April 17, 2023

Alan Davidson
Assistant Secretary of Commerce for Communications and Information
National Telecommunications and Information Administration
U.S. Department of Commerce
1401 Constitution Avenue, NW
Washington, DC 20230

RE: Comments on the Development of a National Spectrum Strategy, Docket No. 230308-0068

Dear Assistant Secretary Davidson:

Next Century Cities,[1] in coalition with South Bend, Indiana; Boston, Massachusetts; Syracuse, New York; and Access Humboldt, submits these comments in response to the National Telecommunications and Information Administration's ("NTIA") request for comments on developing a national spectrum strategy. As the NTIA has rightly pointed out, the United States has become increasingly dependent on secure, reliable access to radio frequency spectrum.[2] Access to spectrum is not just related to ensuring proper mobile phone usage, but it also enables municipalities to connect and serve their communities. Through the use of public WiFi, Citizens Band Radio Service, smart city work, and other spectrum-sharing models, local governments have taken incredible strides in providing connectivity.

Developing a national strategy to repurpose and reallocate new spectrum, the NTIA, in collaboration with the Federal Communications Commission ("FCC") and Office of Science and Technology Policy ("OSTP"), must value community spectrum needs with the same importance as industry stakeholders. Without this access, community connectivity will inevitably suffer. Key

[1] Next Century Cities is a nonprofit nonpartisan 501(c)(3) coalition of over 200 member municipalities that works collaboratively with local leaders to promote reliable and affordable broadband access.
[2] NTIA Request for Comment at 3.

public safety, economic growth opportunities, and digital equity and inclusion efforts impacts will also be reduced.

I. Community Input is Critical for Equitable Spectrum Deployment.

Municipalities have critical insights into how the wireless needs of their communities are evolving. NTIA should solicit input from local officials on how their communities utilize the unlicensed spectrum and examine how major spectrum users may be willing to revise current wireless deployment plans.

As more spectrum and deployment funding is made available, many communities are exploring how point-to-multipoint, fixed point-to-point, and other wireless solutions can be used to address broadband access gaps in their communities. Accordingly, a national spectrum strategy would be deficient without factoring in how municipalities could use the new spectrum.

A. Communities Have Clear Goals for Wireless Projects in the Short, Medium, and Long-Term.

The Covid-19 pandemic catalyzed efforts across the U.S. for municipalities, libraries, and school districts to experiment with WiFi and Citizens Broadband Radio Service ("CBRS") solutions to supplement broadband connectivity for residents. Many communities now see those types of projects as important parts of a broader digital equity and smart city portfolio. CBRS projects led by cities, school districts, and other anchor institutions have created civic private LTE networks dedicated to education and urban sensing functions.

For instance, the South Bend Community School Corporation and the City of South Bend recently launched a shared-use private LTE network over CBRS that will give supplementary access to moderate and low-income students in the Citywide Classroom South Bend Program. In this case, CBRS PLTE works alongside other solutions like ISP low-cost tiers, hotspots, and

community WiFi to ensure that students have the data they need to do their work, no matter where they are.

South Bend is by no means the only community that has piloted CBRS solutions in its markets. Las Vegas, Mesa, and others have also undertaken pilots. What is common throughout these cities is (1) an appetite and capacity to test new wireless innovation (2) an acknowledgment that spectrum innovation has a role in the future of cities - their resident services, city infrastructure, etc. (3) an understanding that new models like CBRS can be a meaningful complement to open WiFi, public-private infrastructure build-outs, one-to-one hardware programs, and other technology equity interventions.

B. Future Spectrum Sharing Should Utilize the Consumer Broadband Radio Service as a Model.

The Citizens Broadband Radio Service ("CBRS") is a three-tiered spectrum-sharing framework that works by dividing the allocated spectrum into three distinct groups of registered parties.[3] The first who have the highest priority are the incumbents. These users include naval radar, satellite earth stations, and other wireless broadband services.[4] The second are those with a Priority Access License ("PAL").[5] For groups with PALs, a licensee can obtain up to 70 MHz of spectrum within the 3550 to 3650 MHz frequency range.[6] Leases are for ten years, and no one entity can lease more than four channels in each county.[7] Finally, General Authorized Access Users ("GAA") are able to license up to 80 MHz, and until PALs are auctioned, the entire 150

