

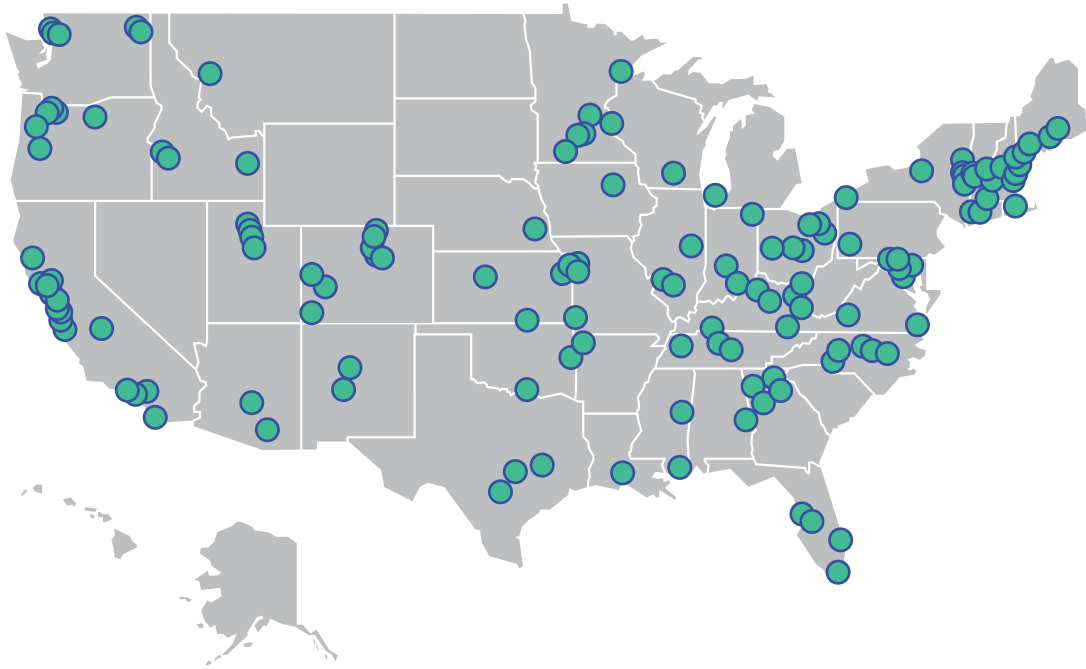


Emerging Issues in Expanding Next-Generation Internet Access

2017 Policy Agenda



166 Member Cities and Growing



Next Century Cities is a non-profit, non-partisan membership organization of over 160 mayors and community leaders across the country seeking to ensure that everyone has fast, affordable, and reliable internet access.

Innovative municipalities recognize the importance of leveraging gigabit level internet to attract new businesses, create jobs, improve health care and education, bolster civic participation, and connect residents to new opportunities. Next Century Cities is committed to celebrating communities' successes, demonstrating the value of next-generation broadband, and helping other cities work to realize the full power of truly high-speed, affordable, and accessible broadband.

Joining Next Century Cities is free for all counties, cities, and towns. To learn more about how Next Century Cities supports mayors and community leaders nationwide and to inquire about membership please email info@nextcenturycities.org, or visit our website at nextcenturycities.org. Follow us on twitter [@NextCentCit](https://twitter.com/NextCentCit).

