
| Montana | 42 | 100 |
| Nebraska | 15 | 315 |
| Nevada | 102 | 951 |
| New Hampshire | 13 | 117 |
| New Jersey | 40 | 1,418 |
| New Mexico | 41 | 516 |
| New York | 919 | 9,455 |
| North Carolina | 614 | 1,674 |
| North Dakota | 13 | 223 |
| Ohio | 400 | 2,326 |
| Oklahoma | 48 | 990 |
| Oregon | 65 | 1,043 |
| Pennsylvania | 58 | 1,696 |
| Rhode Island | 5 | 241 |
| South Carolina | 308 | 806 |
| South Dakota | 30 | 192 |
| Tennessee | 231 | 1,611 |
| Texas | 947 | 8,458 |
| Utah | 29 | 414 |
| Vermont | 8 | 45 |
| Virginia | 115 | 1,562 |
| Washington | 227 | 1,711 |
| West Virginia | 11 | 182 |
| Wisconsin | 298 | 1,201 |
| Wyoming | 23 | 57 |
| **National** | **9,417** | **75,378** |

# A state action plan for deploying Free Apartment Wi-Fi.

The first step in leveraging Free Apartment Wi-Fi to cost-effectively meet a state's obligations for connecting households in MDUs is to ensure that the state has the correct list of MDUs that are unserved or underserved. EducationSuperHighway can provide states with a list of buildings that are highly likely to be unserved or underserved to include in their Initial Proposals and support states in implementing NTIA's MDU challenge process guidelines to validate the FCC National Broadband Map. We also can help states design and implement Free Apartment Wi-Fi procurement or grant programs to connect unserved and underserved MDUs.

### 1. Commit BEAD and DEA funding to deploy Free Apartment Wi-Fi programs.

The $1.2 trillion Infrastructure Investment and Jobs Act (IIJA) includes $45 billion in the BEAD program and Digital Equity Act that can be used to install Free Apartment Wi-Fi networks. Congress established these networks as a priority broadband deployment under IIJA, and states should include funding for Free Apartment Wi-Fi in the broadband affordability plans they submit to the National Telecommunications and Information Administration (NTIA).

### 2. Include all Free Apartment Wi-Fi eligible MDUs in BEAD Initial Proposals.

BEAD requires states to connect all 9,417 apartment buildings that the FCC National Broadband Map has identified as unserved and underserved. Free Apartment Wi-Fi is the most cost-effective way to meet this requirement. In addition, there are 75,378 buildings that are eligible for the priority use of BEAD funds. EducationSuperHighway can support states with data and model language for Volume 1 of their Initial Proposals to maximize BEAD funding for Free Apartment Wi-Fi programs.

### 3. Follow NTIA's guidance to go beyond the FCC Broadband Map and determine the connectivity status for MDUs.

NTIA's recent guidance recommends that states investigate the connectivity status of BEAD-eligible MDUs beyond those listed as unserved on the FCC National Broadband Map. The map identifies multifamily housing developments as one Broadband Serviceable Location (BSL), which means it does not represent broadband availability of the individual units, significantly understating the number of unserved and underserved MDUs. NTIA's BEAD Challenge Process Policy includes a BEAD Model Challenge Process that states can adopt in its entirety to complete Volume 1 of BEAD Initial Proposals.

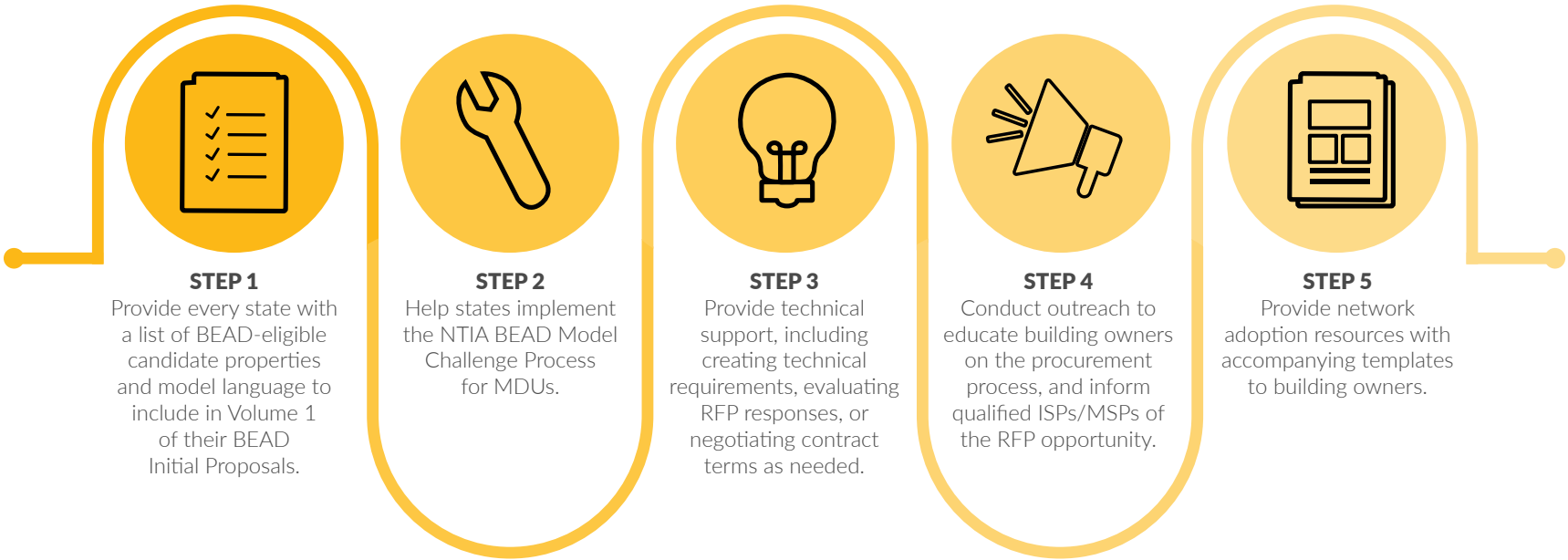
### 4. Work with EducationSuperHighway to identify priority buildings, estimate budgets and develop a statewide implementation program.