[3] CBRS: What is it and how does it work?, Connectivity Wireless (Sept. 5, 2019), https://connectivitywireless.com/cbrs-what-is-it-and-how-does-it-work/.
[4] *Id.*
[5] *Id.*
[6] *Id.*
[7] *Id.*

MHz is available to GAA users.[8] GAL users also bear the burden of noninterference with those operating in the same area in higher tiers.[9]

The CBRS model provides crucial benefits by allowing multiple operators to share the same frequencies. This not only invites new entrants into the band but promotes competition between those who share the spectrum. Similarly, the CBRS model emphasizes a balanced approach to spectrum policy rather than concentrating spectrum with large license holders who can easily outbid smaller providers and municipalities. As more spectrum is made available and reallocated, shared licensed bands can bypass the process of relocating existing users to accommodate new ones. In effect, newly available spectrum can quickly and effectively support innovative local applications.

Since its inception, municipalities have been deploying CBRS spectrum in many ways. For example, in South Bend, Indiana, the School Corporation and City partnered to create a shared Private LTE network to support education and smart city functions. The network, monitored in partnership with the Notre Dame Wireless Institute, will supplement at-home internet services for low-income and transient students. The City will also use the network for future urban sensing and citizen science projects.

The themes from city pilot cases emphasize several important points that can shape the National Spectrum Strategy. First, local anchor institutions and governments can and will find value in leveraging unlicensed spectrum and participating in new spectrum-sharing models. Second, local governments have the capacity to pursue innovation and pilot partnerships regarding spectrum. There is an appetite to try new things and solve local problems on a local level if

[8] *Id.*
[9] *Id.*

resources are available to cities. Given that, we recommend schools and cities have a seat at the table to shape the future spectrum policy.

The case for utilizing the CBRS spectrum-sharing is self-evident, it provides incumbents the safety they need while allowing new entrants to put spectrum to innovative new uses. In prioritizing this model, the NTIA ensures that spectrum will be available where it is most needed.

C. Unlicensed Spectrum Availability Should be a National Priority.

In 2021, the number of global Internet of Things ("IoT") grew by 8% to 12.2 billion devices.[10] While IoT is a major driver of unlicensed spectrum use, it is not the only use for the spectrum by far. The WiFi routers used to connect IoT devices depend on unlicensed spectrum. So does free public WiFi at a public park, library, or restaurant. These WiFi installations are often used by the most disadvantaged and disconnected members of a community. Local officials nationwide are all too aware of the toll this takes.

As such, municipalities have undertaken large-scale wireless and public WiFi projects aimed at reducing the connectivity burden on consumers. For example, the City of San Rafael, California, found that during the pandemic students could not do their homework without a smartphone or public WiFi.[11] As a result, the city partnered with a local nonprofit to develop a wireless mesh network to provide connectivity to those who needed it the most.[12] Similarly, the city of Gonzales, California, highlighted a hotspot drive that deployed 2,000 WiFi hotspots across the 10,000 city residents.[13]

---

[10] Mohammad Hasan, *State of IoT 2022: Number of connected IoT devices growing 18% to 14.4 billion globally*, IoT Analytics (May 18, 2022), https://iot-analytics.com/number-connected-iot-devices/.
[11] Next Century Cities, Cut Off From the Courthouse: How the Digital Divide Impacts Access to Justice and Civic Engagement at 34 (2022), https://nextcenturycities.org/wp-content/uploads/2021/05/cut-off-from-the-courthouse.pdf.
[12] *Id*.
[13] *Id*. at 33.

These are just two examples of the innumerable projects that municipalities across the nation are undertaking every day. Without access to the unlicensed spectrum needed to make it happen, the NTIA and FCC may unintentionally widen the digital divide. Therefore, any future spectrum strategy should prioritize the availability of unlicensed spectrum for these critical uses.

D. Spectrum-Sharing Approaches Are Not Mutually Exclusive and Should be Utilized as Efficiently as Possible.

In the past, the dichotomy of spectrum was that it was either licensed or not. There was either a stringent set of rules that everyone had to follow, or there were none. The FCC has begun to operationalize new rules incentivizing licensed spectrum holders to make underutilized spectrum available to small carriers, Tribal Nations, and entities serving rural areas.[14] This is a critical step towards the opportunistic default standard that so many have asked for in the past.