Our Team



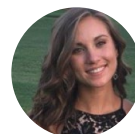
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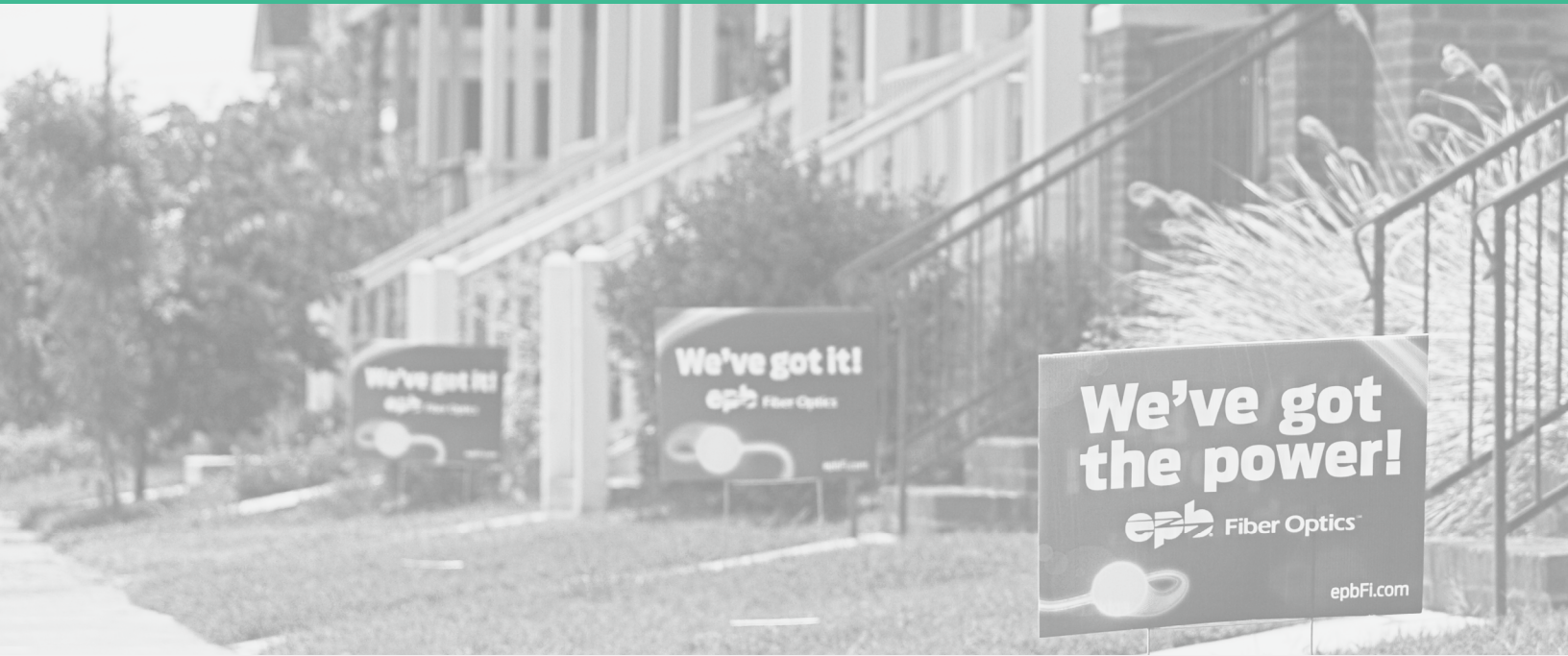
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Introduction

More than ever local leaders recognize that ensuring all Americans have access to next-generation broadband is a critical priority. There is now widespread, bipartisan agreement in our society that internet access is basic infrastructure, like electricity or water, and is a necessity for people in their day-to-day lives.

The question that stakeholders at all levels face in 2017 is how to help communities across the nation achieve and expand high-quality internet access to more Americans. The answer to this question is not one simple, silver bullet. Instead, it's found by exploring emerging issues that communities leading the way on broadband are tackling every day, and learning from these leaders.

Businesses and residents in most communities need better options for faster broadband speeds, more reliable connections, and affordable pricing. Despite new programs to improve access for low-income households and neighborhoods, guaranteeing universal service remains a daunting challenge.

Next Century Cities is a bipartisan, non-profit membership organization that supports local leaders around the country seeking universal access to fast, affordable, and reliable internet connectivity. Our more than 160 members are mayors and municipal leaders from communities that range from very small towns to large urban areas. In 2015, Next Century Cities released

Given the many models available and more potential partners to work with, local governments have more tools than ever to improve access locally.



an initial “[Policy Agenda for Broadband Stakeholders](#)”¹ that offered baseline policy recommendations for how stakeholders at the federal, state, local, and civil society level could take action to improve local internet access and expand broadband to more people.

Next Century Cities believes local governments can make substantial gains in expanding fast, affordable, and reliable internet access to all by enacting the right policies. What is right for any given community may not be right for another, but given the many models available and more potential partners to work with, local governments have more tools than ever to improve access locally.

This **Emerging Issues Policy Agenda** explores several policy areas where Next Century Cities member communities are leading the way. To improve internet access, this agenda has recommendations for local policy as well as both state and federal policy.

Despite changes and uncertainties at the federal level with a new administration, local governments largely face the same challenges as in previous years: ensuring everyone in the community has the internet access necessary for modern businesses and ensuring a high quality of life for residents. Some of the tools are changing and new policies at the federal and state levels will impact local government responsibilities and authority. But local governments remain fundamentally responsible for making sure they have the infrastructure necessary for the modern era.

1 Next Century Cities’ Policy Agenda for Broadband Stakeholders: <http://nextcenturycities.org/connecting-21st-century-communities-a-policy-agenda-for-broadband-stakeholders/>

Restore Local Authority

In 2016, local governments continued investing locally and crafting partnerships to improve access. Though Congress and state legislatures frequently talk about the importance of improving internet access, local governments remain the most active and important avenue to increasing investment in next-generation internet access. Though some states, like Colorado and Minnesota, have built effective programs to expand next-generation access and other states have made efforts, most states have not created grant programs or enacted significant policy to increase investment.

Some 20 states limit local authority to build networks in an age when states should welcome any investment in better connectivity. These barriers range from procedural hurdles and referendum requirements to legal and/or de facto prohibitions that [benefit politically powerful incumbent providers at the expense of local businesses and residents](#).²

Given the current political climate where local decision making is being threatened, and following the 6th Circuit decision overruling the Federal Communication Commission (FCC) order to restore local authority in [North Carolina and Tennessee](#),³ we believe states will continue to be the primary jurisdiction for these decisions. Local authority to invest in or partner for new networks will be decided by each state individually and we expect states to consider new barriers proposed

by incumbent providers as well as grassroots efforts to restore local authority.