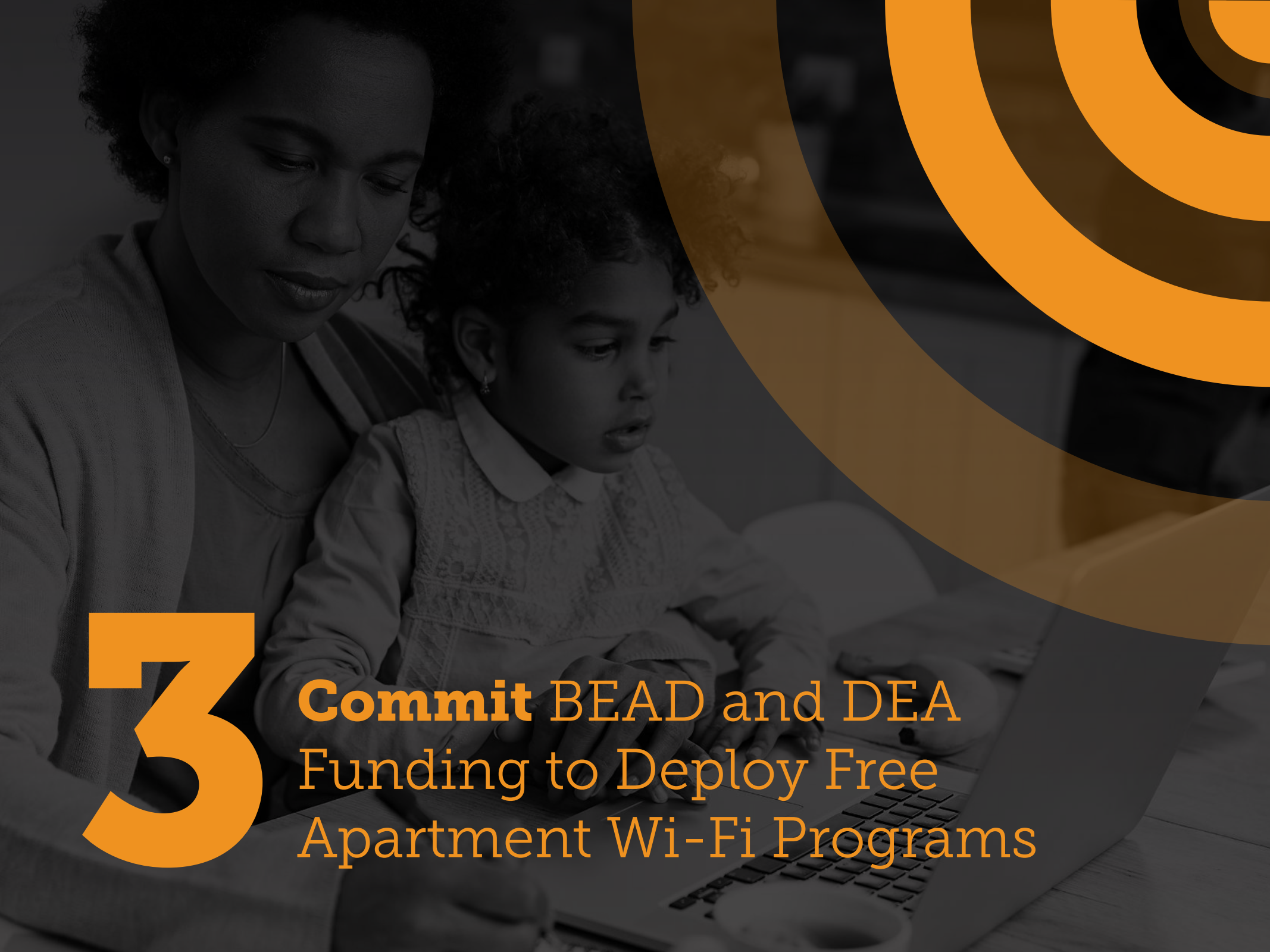
EducationSuperHighway can support states with data and model language for Volume 1 of their Initial Proposals to maximize BEAD funding for Free Apartment Wi-Fi programs. Our Free Apartment Wi-Fi Dashboard provides planners with state- and city-level data on the number of buildings eligible for public funding, the unconnected households and populations reached, and the estimated deployment costs. Our team also works with states to design their procurement or grant programs. Additionally, we provide technical and procurement support at the local level, assisting with the building owner and service provider outreach and developing awareness campaigns for resident adoption.

# How EducationSuperHighway can help states develop and execute their Free Apartment Wi-Fi strategies.

EducationSuperHighway helped states close the classroom connectivity gap by connecting their schools. Now, we are helping states address the broadband affordability gap so that no home is left offline. Our new Free Apartment Wi-Fi Dashboard provides planners with state- and city-level data on the number of eligible buildings, the unconnected households and populations reached, and the estimated costs of deployment. This data makes it simple for states to include Apartment Wi-Fi in the Initial Proposals and Five-Year Action Plans they are required to submit to NTIA. In addition, EducationSuperHighway is partnering with states to design and execute their Apartment Wi-Fi implementation plans.

**CHART 4 | How EducationSuperHighway makes it easy for states to design and implement a Free Apartment Wi-Fi program for BEAD-eligible MDUs**





# 3 **Commit** BEAD and DEA Funding to Deploy Free Apartment Wi-Fi Programs

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The installation of internet and Wi-Fi in multi-unit residential buildings, including the monthly costs and maintenance during the period of performance of the grant (up to four years), is a priority, eligible use of BEAD funds. Specifically, BEAD requires Eligible Entities to prioritize deployments to residential buildings that:

1. Have a substantial share of unserved households; or,
2. Are in locations where the number of households with an income at or below 150% of the poverty line is higher than the national percentage.[5]

**CHART 5 | Why Free-Apartment Wi-Fi networks are a priority for states**

Free Apartment Wi-Fi networks in substantially unserved affordable multifamily housing are recognized as a priority broadband deployment strategy under the IIJA. These projects:

| Meet the Goal | Meet the Criteria | Meet the Requirement |
|---|---|---|
| Meet every goal of the IIJA by promoting broadband access, adoption, affordability, digital equity, and inclusion. | Meet the criteria of a "priority broadband project" as the networks can be deployed in high-poverty areas, provide high-speed, symmetrical broadband service, and be deployed more quickly than other types of broadband service projects. | Help states meet NTIA's middle-class affordability requirement for states to ensure that all consumers have access to affordable high-speed internet. |

## Congress has provided the resources needed to accelerate closing the digital divide in affordable public and private multifamily housing.

Congress and NTIA have clearly stated that BEAD funding may be used where only some of the households in a building are unserved.

**The BEAD Notice of Funding Opportunity (NOFO) outlines that an eligible entity may use grant funds to competitively award subgrants for:**

(4) Installing internet and Wi-Fi infrastructure or providing reduced-cost broadband within a multi-family residential building, with priority given to a residential building that has substantial share of unserved households or is in a location in which the percentage of individuals with a household income that is at or below 150% of the poverty line applicable to a family of the size involved is higher than the national percentage of such individuals;[6]

It also states that "in ensuring deployment of service to all unserved and underserved locations within its jurisdiction, the Eligible Entity may opt to fund the deployment of Wi-Fi infrastructure to multifamily buildings that lack high-speed broadband access in their entirety or contain units that lack such access."[7]

To implement this strategy, states must include Free Apartment Wi-Fi in their Initial Proposal to NTIA in 2023 and their Final Proposal in 2024.