Regardless of what spectrum is reallocated, the NTIA, FCC, and OSTP should explore ways to share the spectrum before it is released for auction or license application. This provides a clear, forward-looking plan that will alleviate the need for complex problem-solving in the future when some bands become congested and others remain underutilized.

CBRS may be one of the most talked about spectrum-sharing models. However, the Enhanced Competition Incentive Program, "Use-it-or-share-it," and other opportunistic sharing models deserve the same level of difference that CBRS receives. Each model can provide key resources to smaller providers, Tribal Nations, rural communities, and community-based organizations that may be unable to access the spectrum otherwise.

II. Long-Term Spectrum Planning Must Meet the Future Spectrum Needs of Communities Nationwide.

[14] Jessica Rosenworcel, 2022 in Review: A Note from the Chairwoman (Dec. 31, 2022), https://www.fcc.gov/news-events/notes/2022/12/31/2022-review-note-chairwoman.

As the Broadband, Equity, Access, and Deployment ("BEAD") program progresses, states and localities are planning to meet the needs of their communities, and how to address potential future connectivity needs. New technologies will continue to become available, and consumers need change. Communities that offer wireless services will need to adapt and change as well. Further, as more money is made available for broadband deployment, communities will have new funding opportunities for public WiFi or other wireless services. The nation's spectrum strategy must be prepared to address this critical shift in funding.

A. Proactive Federal Outreach is Essential for Meaningful Long-Term Spectrum Planning.

Federal outreach is key to ensuring that the most diverse group of stakeholders is included in any long-term federal planning. While the NTIA, in partnership with the OSTP and FCC, has begun to hold listening sessions, this is only a start.[15] Developing an outreach plan that invites representatives from highly disconnected and hard-to-reach areas to share their perspectives will inject new problem-solvers into the agency's network. Without a robust network of informed state and local officials, community leaders, wireless providers, and other spectrum users, the NTIA's view will be severely limited.

B. Local Officials Would Provide Critical Perspectives on Key Spectrum Advisory Committees.

Across the federal government, there are countless advisory committees that provide key insight on a myriad of topic areas. The FCC and NTIA often host advisory committees that focus on the innovation and advancement of technology in the United States. The Technological Advisory Committee at the FCC[16] and Commerce Spectrum Management Advisory Committee at

[15] National Telecommunications and Information Administration, Listening Sessions, https://ntia.gov/issues/national-spectrum-strategy/listening-session (last visited Apr. 10, 2023).
[16] Federal Communications Commission, Technological Advisory Council, https://www.fcc.gov/general/technological-advisory-council (last visited Apr. 10, 2023).

the NTIA[17] are just two advisory committees that advise on technological innovation and spectrum management. Each of these advisory committees is composed of technology experts and industry leaders, yet neither of these committees includes state or local officials.

State and municipal officials are leaders in determining how technology has impacted the populations they serve, and how new advancements can better serve their residents. They provide critical insights into how the country's technological advancement impacts individuals on the ground. As previously stated, state and local officials have essential insights into how the federal government can make new technologies, including spectrum, available for the greatest positive effect.

C. The BEAD Program Will Expand the Need for Unlicensed Spectrum.

The BEAD program is designed to provide states with the flexibility to design and implement connectivity solutions that will best meet the needs of their communities. It prioritizes the unconnected and under-connected before allowing funds to be spent on areas that are already considered served.[18]

For many rural and remote communities, and for communities for which climate makes wireline deployment difficult, wireless solutions will be an essential part of state deployment strategies. While the NTIA has ruled that wireless Internet service that relies entirely on unlicensed spectrum is unreliable, there are many places that cannot be served by an alternative.[19] Further,

---

[17] National Telecommunications and Information Administration, CSMAC, https://www.ntia.gov/category/csmac (last visited Apr. 10, 2023).