Next Century Cities continues to strongly advocate that these decisions be made at the local level. Internet access is an incredibly localized policy matter, where some communities are concerned first with connecting local businesses while others are focused on residential services. Neither federal nor state statistics actually capture whether a community is well served in terms of reliability, cost, or competition. Nor if local businesses can afford reliable, high capacity connections or low-income households have options to connect. Two communities that appear twins from a profile compiled of federal statistics may have wildly different opinions of their own level of access, with one feeling that low-income areas have been left behind while the other is satisfied with its level of service. However, the limited data we have tells a stark story, with a best case scenario being that the majority of Americans have only one or zero options for broadband service.

Consider North Carolina, which has a typical state law restricting local choice. The local connectivity picture there varies widely from small communities in Eastern North Carolina to the tech-powered Research Triangle or the urban core of Charlotte. But the state's restriction on local choice lumps all communities together,

2 For example, see the Consumer Reports 2016 Survey, which found incumbent telephone and cable companies the least popular while competitors Google and Chattanooga's municipal network were the highest ranked. <http://www.timesfreepress.com/news/business/aroundregion/story/2016/jun/17/consumer-reports-surveys-rate-epb-best-natitv/371498/>

3 <https://www.nytimes.com/2016/08/29/technology/broadband-law-could-force-rural-residents-off-information-superhighway.html>



failing to differentiate between those likely to see private-sector investment and those almost certain to be left behind. Further, it fails to distinguish between communities that may want to make major investments in citywide networks and those that may simply want to focus on a low-income neighborhood.

Local governments should be empowered to make these decisions. Legislatures in North Carolina and Tennessee, particularly, will be considering this issue in 2017 and we strongly encourage people that believe in local decision-making to speak out. This issue is far from settled

and local input is essential to ensure state law matches local desires.

But even in states that limit local authority, local governments should be creative. As discussed below, Lincoln built an impressive conduit system that has led to more investment and spurred local internet choice. Nebraska law is some of the most restrictive of local internet infrastructure investment, but Lincoln nonetheless found an approach that would accomplish some of its goals. Motivated cities should seek innovative ways to invest, even when state law poses a challenge.

Competition in Multi-Dwelling Units (MDUs)

Apartment buildings and condominiums, known as multi-dwelling units or “MDUs,” present a unique challenge in the effort to ensure everyone has high quality internet access. MDU owners and managers often strike exclusivity deals with incumbent cable and telephone companies. Despite efforts to unwind this practice in the past, many MDUs still lack basic internet choice. But local policies can provide these buildings with more competitive options.

The FCC has already made exclusivity agreements unenforceable, which has unfortunately done little to stop the practice. Landlords own the building, which gives them the right to determine which companies may enter the building to install the equipment necessary to offer services. They can also arrange marketing agreements, where they will only inform residents of a single provider that can offer service.

However, San Francisco has already implemented the first of what we believe will be several local statutes to ensure households can choose from multiple providers. In San Francisco, landlords will no longer be able to arbitrarily stop ISPs from serving customers by blocking physical access to the building. Landlords are allowed “just and reasonable compensation” to defray any costs

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from ISPs installing their equipment, which is a known concept in California law.

The compensation to landlords is important because many MDUs, particularly older ones, do not have wiring ready to accommodate multiple ISPs. In the best case scenario, buildings have a closet or room serving as a demarcation point — where the network enters the building from the street and is then distributed to units within the building. Modern buildings should require dedicated neutral wiring that would allow any ISP in the closet to serve any unit in the building. Retrofitting may be necessary, but fortunately the cost of wiring has in many cases declined in recent years. Some of our communities have been investigating how new buildings and substantial renovations in MDUs may be required in code to include this type of wiring and layout. We expect to see some communities developing and passing these rules in 2017.

Anti-Monopoly and Competition

The more than 160 mayors and city leaders who are part of Next Century Cities believe that meaningful competition drives progress. Unfortunately, the vast majority of Americans do not have a real choice in high quality internet access.

Establishing competition can be very difficult. And maintaining it can be even harder. This is particularly true when the market has a few very large, very powerful entities like the big cable and telephone companies. The big cable and telephone companies can arrange for significant volume discounts for both physical and digital inputs, giving them tremendous advantages over rivals.

Their massive scale distorts not only the market, but also policy. Big firms wield outsized influence in Congress and the state legislatures as those firms shape legislation, reinforcing their market power.

Local governments have a key role to play in encouraging competition. They can reduce barriers to entry by ensuring new market entrants have fair and reasonable permitting processes. Local governments can also make smart investments in conduit and open fiber networks that give consumers choice from multiple ISPs.