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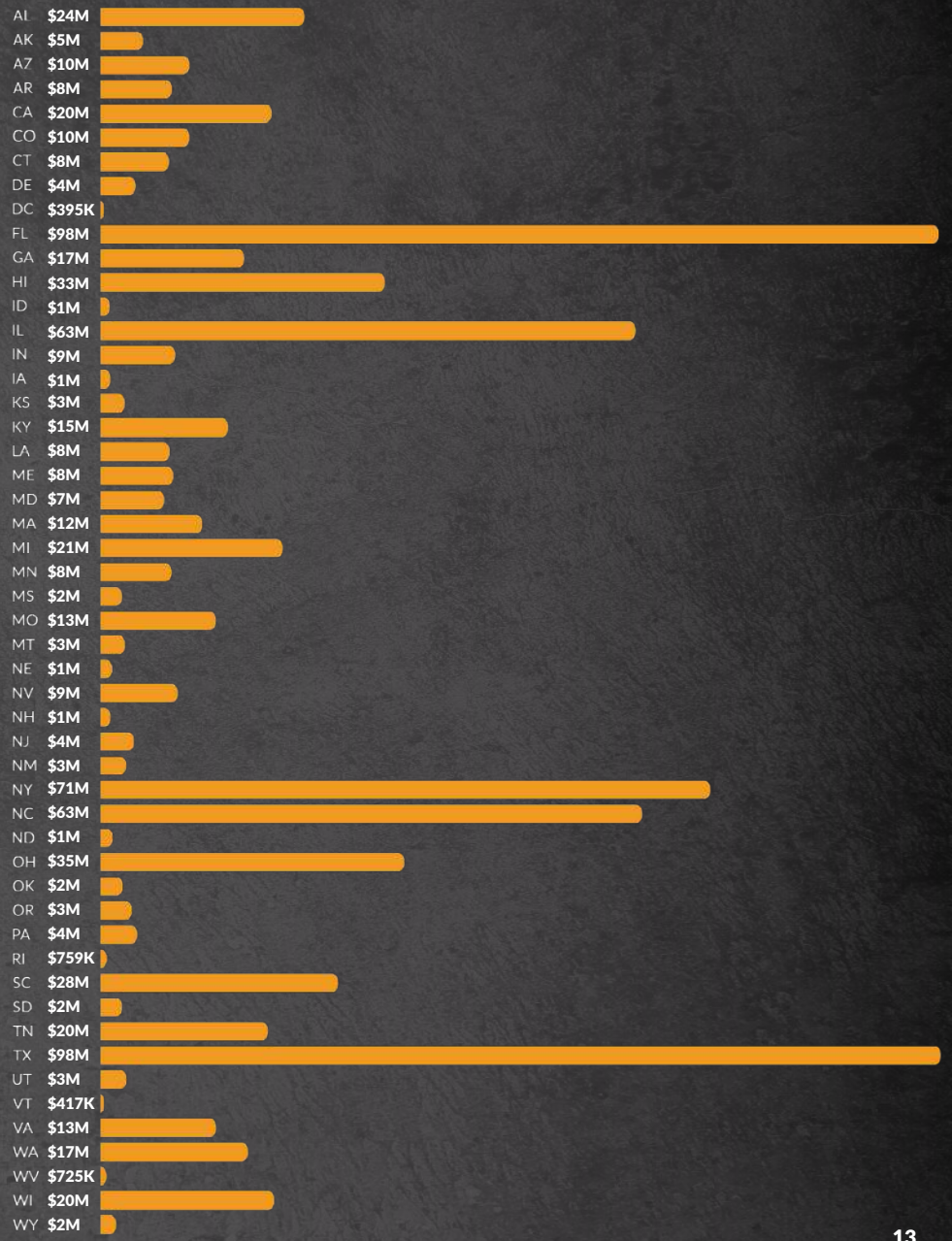
# 3 Commit BEAD and DEA Funding to Deploy Free Apartment Wi-Fi Programs

**Leveraging BEAD funds to deploy Free Apartment Wi-Fi is one of the most cost-effective broadband deployment strategies available to states, with the potential to close the digital divide for 6.5 million unconnected Americans.**

The installation of the Wi-Fi infrastructure, including the cost of switches and Wi-Fi access points and the labor to pull ethernet cables to the appropriate places in the building, **averages just $650 per apartment for an entire Free Apartment Wi-Fi network.** In comparison, the cost to pull a new wire into each unit averages $1,200, and the resident would still be burdened with purchasing or leasing equipment, signing up for service, and troubleshooting their own internet connection. Chart 6 outlines the low cost by state to deploy Free Apartment Wi-Fi in 9,417 MDUs that the FCC National Broadband Map identifies as unserved or underserved.

When preparing a data list of candidate properties, EducationSuperHighway's Free Apartment Wi-Fi Dashboard provides planners with state- and city-level data on the number of eligible buildings, estimates on the unconnected households and populations reached, and the estimated costs of deployment. EducationSuperHighway can provide states with address-level data for the buildings eligible for BEAD-funded Free Apartment Wi-Fi networks to include in Volume 1 of their Initial Proposals. This data will contain both the unserved and underserved buildings required by the FCC National Broadband Map, and each state's share of the 75,378 buildings nationally that require challenge process review.

**CHART 6 | BEAD funds required to deploy Free Apartment Wi-Fi in MDUs that the FCC National Broadband Map identifies as unserved or underserved**



# 3 Commit BEAD and DEA Funding to Deploy Free Apartment Wi-Fi Programs

Some states have already started deploying Free Apartment Wi-Fi using the U.S. Department of the Treasury's American Rescue Plan Act's (ARPA) Capital Projects Fund (CPF). Free Apartment Wi-Fi programs provide an eligible and efficient use of these funds to address the broadband needs of residents living in affordable MDUs in an impactful way. Several states are developing their own plans and proposals or waiting for approval from NTIA, but Nevada and Massachusetts are leading the way.

- **Cost-effective:** These networks can be delivered at an average of just $650 per apartment for an entire Free Apartment Wi-Fi network. In comparison, the cost to simply pull a new wire into each unit averages $1,200 and the resident would still have the burden of purchasing or leasing equipment, signing up for service, and troubleshooting their own internet connection.
- **High Impact:** State action can connect 6.5 million unconnected people in 4 million households to reliable high-speed home internet.
- **Targeted:** Free Apartment Wi-Fi can effectively target those most impacted by the digital divide. In America's most unconnected communities, where 37% of households do not have home broadband, 20-25% of the digital divide is concentrated in affordable multifamily apartment buildings.
- **Critical Learning:** Using Capital Projects Fund to deploy Free Apartment Wi-Fi networks can provide state planners with valuable experience to make implementing Apartment Wi-Fi programs funded by BEAD and DEA more seamless and rapid.

**CASE STUDY | Nevada is leading the way in allocating CPF dollars to improve broadband infrastructure in MDUs.**

In January 2023, Nevada Governor Joe Lombardo and the Office of Science, Innovation and Technology (OSIT) launched an ambitious new program allocating Capital Project Fund (CPF) dollars to increase internet connectivity and available speeds by constructing last-mile fiber to Nevada's Public Housing Multi-Dwelling Units (MDUs).

The new $55 million program aims to connect 40,000 residential units by 2026, bringing high-speed broadband services at a minimum of 100 Mbps symmetrical to low-income Nevadans living in tax-subsidized multi-dwelling units. CPF funds will be used to upgrade connections to the point of demarcation[8] for the MDU and to improve internal wiring and wired and wireless network equipment within the MDU. The program will begin to bring modern, scalable broadband infrastructure into some of the most disadvantaged communities in Nevada. OSIT will work with partners at the state's three regional housing authorities and other community leaders to identify Internet Service Provider partners. In addition to upgrading infrastructure in the MDUs, winning service providers are encouraged to extend coverage to nearby residential areas that are also unserved.