[18] Kathryn de Wit, What States Need to Know About Federal BEAD Funding for High-Speed Internet Expansion, Pew Charitable Trusts (Jan. 9, 2023), https://www.pewtrusts.org/en/research-and-analysis/issue-briefs/2023/01/what-states-need-to-know-about-federal-bead-funding-for-high-speed-internet-expansion#:~:text=Congress%20established%20the%20BEAD%20Program,user%20adoption%20of%20new%20networks..

[19] Joan Engebretson, Will Unlicensed Fixed Wireless Technology Make the Cut with the BEAD Program?, telecompetitor (July 22, 2022), https://www.telecompetitor.com/will-unlicensed-fixed-wireless-technology-make-the-cut-with-the-bead-program/.

while wireless connectivity relies on middle-mile networks that can be served by fiber, significant portions of the country require a wireless last-mile deployment that depends on spectrum. Requiring communities to pursue licensed options severely limits their problem-solving capabilities.

The NTIA, FCC, and OSTP must take these very real potentials into consideration when determining what a short-term spectrum strategy should be. Without available unlicensed spectrum, rather than provide them the help the program promises, the BEAD program may unintentionally punish those who live in areas unserviceable by wireline broadband.

III. Communities are Important Testbeds for New Wireless Technologies.

Across the nation, differing communities are facing wildly different broadband access and adoption challenges. There is not, and cannot be, a one-size-fits-all solution to how these challenges are met. Municipalities require the resources and autonomy to undertake creative projects without fear that funding or spectrum usage is riding on success. The United States has been a forerunner in wireless technological advancement, and municipalities are important testing grounds for new innovative technologies.

A. Unlicensed Spectrum Provides Municipalities the Opportunity to Test New Technologies That Connect Their Communities.

As unlicensed utilizing technology improves, it provides small wireless Internet service providers, city projects, and community-based organizations new tools to capitalize on the finite unlicensed spectrum resources available. Likewise, devices can provide more coverage and increase speeds, communities are always looking for ways to iterate and improve upon the programs they are putting in place. Local innovation hinges on a community's ability to access and utilize unlicensed airwaves as new technologies become available. Without this critical

resource, technological advancements will only benefit those who have the ability to access a license themselves or lease access from license holders.

B. Municipalities Have Significant Spectrum Access Concerns.

Without prioritizing unlicensed or spectrum-sharing, many communities will be left at the mercy of the auction process to obtain authority to use spectrum to serve their residents. This is problematic for multiple reasons. First, communities often do not have the resources, capacity, time, or knowledge to participate in complex federal spectrum auctions. For a large-sized city with a dedicated broadband office, this may be possible. However, without the necessary funding to compete with large national incumbent providers, there is little possibility that a city could obtain a license. Second, for small or rural cities or towns, it would be extremely difficult, if not impossible, to participate at all.

Offering spectrum on a purely licensed basis also ensures that communities cannot provide community-serving wireless solutions. If the NTIA, FCC, and OSTP are dedicated to providing the most spectrum to those who could effectively use it, there are other steps the agencies can take. When collaborating to determine how best to auction spectrum, each agency should determine how best to incorporate non-traditional actors into these auctions. Explainers for how to be involved and resources for completing economic assessments should be made available to reduce the knowledge gap between governments and traditional wireless providers.

Providing more information is just a start. As new spectrum is reallocated and repurposed, working with state and local officials can inform where spectrum is needed most.

IV. Conclusion

Next Century Cities and the undersigned cities appreciate the opportunity to provide feedback on these incredibly important issues. There are many considerations the NTIA, FCC, and

OSTP should take into account when determining how to pave the way for America's wireless future. From identifying which new bands to repurpose to determining how those bands should be reallocated, there is a clear need for more spectrum across the nation. However, the engineering and race to cement the nation's leadership in wireless technology cannot be a replacement for good policymaking.

Providing state, local, and Tribal governments with the same voice as incumbent providers is necessary to address both the variety of current and future spectrum needs. Similarly, prioritizing spectrum-sharing models and the use of unlicensed spectrum promotes innovation from some of the best test beds in the nation: cities. Without the ability to harness the power of wireless broadband, many communities would still be and will remain unconnected.

Respectfully Submitted,

Next Century Cities
South Bend, Indiana
Boston, Massachusetts
Syracuse, New York
Access Humboldt