At the state level, well-intentioned programs to encourage investment often mistakenly pit rural connectivity against regional population centers. Building financially sustainable networks in rural regions often requires serving the entire region, not just the people and businesses that have been ignored by incumbent providers. As such, state government programs providing funding for rural investment should allow a blend of areas that are totally unserved as well as some areas that may have some basic access from last-generation DSL and cable networks.

State and federal regulators should heavily scrutinize telecommunications mergers. The largest cable and telephone firms already wield outsized market power, which is why so few Americans have a real choice in services. The largest providers have divided the market up into regions and choose not to compete in each other's markets. So, for example, Comcast won't deliver service in Cox territory and Verizon refuses to deploy into AT&T turf. As they consolidate, they make it increasingly difficult for any other firms to compete.

With the modern FCC definition of broadband at a minimum of 25/3 Mbps, Americans with broadband access generally only have one option: [the cable company](#).⁴ In the near term, the most

4 Cable companies are far more likely to offer connections in excess of 25/3 and FCC statistics show that 38 percent of Americans at most have access to more than 1 provider at that speed. See Table 6: https://apps.fcc.gov/edocs_public/attachmatch/FCC-16-6A1.pdf Note that FCC data is aggregated at census blocks and therefore cannot accurately estimate competition, but can provide an "at most" estimate.

likely source of a second option will be upgrades from historic telephone companies like AT&T and CenturyLink that increasingly offer television services as well. Telephone companies are upgrading to DSL networks in urban areas that can offer 40/5 Mbps under ideal conditions or even Fiber-to-the-Home (FTTH) in some cases. While having a second choice in internet access markets is better than a monopoly, it is insufficient for the robust competition that most communities are hoping for. Even when DSL and cable offered roughly competitive services in the early-mid 2000's, many local businesses and residents strongly desired additional options that would result in greater innovation and price competition.

Though mobile wireless technologies continue to advance and offer higher capacity speeds, mobile wireless is likely to remain a complement to wired service in the home in the near term. Households will continue to depend heavily on Wi-Fi, but that is a means of sharing the wired connection in their home among devices. Mobile wireless plans, with their low monthly bandwidth caps, are simply too expensive for most households to use as a replacement for a home wired connection.

Fixed wireless, often combined with fiber-optics to some extent, does offer more promise as a new competitive choice to single-family homes, but there are too few examples to date for local leaders to pin their hopes on that technology as a solution for today's needs. Given the WebPass acquisition by Google and AT&T's interest in fiber and fixed wireless to MDUs, it does seem likely that this technology will at least bring more competition to MDUs — especially when local governments embrace the policies outlined above.

To date, the best hope for that additional competition comes from smaller providers like Ting, C Spire, Sonic, US internet and the many

municipal networks that been established at the local level. The federal government should give these green shoots of competition a chance by strongly resisting further incumbent consolidation. Larger cable and telephone companies are more likely to slant the rules in their favor and have a much greater capacity to engage in predatory pricing. Both state AGs and the Department of Justice should be more vigilant in examining pricing for signs of service dumping. Though such cases may be hard to prove, vigilance alone may shape incumbent behavior for the better.

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To the extent the federal government approves mergers, it should set far greater consequences for promises made by the consolidating firms that are unrealized. If promised cost savings or job creation do not materialize, there must be a government response. This may involve economic penalties or even an effort to unwind the merger depending on the significance of the unrealized claims.

Two mergers of immediate concern are [AT&T's bid to buy Time Warner](#)⁵ (the content company that owns HBO and CNN, not the cable company) and CenturyLink's effort to buy Level 3. AT&T purchasing Time Warner will disadvantage its competitors. Post-merger AT&T might treat Time Warner owned content preferentially or charge rival video providers more, harming competition. Additionally, given that AT&T will likely continue to exempt its own content from its data caps in a promotion called "zero rating," consumers will be

5 <http://nextcenturycities.org/2017/01/27/in-att-time-warner-merger-everything-hinges-on-jeff-sessions/>

Rural Broadband

Though rural regions continue to have a dire need for improved internet access, neither the federal government nor states appear likely to take significant action to improve access. The FCC's Connect America Fund is spending billions of dollars on obsolete connections of 10/1 Mbps — focusing the funds on incumbent telephone companies that had not previously invested in broadband networks. Rural residents and businesses are frustrated and many would prefer those funds be spent more wisely, on modern networks. Rural co-ops are increasingly filling the gaps, with both telephone and electrical co-ops stepping up with fiber investments, sometimes in areas where the FCC is subsidizing the competition. In areas without co-ops, approaches like [RS Fiber in Minnesota](#) and [EC Fiber in Vermont](#) may inspire local communities to take matters into their own hands.

less likely to get that content from independent providers. A resident will be more likely to choose AT&T because it may have preferential access to Time Warner content and not have it count against their data cap — a twofer bonus from a consumer perspective.