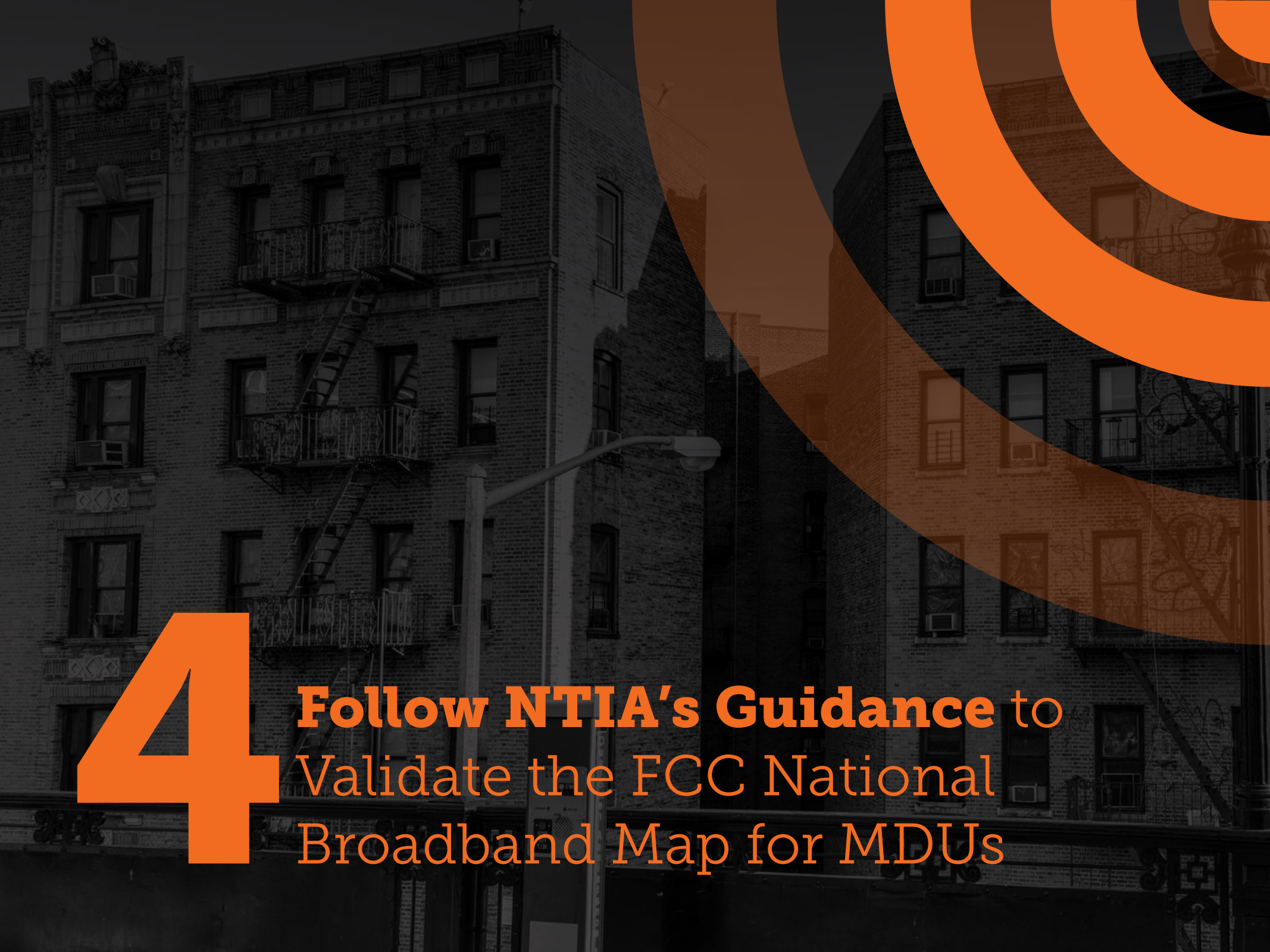
# 3 Commit BEAD and DEA Funding to Deploy Free Apartment Wi-Fi Programs

**CASE STUDY | Massachusetts Digital Equity Partnerships Program prioritizes free Wi-Fi in affordable private and public housing developments subsidized by federal or state sources.**

The state of Massachusetts set up a $50 million Broadband Innovation Fund to bridge the digital divide as a component of the Commonwealth's first round of State ARPA legislation. In September 2022, the Massachusetts Technology Collaborative (MassTech) and Massachusetts Broadband Institute (MBI) issued an RFP for its **Digital Equity Partnerships Program**, with the goal of ensuring that economically disadvantaged households across the Commonwealth can access a wide range of digital equity support and services.

MBI identified six program areas that align with the legislative goals of the fund. Alongside programs to boost digital literacy, distribute connected devices and offer free Wi-Fi in public spaces, they have prioritized Wi-Fi in affordable private, non-profit, and public housing developments based on the lessons learned from a series of pilot Wi-Fi projects established in public and affordable housing during the pandemic. In addition, program partners will work with affordable housing developers, public housing officials, and other property owners to identify properties whose residents face affordability or adoption barriers, including language barriers, lack of documentation, outstanding bills, or digital literacy challenges.

Once properties are identified, the successful partners will design technology solutions that provide in-unit Wi-Fi internet access and a building-level internet subscription held by the property owner. Their model involves the partner granting funds to the property owner to procure the services directly from a qualified vendor and provide support for installation and ongoing maintenance.



# 4 **Follow NTIA's Guidance** to Validate the FCC National Broadband Map for MDUs

# 4 Follow NTIA's Guidance to Validate the FCC National Broadband Map for MDUs

The FCC National Broadband Map is the primary tool by which NTIA will allocate BEAD funds to states and territories to help expand broadband access for all. Unfortunately, the map identifies multifamily housing developments as one single Broadband Serviceable Location (BSL), limiting the ability of states to determine whether the individual households within the MDU have access to reliable, 25/3 Mbps, low-latency broadband service. Without accurate unit-by-unit data, the maps undercount the number of unconnected households living in affordable MDUs, negatively impacting the BEAD and DEA funding states need to connect these households.

There are many reasons why an MDU might actually be unserved or underserved even though it is classified as served on the FCC National Broadband Map. The FCC did not collect data on the availability of broadband at the unit level in MDUs, so there are many instances where a BSL shows as served on the FCC National Broadband Map, but the individual units within the MDU do not receive service:

**CHART 7 | Scenarios in which an MDU can be misclassified as served at the BSL level**

**ISP Offering**

The FCC National Broadband Map can show a multi-tenant building as being entirely served when only the building manager's office or commercial space is served, despite there being "a substantial share of unserved households" as defined in the Apartment Wi-Fi provision of the IIJA.

**SCENARIO 1**

**State of Disrepair**

The inside wiring infrastructure is in a state of disrepair. Many of these affordable MDUs are 30-40+ years old, and ISPs have simply not adequately maintained the wiring.

**SCENARIO 2**

**No Inside Wiring**

An ISP has fiber-to-the-curb or a building but has no inside wiring infrastructure to the unit. Much of the affordable housing stock predates broadband. Fifty-one percent of public housing units were built before 1975.[9]

**SCENARIO 3**

**Unable to Deliver Speeds**

ISP's equipment located in an MDF, IDF, pedestal, node, or potentially the central office, is not capable of delivering 25/3 or 100/20 across ALL households simultaneously without overbuilding the entire MDU.

**SCENARIO 4**

**Lack of Service**

The ISP is able to deliver fiber to the building (FTTB) within ten days but only offers business internet services and does not actually provide residential service.

**SCENARIO 5**

**Deadline Not Met**

Non-cellular licensed Fixed Wireless Access providers without existing equipment/service in the MDU could not meet the 10-day installation window. The individual household of an MDU does not have the ability to authorize a Licensed FWA provider to access rooftops and telco rooms and run new wiring all the way to their unit — this would require an agreement and possibly a permit with the building owner.

**SCENARIO 6**

**Technology Troubles**

Technology is not capable of delivering 25/3 or 100/20 across ALL households simultaneously, e.g., the provider offers 100/20 DSL service but needs to use pair-bonding to achieve that speed. In a 100-unit MDU, 100 DSL lines would be bonded into 50 connections, leaving 50 households served and 50 unserved.

**SCENARIO 7**

**User Limit**

Cellular, licensed Fixed Wireless Access providers cap total users per tower on their network. All 100 households in an MDU could not simultaneously use service once that customer cap is met because they are all using the same tower, e.g., the T-Mobile website states, "To ensure our home internet customers have the best connection, each area where service is available serves a set number of households."

**SCENARIO 8**

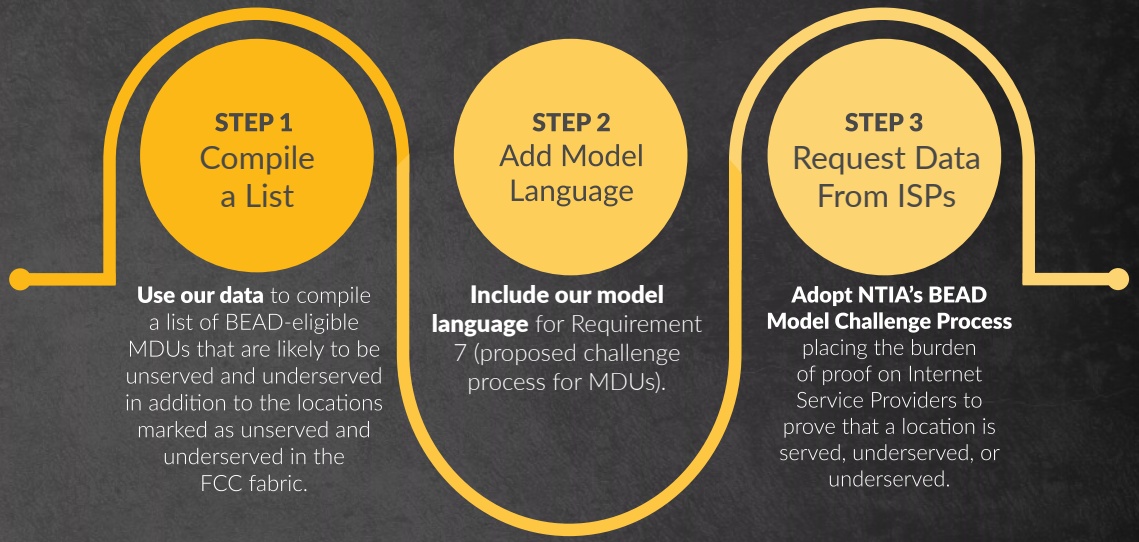
# NTIA's guidance allows states to list BEAD-eligible MDUs, beyond those listed as unserved or underserved on the FCC National Broadband Map, in their Initial Proposal.

In recognition of the many potential reasons an MDU identified in the FCC map as served might actually be unserved or underserved at the unit level, NTIA recently released its **BEAD Challenge Process Guidance** and **BEAD Model Challenge Process** to ensure states identify the full universe of locations that are eligible for BEAD funding. According to NTIA's guidance, states must "use the National Broadband Map as a starting point to identify the list of BEAD-eligible locations within their jurisdiction, prior to conducting a challenge process."[10] For MDUs, states can request approval to modify the set of locations it proposes to make eligible for BEAD funding using supplemental data not present in the FCC National Broadband Map by including them in the Initial Proposal submitted to NTIA.

**EducationSuperHighway has prepared a list of potential BEAD eligible buildings for every state to include in Volume 1 of their Initial Proposals in order to ensure all MDUs that are unserved or underserved at the unit level are eligible for BEAD funding. We have also prepared model language for states to use in Volume 1 of their Initial Proposals.**

States can submit our data to NTIA as part of their review of their eligible locations on the FCC's National Broadband Map, then use those revised locations to conduct a challenge process.

**CHART 8 | BEAD Model Challenge Process enables states to make modifications to reflect data not present in the FCC National Broadband Map**



## Running the Challenge Process

NTIA has made it easy for states to ensure all eligible MDUs are correctly identified. By adopting the BEAD Model Challenge Process in its entirety, states place the burden of proof on Internet Service Providers (ISPs) to prove that a location is served, underserved, or underserved. During the rebuttal phase, an ISP can rebut the reclassification of MDU locations but must provide sufficient evidence demonstrating Availability, Speed, Latency, and Data Cap compliance for all locations within an MDU list, which includes unit-level evidence. The broadband office will determine the location's classification, declaring the challenge "sustained" or "rejected." After conducting the challenge process, states submit their results and final eligibility determination to NTIA "to approve or reverse." States must then publish a notice with the final determination of eligible locations 60 days before allocating grant funds.

**CASE STUDY | Accurately accounting for under and unserved households in Oakland, CA**

Since the November 18, 2022 release of the FCC National Broadband Map, the City of Oakland has focused on amending location and availability discrepancies for its multifamily dwellings. To best serve Oakland's most vulnerable, they want to be well positioned to capture as much of the unprecedented federal and state broadband funding opportunities as possible. To do so, they need an accurate accounting of the underserved and unserved households in Oakland, many of which reside within multifamily properties.

### Identifying Missing or Misclassified Buildings

On behalf of the City, #OaklandUndivided performed a desktop assessment of 141 multi-dwelling properties serving Oakland families from low-income backgrounds within the CostQuest Fabric data. Their location analysis revealed 3,850 missing units, 56 missing buildings, and 222 misidentified building types. Misidentified BSLs (Broadband Service Locations) include those listed as businesses rather than residential properties. Using their analysis, #OaklandUndivided submitted 500 location challenges.

### Assessing Internal Wiring

Following EducationSuperHighway's recommendation to perform on-site physical assessments, #OaklandUndivided, in partnership with the Communications Workers of America (CWA) Union, conducted an internal wiring assessment of twelve public housing complexes. Of the twelve surveyed, nine were found to be reliant on legacy infrastructure as defined by the state statute and should be considered underserved. The service status of these properties is currently mislabeled as "served" in the FCC Maps. As such, #OaklandUndivided has submitted nine availability challenges on behalf of the City of Oakland. The cost to Oakland for surveying the twelve buildings was $167 per building.