The proposed merger between CenturyLink and Level 3 is more [directly troubling](#) to competitive ISPs, particularly those outside metro areas. Level 3 provides backhaul for many competitive ISPs across the country, meaning that Level 3

connects the local ISP network to everything else on the internet. In many communities, Level 3 is one of very few options to move data to major peering sites to exchange traffic. The merger is most troubling to ISPs in communities where CenturyLink may be the only other option — meaning that an ISP may be reliant on its rival in the market to be on the internet.⁶ That this comes right after Verizon purchased XO Communications (a business similar to Level 3), shows that competition in long haul and backhaul networks is in danger.

6 See the Pots and Pans blog by CCG for more information on the potential harms of this merger. <https://potsandpansbyccg.com/2016/11/07/the-centurylink-level-3-merger/>

High-Quality Low-Income Internet Access

Connecting low-income households with high-quality internet access remains the greatest challenge in telecommunications. Despite the difficulty, communities now have more tools at their disposal and more innovative models from which to be inspired.

Under the Obama Administration, the Department of Housing and Urban Development created the [ConnectHome Initiative](#), which focused on improving internet access to low-income households in public housing. Several stakeholders and ISPs made commitments, and Google committed to offering high quality internet access at no charge to many public housing residents in the communities that it had already invested in.⁷

Other ISPs expanded their programs (Internet Essentials by Comcast, Connect2Compete by Cox, and others) that offered a \$10 per month sub-broadband connections to low-income populations that meet an eligibility guideline based on household characteristics. One concern, as voiced by Carrie Coogan, the Deputy Director of the Kansas City Public Library system, is that these slower connections may inadvertently harm adoption. At the [Transforming Communities event in November 2016](#),⁸ hosted by Next Century Cities, SHLB, and US IGNITE, Coogan noted that

if a person's first experiences with the internet involve frustrating delays or generally suboptimal experiences, they may be less likely to see its value.

An important means of improving access to low-income communities is increased competition for their dollars. The "Digital Denied" study by [Free Press](#) offers compelling evidence that wireless providers are better at meeting low-income needs because there are four national competitors. Increasing competition among fixed providers should similarly improve options for low-income households.

In 2016, the FCC [modernized a program](#) that had long provided a subsidy to low-income households for voice service to include broadband. Interested providers would have to seek designation as a "Lifeline Broadband Provider (LBP)" and agree to offer a minimum 10/1 Mbps service to receive subsidies. Consumers could then shop around between fixed and wireless LBPs.

However, FCC Chairman Pai threw Lifeline modernization into question by suspending approval for 9 LBPs. It is unclear when or if eligible households will be able to receive subsidized internet access. Next Century Cities hopes the FCC will move quickly to get Lifeline modernization back on track.

7 <https://obamawhitehouse.archives.gov/the-press-office/2015/07/15/fact-sheet-connecthome-coming-together-ensure-digital-opportunity-all>

8 <http://nextcenturycities.org/2016/11/30/next-century-cities-hosts-major-event-in-washington-dc-transforming-communities-broadband-goals-for-2017-and-beyond/>

At the local level, communities have new tools available as they consider what may work best to solve their particular challenges.

Local banks are increasingly getting involved in solving the digital divide, helped by regulators that have added a digital focus to historic programs encouraging lending in historically marginalized neighborhoods. Tim Herwig at the Office of the Comptroller of the Currency and Jordana Barton at the Dallas Fed have both traveled the country [presenting on this topic at broadband conferences](#) and the Dallas Fed published a report by Barton that community leaders should review with local banks, “[Closing the Digital Divide: A framework for Meeting CRA Obligations](#).”⁹ A key takeaway is that banks have more incentives than ever to partner in digital divide programs.¹⁰

The Nelson County Broadband Authority in Virginia previously received a broadband stimulus grant to build a network connecting local businesses and community anchor institutions. It later used a Community Development Block Grant (CDBG) in combination with another grant to expand the network. Using a CDBG for this form of infrastructure seems uncommon to date but may be more common in investments focused on the digital divide and low-income housing.

In Wilson, North Carolina, the municipal fiber network goes above and beyond the normal low-income programs. The city has partnered with HUD to deliver very fast connectivity, between 40 and 100 Mbps symmetrical to public housing units in Wilson for \$10 per month. The city’s network, [Greenlight](#),¹¹ provides the service and the

Housing Authority provides routers at no charge to households.

Wisconsin’s capital city, Madison, has also made a commitment to low-income households but has taken a different path. Madison decided to [build a fiber network](#) to its four lowest-income neighborhoods and works with a local ISP to offer a \$10 per month connection of 10 Mbps symmetrical to anyone interested in connecting.¹² There is no means testing for access and residents can purchase higher speed connections for a higher fee. The city has paid for and owns the fiber, which is used by the ISP partner to offer a service in this pilot project. Lessons from these neighborhoods will help Madison to decide whether to expand the network to the entire city.