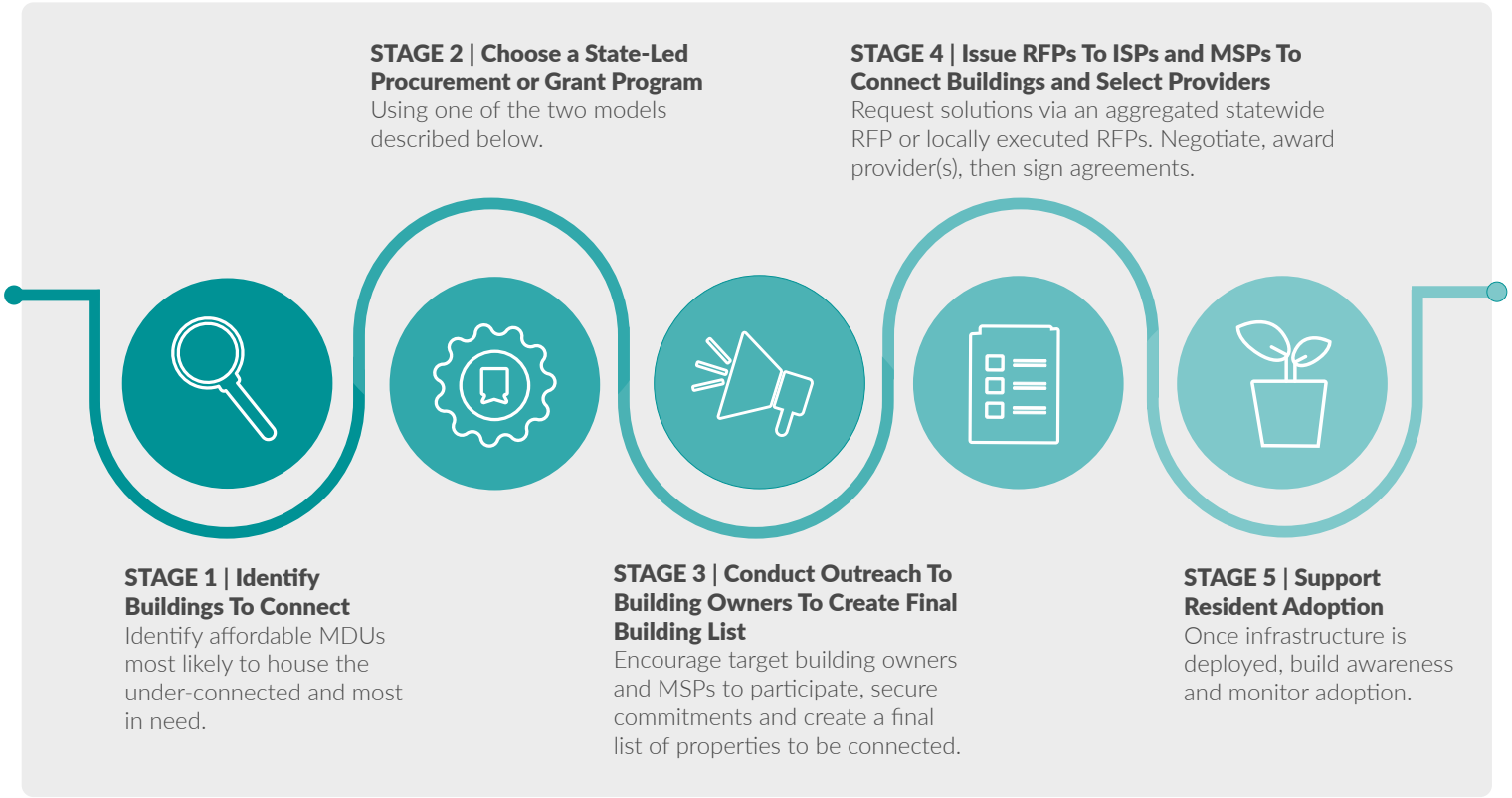
# 5 **Implementing** Free Apartment Wi-Fi Programs

# 5 Implementing Free Apartment Wi-Fi Programs

**EducationSuperHighway will help states implement their Apartment Wi-Fi Programs with free procurement and technical consulting. This is the same approach we used to help all 50 states connect 99.3% of K-12 schools to high-speed broadband.**

Our pilot programs have shown that properties with 50 or more units should be priority locations for Free Apartment Wi-Fi, as they are the size at which the economics of the program become attractive for managed service providers. In addition, buildings with 50 or more units provide an opportunity to reduce costs by taking advantage of wholesale internet backhaul pricing, thereby increasing the attractiveness of Free Apartment Wi-Fi network installations.

**CHART 9 | Key stages in implementing a Free Apartment Wi-Fi program**



## Choosing an Implementation Model

**When implementing a Free Apartment Wi-Fi Program, states should choose between an Aggregated Statewide RFP model, where the state issues a single aggregated statewide RFP for all eligible buildings, or a State Grant Program model, where individual building owners issue RFPs and submit costs as part of the grant application.**

States implementing the aggregated RFP model will be able to directly manage the procurement and implementation process and benefit from bulk economies of scale. States implementing the grant program model will provide more flexibility to building owners to procure their own provider, while serving as a trusted broker in the process. We recommend states choose between two operating models when implementing their programs.

**CHART 10: Free Apartment Wi-Fi Implementation Models**

### Model 1: Aggregated Statewide RFP

1. **State issues a single aggregated statewide RFP for all eligible buildings.**
2. **State defines Wi-Fi program metrics and required technical specifications.**
3. **State serves as the fiduciary administrator.**

- State determines the best use of funds to implement a Free Apartment Wi-Fi Program and manages the procurement process, resulting in less individual building owner/stakeholder resource burden.
- Greater opportunity for bulk discounts due to economies of scale across multiple properties.
- Fewer total contracts to review, improving the speed of deployments.
- Tailored design of networks and solutions for each building.

### Model 2: State Grant Program

1. **Individual building owners issue RFPs and submit costs as part of the grant application.**
2. **State reviews and approves individual grant applications.**
3. **Individual building owners/stakeholders are responsible for fiduciary administration.**

- Building owners/stakeholders determine the best use of funds to implement a Free Apartment Wi-Fi Program and manage the procurement process.
- State grant team serves as a trusted broker between applicants and service providers.
- Tailored design of networks and solutions for each building.

# 5 Implementing Free Apartment Wi-Fi Programs

## Partner With EducationSuperHighway To Identify Priority Buildings, Estimate Budgets, and Develop a Statewide Program.

Our program experts help states design their procurement or grant programs; we also assist partners by:

- Providing lists of buildings eligible for BEAD funded Free Apartment Wi-Fi networks and estimated budgets.
- Helping states implement the NTIA BEAD Model Challenge Process for MDUs.
- Assisting partners with the design and implementation of their Free Apartment Wi-Fi aggregated procurement process or grant program.
- Supporting outreach to qualified ISPs/MSPs to inform them of the RFP opportunity.
- Conducting outreach campaigns to building owners to educate them about the Free Apartment Wi-Fi opportunity.
- Providing technical and procurement support at the local level.
- Supporting awareness campaigns for resident adoption.

**CHART 11 | Model #1 Roles & Responsibilities: Aggregated Statewide RFP**

| | |
|---|---|
| **State** | • Establish a procurement program and release a single RFP/RFQ listing all qualified MDU properties.<br>• Outreach to ISPs and MSPs announcing the program.<br>• Co-host information sessions or webinars with EducationSuperHighway.<br>• Review RFP responses and execute contracts with selected ISP/MSP vendors. |
| **EducationSuperHighway** | • Provide a list of BEAD-eligible candidate properties.<br>• Provide technical support, including creating technical requirements, evaluating RFP responses, or negotiating contract terms as needed.<br>• Conduct outreach to educate building owners on the procurement process.<br>• Support outreach to qualified ISPs/MSPs to inform them of the RFP opportunity.<br>• Provide network adoption resources with accompanying templates to building owners. |
| **Municipalities, Housing Authorities, and Building Owners** | • Confirm commitment to program participation.<br>• Attend the information session.<br>• Provide site access and property management information.<br>• Sign access/entry/service agreement(s) with ISP/MSP.<br>• Provide network adoption support after installation. |
| **ISP/MSP** | • Attend an optional information session to learn more about the procurement opportunity.<br>• Submit bids for projects appropriate to their resource capacity and operation area, including design and cost estimates.<br>• Negotiate terms and conditions with the state.<br>• Install, operate, and provide network adoption support per program requirements.<br>• Support outreach to building owners post-award. |

**CHART 12 | Model #2 Roles & Responsibilities: Individual State Grant**

| | |
|---|---|
| **State** | • Establish a grant program for municipalities, non-profits, and private building owners to apply for funding.<br>• Design grant eligibility criteria.<br>• Review grant submissions and award funding to selected applicants.<br>• Collect and review grant reports from grantees. |
| **EducationSuperHighway** | • Provide a list of BEAD-eligible candidate properties interested in Apartment Wi-Fi.<br>• Conduct outreach campaign, alerting building owners of eligible properties to the upcoming grant program and benefits to residents and owners.<br>• Create resources for grantees, which will include:<br>  ◦ A list of ISPs in their area who can provide backhaul solutions<br>  ◦ A list of Managed Service Providers owners can contact to solicit a design and pricing proposal<br>  ◦ RFP templates<br>  ◦ Cost comparison templates<br>  ◦ Network adoption materials |
| **Municipalities, Housing Authorities, and Building Owners** | • Identify preferred vendors to complete the installation of the Apartment Wi-Fi network.<br>• Submit a proposal and grant application through the state grant program process.<br>• Execute service contract(s) with all vendors.<br>• Submit a timely report to the state per grant requirements. |
| **ISP/MSP** | • Bid on solicitations from Municipalities/PHAs/Building Owners that include design and cost estimates consistent with grant program requirements.<br>• Negotiate terms and conditions with the grantee.<br>• Install, operate, and provide network adoption support to the grantee. |

## Outreach to Building Owners and ISPs

During our mission to close the digital divide in America's K-12 schools, EducationSuperHighway helped thousands of school districts upgrade their broadband infrastructure. To do this, we developed technical and procurement support programs that made it easy for schools to upgrade. These included help designing upgrades, RFP templates, data to identify the best procurement options and help connecting with vendors who could bid on their RFPs. **We have built a similar program to make it easy for states and building owners to deploy free Wi-Fi networks in BEAD-eligible MDUs.**

If a state chooses the Aggregated Statewide RFP model, our team will conduct outreach to educate building owners on the opportunity and procurement process and support outreach to qualified ISPs/MSPs to inform them of the RFP opportunity. When opting for the State Grant Program model, our team will conduct outreach campaigns, alerting owners of eligible properties to the upcoming grant program and outlining the benefits of the program. Additionally, we will create resources for building owners to make it easy for them to apply for funding to cover up-front costs, including directories of ISPs in their area who can provide backhaul solutions and the Managed Service Providers they can contact to solicit a design and pricing proposal. To support effective procurement, we'll provide RFP templates, cost comparison templates, and hands-on support to outsource the design, installation, and maintenance of their networks.

## Network Awareness and Adoption

**There are no broadband adoption problems in airports, hotels, and coffee shops.**

Unserved and unconnected households in private, affordable apartment buildings and public housing represent a significant percentage of the most unconnected households in America: renters whose incomes are below the federal poverty threshold. Although many of these households are offline because they cannot afford an available internet connection, many residents are unserved or underserved because broadband infrastructure and residential wiring has not been installed or upgraded. Deploying free Wi-Fi into these buildings, just as cities have in airports, libraries, and other community spaces, can significantly impact the digital divide by removing the barriers that keep under-resourced households offline.

Free Apartment Wi-Fi networks upgrade existing network infrastructure, solve the affordability problem by making internet access free, and help overcome the complex awareness, trust, and enrollment barriers by eliminating the need for households to sign up for broadband service. Instead, all a household needs to do is find and connect to the network available in their building—something that every American with a connected device does on a regular basis. EducationSuperHighway supports building owners with network adoption and digital literacy resources to help residents connect. We provide free multilingual communication templates, outreach collateral, and guidance to help build awareness and monitor adoption.

# 5 Implementing Free Apartment Wi-Fi Programs

**CASE STUDY | Partnering with the City of Charlotte to bring free high-speed broadband internet to 2,000 households**

EducationSuperHighway successfully supported the City of Charlotte's AccessCharlotte Program, a CARES & ARPA-funded initiative developing a range of investments to promote digital inclusion and equity across the City. Our support focused on the program's broadband internet grant to bring free internet to 2,000 households within privately owned naturally occurring affordable housing (NOAH)[11] MDUs.

It is incredibly challenging for cities to engage with NOAH property owners since, as private unsubsidized businesses, there are few past relationships for the city to leverage. Therefore, EducationSuperHighway was a natural partner to assist Charlotte through our Outreach and Apartment Wi-Fi programs. Our team ran an outreach campaign that effectively communicated internet infrastructure benefits and technical details to property owners and gained their commitment to participate in the program. In addition, we provided budgetary and program criteria guidance resulting in the City selecting 46 eligible properties to participate in the program. Twenty-nine entities owned these properties, and in a two-month campaign window, we engaged 17 entities (59%) in detailed conversations, 14 (82%) of which expressed interest in participating in AccessCharlotte, representing 4,750 potential units. The process resulted in the commitment of 2,791 units to fulfill the City's goal to connect 2,000 households to free, high-speed internet.

# 5 Implementing Free Apartment Wi-Fi Programs

**CASE STUDY | Metropolitan Area Planning Council and Urban Edge**

EducationSuperHighway has supported the Metropolitan Area Planning Council (MAPC) and Urban Edge, two of Massachusetts' most storied organizations, on a first-of-its-kind project involving the implementation of a neighborhood Wi-Fi solution.

Seeing a need for affordable internet connectivity that had been exacerbated by the COVID-19 pandemic, Urban Edge, a national leader in the affordable housing and community development field, has moved aggressively toward providing a cost-effective, high-quality, and sustainable solution to its residents in Roxbury and Jamaica Plain neighborhoods of Boston, with a special focus on the corridor connecting Egleston Square and Jackson Square. MAPC, a regional planning agency serving the people who live and work in the 101 cities and towns of Metropolitan Boston, serves as the project's chief advisor to Urban Edge. This project covers approximately 50 properties and 900 units within Urban Edge's portfolio and other neighborhood community development corporations that have existing relationships with both MAPC and Urban Edge.

EducationSuperHighway has established relationships with both organizations to lend support where needed. In this case, EducationSuperHighway has provided baseline guidance on network design, procurement best practices, service level agreements, and minimum technical standards. These standards have been incorporated into RFI and RFQ templates that have been approved by Urban Edge and MAPC to be used to solicit vendor responses. EducationSuperHighway has also provided guidance on managing vendor relationships and establishing an evaluation rubric, mainly from a technical aspect.

Examples of technical and project support include:

- Reviewing vendor proposals and network designs
- Participating in vendor interviews
- Benchmarking equipment
- Network management
- Estimating infrastructure construction costs
- Analyzing the total cost of ownership and long-term sustainability of the solutions

EducationSuperHighway will continue supporting Urban Edge and MAPC through the completion of the vendor selection process and will stay involved as a resource throughout the implementation and adoption phases of the project.