Finally, consider the work of the nonprofit E2D, [Eliminate the Digital Divide](#). E2D has established an incredible model first in a school district north of Charlotte, but increasingly within Charlotte. Students raise money with lemonade sales and Charlotte businesses donate used but comparatively modern computers to the nonprofit. Microsoft offers a very low cost license for its operating system, but they also use alternatives like Linux or Chromebooks. The program started with support from the municipal ISP MI-Connection, but other ISPs in neighboring areas have followed suit, offering \$10 per month connections that E2D pays for the first year. In the first school they focused on, they were quickly able to say that no child lacked a device or the means to do homework. This is a model that is replicable in communities across the United States.

9 <https://www.dallasfed.org/assets/documents/cd/pubs/digitaldivide.pdf>

10 Herwig and Barton spoke on a Next Century Cities webinar available here: <https://www.youtube.com/watch?v=r8Xf79fNZrg>

11 <https://muninetworks.org/content/wilsons-greenlight-provides-affordable-internet-access-public-housing-residents>

12 <https://muninetworks.org/content/madison-starts-muni-fiber-effort-considers-citywide-effort-community-broadband-bits-podcast>

Small Cells/5G/DAS

Businesses and residents are using more and more data, particularly on wireless mobile devices, so local governments have to work with wireless companies and intermediaries to ensure the networks can meet increasing data demands. In coming years, that will often require small wireless radios being installed all around communities large and small. Rather than the large macro-cell sites we have become accustomed to seeing, small cells and distributed antenna systems are somewhat smaller, though they may still generate public safety and aesthetic concerns to communities.

As 5G wireless goes from experimental technology today to a real standard by 2020, local governments absolutely must be prepared to deal with how to allow wireless companies to safely deploy millions of small radios around the country. Considering that the vast majority of these small radios will require fiber-optic connections for backhaul, forward-thinking cities with extensive fiber networks available will be poised to take full advantage of new wireless technologies. As Next Century Cities has maintained since its founding, wireless and wired networks will remain complementary for the foreseeable future — a well-connected community requires both.

The FCC can designate sections of the spectrum (or “people’s airwaves”) as *licensed* or *unlicensed*. What does that mean?

| Licensed | Unlicensed |
|--|---|
| The FCC grants one entity exclusive rights to a section of the spectrum. No other users may make use of it. Examples include broadcast radio and television licenses, traditional cellular telephony, and many satellite technologies. | The FCC designates a segment of the spectrum a free for all — anyone can make use of it, within limits. Everyday devices use unlicensed spectrum, including most garage door openers, baby monitors, and Wi-Fi. |
| Proponents of exclusive licensing say that it offers entrepreneurs the certainty they need to make investments. Critics allege that licensees sometimes “warehouse spectrum” — buying up licenses without putting them into service to foreclose competitors making use of them. | Proponents of unlicensed or “shared” spectrum highlight its innovative potential. Ubiquitous Wi-Fi devices depend on a segment of unlicensed spectrum that was initially thought useless. |

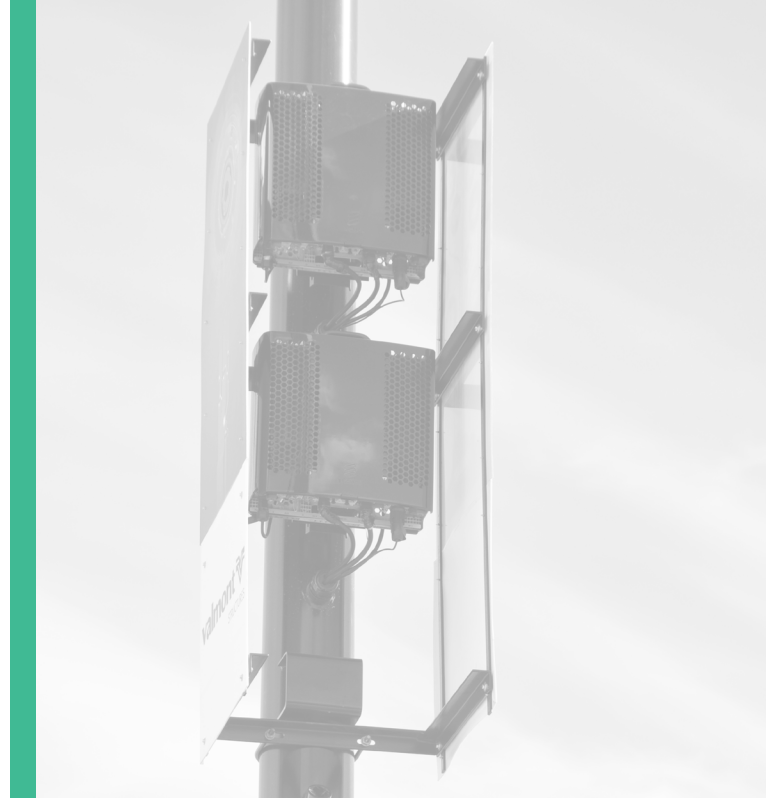
To add complexity, the FCC is considering hybrid licensing approaches on the principle of “use it or share it” — spectrum would be available to a licensee first, but other services could make use of it if the licensee does not.

Several recent reports offer quality guidance for local governments navigating this subject. Joint Venture Silicon Valley published “[Bridging the Gap: 21st Century Wireless Telecommunications Handbook](#),”¹³ which offers a balanced view of challenges of these wireless deployments from both the public and private sector vantage points. Another paper from CTC Technology & Energy, “[How Localities Can Improve Wireless Service for the Public While Addressing Citizen Concerns](#),”¹⁴ focuses on how local governments can respond proactively to recent technological trends.

Next Century Cities recommends these papers because they offer extensive information and smart strategies: namely being prepared in advance. Once a permitting application for a small cell location begins, the local government has to proceed under existing policy — local governments cannot make it up as they go. Under FCC rules, many of the applications for these technologies have shot clocks and strict requirements for approval or denial. Local governments need to develop rules well in advance of the expected avalanche of applications for new small cell locations. This is especially true of smaller local governments that might not have had to deal with significant numbers of requests for macro towers because the community depended on towers from a nearby community.

The good news is that this represents an opportunity for local governments to work proactively with wireless firms to mutually beneficial ends. Local governments may have conduit, fiber, and/or physical locations that it can lease to wireless firms and/or the intermediary companies that work with wireless firms in

Light poles for small cell wireless deployments in Lincoln, NE.



deploying these wireless technologies like Crown Castle.

A prime example of this cooperation is between Boston and Verizon, with an agreement that will serve as a template for future deployments. Though Boston does not own the poles in the city, it does have significant property (including street lights) that could be useful to wireless deployers. As such, it sought a mutually advantageous agreement with Verizon — the city makes property easily available to Verizon in return for a clear agreement on the types of poles and equipment

13 http://www.jointventure.org/images/stories/pdf/JVSV_Wireless-Telecommunications-Handbook_SEP2016.pdf.

14 <http://www.ctcnet.us/publications/newsletter-fall-2016-how-localities-can-improve-wireless-service-for-the-public-while-addressing-citizen-concerns/>.

profile Verizon uses. For instance, once Boston has agreed to Verizon's pole design for a type of pole, Verizon can submit a list of locations to install it (generally replacing a street light) with an assumption that it will be approved absent a stronger review in the case of historical districts. It will not have to engage in block-by-block reviews and public hearings. The city charges a fixed fee per location per year. Cities and providers both thrive when there are clear rules of the road for small cell deployment. To ensure fairness and competition, cities should work on reasonable agreements with all willing wireless providers.

A more recent example of a [win-win collaboration in small cell deployments](#) is in Lincoln, Neb., where it has also come to mutually favorable terms with Verizon. Lincoln, which has a substantial conduit system throughout the city and owns all the streetlights, negotiated several public benefits in return for offering deployers a speedy process to deploy on public street lights. Having signed the license agreement, Verizon will get permits issued in fewer than 20 days for its attachment requests. In return, Verizon replaces the street light with a new pole and assumes future maintenance requirements for it. Lincoln receives both a one-time fee and ongoing pole rental fee as well as a space on the pole where it could attach equipment such as a camera, public Wi-Fi antenna, or smart traffic sensors. Verizon will extend a fiber from the conduit system to the pole for the city's use and make power available. But most importantly for the city of Lincoln, it will be very easy for Verizon to continue improving its mobile wireless coverage.

Unfortunately, some wireless companies have pushed state legislation that would restrict local authority to oversee the rights of way and small cell placement. [AT&T developed a bill to preempt local oversight](#) and compensation for small cells in the rights-of-way,¹⁵ though a compromise ultimately allowed some local authority.¹⁶ Local authority is important for public safety, aesthetics, and proper compensation for public property. Because these poles may have hundreds of pounds of equipment on them, local governments must ensure they are safely erected and maintained. Aesthetics are also important because these installations can impact property values and quality of life. Finally, when wireless firms want to use public property, the public must be properly compensated.

Local governments have a responsibility to negotiate in good faith to ensure communities are protected and compensated while also benefiting from the technologies that wireless companies can offer. There is a fine balance in that wireless companies should be able to expect some predictability in dealing with local governments; it is unfair for rules and expectations to change significantly during negotiations. However, states that [intervene on behalf of political powerful wireless companies](#) may actually make these negotiations more difficult by poisoning the well of cooperation.

The next several years will be exciting as new wireless technologies deliver expanding capabilities. Local governments have to facilitate these investments in an intelligent manner to maximize local benefits.