**For more about our data and metric calculations, please view the full version of the methodology. In addition, a digital version of this report is available here.**

## Data Sources

1. See Sec. 60102.4.f.4 of the IIJA.
2. American Economic Association, "Wired and Hired: Employment Effects of Subsidized Broadband Internet for Low-Income Americans," George W. Zuo (August, 2021)
3. Refers to 50+ unit buildings in areas with a high percentage of unconnected households, in high poverty census tracts, or designated as unserved or underserved broadband serviceable locations.
4. In some instances the physical construction of the buildings may require extending internet infrastructure into each affordable multifamily housing unit.
5. BEAD NOFO - SECTION IV.B.5.b.19.4
6. BEAD NOFO - SECTION IV.B.5.b.19.4
7. BEAD NOFO - SECTION IV.B.7.a.iii.b.1
8. Also known as a boundary point or network boundary point, a demarcation point is the physical point at which the public network of a telecommunications company ends and the private network of a customer begins.
9. "Broadband Challenges and Opportunities in Affordable Rental Housing." Kathryn de Wit, The Pew Charitable Trusts (April 3, 2023)
10. NTIA BEAD Challenge Process Guidance, Section 5, NTIA
11. "Naturally occurring affordable housing or "NOAH" means multi-unit rental housing where the majority of the units are affordable to individuals and families with incomes at or below 60 percent of the area median income, that otherwise does not receive place-based state or federal governmental subsidies." Law Insider.

## About EducationSuperHighway

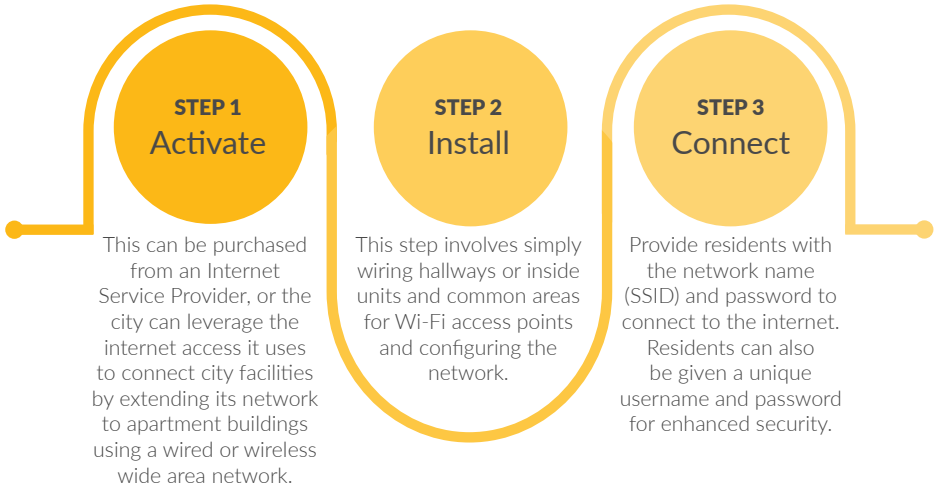
EducationSuperHighway is a national non-profit with the mission to close the digital divide for the 17 million households that have access to the internet but can't afford to connect. We focus on America's most unconnected communities, where more than 25% of people don't have internet.

From 2012-2020 we led the effort that closed the classroom connectivity gap. In 2013, only 10% of students had access to digital learning in their classrooms. Today, thanks to an unprecedented bi-partisan effort by federal, state, and school district leaders, supported by K-12 advocacy organizations, the classroom connectivity gap is closed — 47 million students are connected, and 99.3% of America's schools have a high-speed broadband connection.

## How Does Free Apartment Wi-Fi Work?

Improvements in Wi-Fi technology have made it possible to connect affordable MDUs to reliable broadband service simply by deploying Wi-Fi access points throughout the property and then connecting the Wi-Fi network to a fiber connection to the building.[1] Free Apartment Wi-Fi is modeled after the way Wi-Fi is delivered in most hotels today. Rather than buy a separate internet connection for each room, the hotel buys a single internet connection for the building and then installs a building-wide Wi-Fi network. The hotel then makes it easy for guests to use the Wi-Fi by giving them the network name (SSID) and password when they check in. There are no complicated forms to fill out, and the demand from guests has now made Wi-Fi a standard, free amenity in virtually every hotel.

**CHART 1 | How to make free Wi-Fi available in affordable apartment buildings.**




Wi-Fi infrastructure can be installed in as little as 60 days and with the improvements in Wi-Fi technology, Free Apartment Wi-Fi networks can deliver symmetrical speeds up to 1 Gbps to building residents. This exceeds both FCC guidelines and the targets in all of the recent and proposed federal broadband infrastructure programs.

**CHART 2 | A typical Free Apartment Wi-Fi design**

1 In some instances the physical construction of the buildings may require extending internet infrastructure into each affordable multifamily housing unit.

## What Does Free Apartment Wi-Fi Cost?

Rather than each household buying their own internet connection, the building owner procures a single internet connection for a property-wide Wi-Fi network available for all residents. This will provide the residents with better connectivity at a lower cost than options available to them from traditional retail Internet Service Providers. There are three costs that are incurred to install and operate a Free Apartment Wi-Fi network.

1. **Installation of the Wi-Fi infrastructure**
   This includes the cost of switches and Wi-Fi access points and the labor to pull ethernet cables to the appropriate places in the building. The installation of the Wi-Fi infrastructure, including the cost of switches and Wi-Fi access points and the labor to pull ethernet cables to the appropriate places in the building, **averages just $650 per apartment for an entire Free Apartment Wi-Fi network.** In comparison, the cost to simply pull a new wire into each unit averages $1,200, and the resident would still have the burden of purchasing or leasing equipment, signing up for service, and troublEducationSuperHighwayooting their own internet connection.

2. **Internet Access for the Building**
   This is the monthly cost of an internet connection that is plugged into the apartment's Wi-Fi infrastructure. This cost will vary by location, the speed of the internet connection, and whether the internet connection is provided by an ISP or is simply an extension of a city's existing network. In the latter case, most of the cost will be a one-time capital expenditure (CapEx) to install the links to the city network.

3. **Maintenance**
   This is the cost to monitor the Wi-Fi infrastructure and building internet access, replace any failed Wi-Fi equipment, and provide customer support. Given the reliability of Wi-Fi equipment and the low levels of customer support required, these costs are relatively limited and, in most cases, are minimal enough for building owners to absorb.

**CHART 3 | How does Free Apartment Wi-Fi differ from traditional internet options?[1]**

| Apartment Wi-Fi | Traditional |
|---|---|
| Designed for Apartment Buildings | Designed for Single-Family Homes |
| 1. **Service Availability:** Property-wide coverage, including common areas, with high availability service level agreements. | 1. **Service Availability:** In-unit only with "best-effort" service level. |
| 2. **Household Responsibility:** Connect to the network. No credit checks, contracts, data caps, or additional equipment are needed. | 2. **Household Responsibility:** Complicated sign-up process, lease/purchase equipment, managing data caps. |
| 3. **Technical Support:** Dedicated enterprise support for the property. Monitored 24x7x365 with a direct number to call. | 3. **Technical Support:** Resident responsible for self-support and troubleshooting. A general 1-800 number is available. |

1 Both options have access to monthly federal subsidies using the Affordable Connectivity Program (ACP).