15 http://www.cleveland.com/open/index.ssf/2016/12/att_seeks_limits_on_cities_pow.html

16 <http://nextcenturycities.org/2016/12/22/ohio-state-law-restricts-local-choice-in-small-cell-attachments/>

One Touch Make Ready

One of the challenges faced by any network deployer, whether municipal, cooperative, or private, is how to cost-effectively build a physical network. In most cases, the lowest cost option is to use utility poles, but access to those poles can be a barrier to entry that raises the uncertainty, and therefore cost, of entering the market.

Before a new provider can attach its wire, including fiber optic cables, to a pole, each owner of currently attached wires must be asked to assess and move their wires if necessary — a process called “make ready.” To begin make ready work, the owner of the pole must assess whether there is room on its pole for new attachments. Any capacity, safety, or engineering problems must be addressed before a new provider can attach its wires to the pole. If there are problems, each party with a wire already on the pole must be notified and asked to send out their own individual contractor and truck to re-arrange its wires on the pole. The pole then becomes a recurring construction site, as each company sends its truck to move its wire on a different day over the course of months. The process is long and tedious, and can be a huge inconvenience both for the new provider and for anyone living or working near the pole.

To speed up this process some cities, such as [Nashville, Tenn.](#)¹⁷ and [Louisville, Ky.](#)¹⁸ have

passed One Touch Make Ready (OTMR) ordinances. OTMR policies allow a single contractor, or a select group of contractors, that all firms with attachments on the pole agree upon to conduct all new make ready work. Current regulations in many states cause needless delays throughout the pole attachment process and OTMR policies can lower the barriers to entry for new providers and facilitate the deployment of broadband. These policies also benefit residents by allowing access to new services more quickly, and decreasing inconveniences of make ready work, including noise, traffic disruptions, and service outages.

OTMR is a common sense solution, much like [dig once](#)¹⁹, and reinforces the idea that incumbent providers should not be able to hinder the business plans of new entrants. However, OTMR has been challenged in both Nashville and Louisville by large incumbent cable and telephone companies and awaits judgment in the courts. San Antonio, Texas has also begun using OTMR on poles it owns.

For more information please read our [fact sheet](#)²⁰ on OTMR and our [white paper](#)²¹ on state by state pole attachment authority.

17 <https://muninetworks.org/content/nashville-one-touch-make-ready-moves-forward>

18 <https://medium.com/fiber-on-fire/in-depth-on-pole-attachments-one-touch-make-ready-and-what-s-going-on-in-louisville-3f13da86a50d#.mpv6y4ivv>

19 <http://nextcenturycities.org/resources/#digonce>

20 <http://nextcenturycities.org/2017/02/01/one-touch-make-ready-fact-sheet/>

21 <http://nextcenturycities.org/next-century-cities-guide-to-pole-attachments/>

Infrastructure Investment

More often at the federal level, but increasingly in state government as well, policymakers are considering programs to improve internet access that are tied to infrastructure spending, most often focusing on rural areas. Funding bills that a decade ago were solely focused on investments in physical infrastructure like roads, bridges, and water systems are now wisely including resources for programs and grants that invest in high-speed broadband, the infrastructure of the 21st century.

As elected officials consider telecommunications as part of infrastructure spending packages either in Congress or in states across the country, Next Century Cities proposes the following principles to ensure maximum benefits for expenditures.



Any infrastructure investment program should be neutral with regard to business model. Investment should not favor one model, regardless of whether the network will be privately owned, publicly owned, or cooperatively owned. The history of infrastructure investments—water, roads, electricity, gas, etc., includes both public and private investments.



Investment should target both rural and urban areas. Rural areas often lack a single provider of high quality internet access. Urban areas often have a lack of choice in broadband providers and large populations unable to afford existing options.



Communities must be involved in the process. A program that imposes a solution from afar is far less likely to maximize benefits than one that has local support. Projects with more local support should be prioritized.



Networks must stand the test of time. Taxpayer subsidies should be smart investments in scalable technologies that will meet local needs well into the future. Minnesota's Border-to-Border Fund requires that subsidies be used on technologies that can scale to 100 Mbps symmetrical. A requirement to be able to offer a gigabit symmetrical is reasonable for the modern era.



Competition is the official policy of the United States, and new investments play a crucial role in competition. Building a financially sustainable network in a rural region may involve also serving a regional hub that already has broadband access.

Construction of fiber backbone in Centennial, CO.



Previous state and federal broadband-expansion programs have enacted some of these principles. The Broadband Technologies Opportunities Program (BTOP), a \$4 billion federal broadband stimulus program funded by the American Recovery and Reinvestment Act of 2009 and administered by NTIA required open access in the form of interconnection that encourages competition

rather than monopoly. Both programs made awards available to public sector, non-profit, and for-profit entities, though Minnesota's program is far friendlier to small ISPs by minimizing paperwork requirements. Next Century Cities will work to ensure local voices and needs are taken into account as new infrastructure spending and programs that focus on broadband are developed.

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