LakeCounty

LAKE COUNTY DIGITAL GROWTH INITIATIVE

LAKE COUNTY

BROADBAND & DIGITAL EQUITY ACTION PLAN

APPENDIX C. CURRENT STATE ASSESSMENT

August 2023

Updated September 2023

Contents

ABOUT THIS REPORT | The Current State Assessment provides the evidence base to inform the Lake County Broadband Plan

The purpose of this current state assessment is to provide a baseline understanding of broadband and digital equity in Lake County. The findings from this report will help inform what actions the County can take to improve internet access, adoption, and affordability – as well as optimally identify and allocate available funding. **This document includes the following:**

The **Executive Summary** provides a high-level overview of the Lake County Broadband project, the Current State Assessment, and key insights that emerge from the analysis

A **review of the County's existing broadband and digital equity landscape** in order to identify opportunities to sustain and grow the ecosystem of programs and stakeholders

Detailed **analysis of factors impacting broadband access, adoption, and affordability** to understand current context and geolocate areas of the county with high need for investment and support

An **assessment of gaps and opportunities across Lake County** to ultimately inform the types of effective and actionable initiatives to be included in the **Final Broadband Plan**

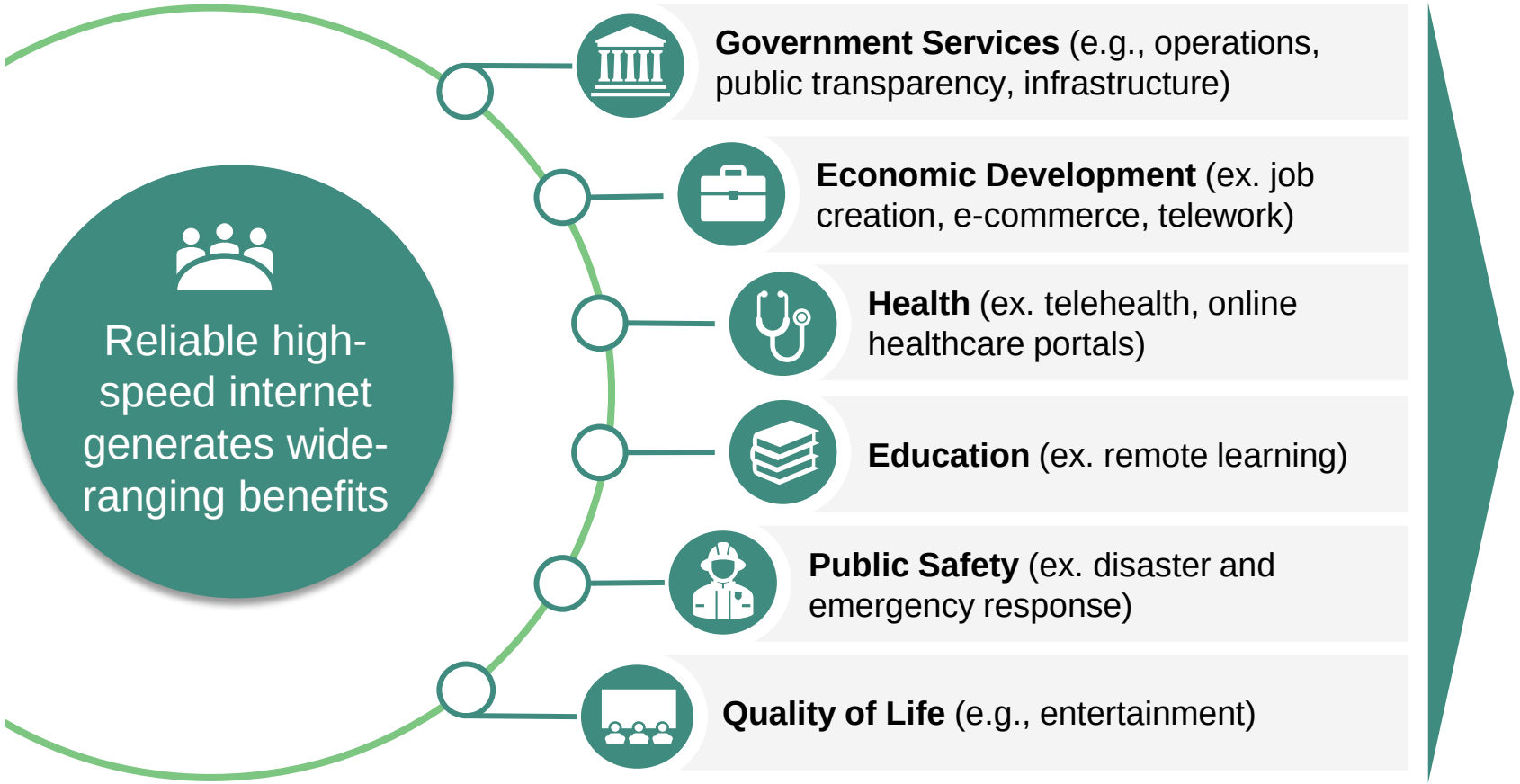
The **Appendix** includes information on community and stakeholder engagement efforts, federal funding leading practices, as well as the data methodologies that inform this report

SECTION 1

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY | An estimated 19,400 (8%) Lake County households lack any type of broadband subscription

WHY BROADBAND MATTERS: Investment in broadband is critical for residents to access education, healthcare, work, economic opportunity, and social connections that improve quality of life.



77% of all jobs require at least some technology skills

29% of students without basic digital skills say they won't consider post-secondary studies

48% of hiring managers say that candidates lack the skills needed to fill open positions

Source: NTIA 2022, US Census, ACS 2017-2021

EXECUTIVE SUMMARY | Cross-county stakeholders have emphasized the importance of improving affordability and closing the digital divide

33 individuals across 22 entities (including County Departments, elected officials, state government, educational institutions, nonprofits, Internet Service Providers, and more) have participated in one-on-one stakeholder interviews. Key stakeholders from local governments, the private sector, and nonprofits were also invited to a dedicated Focus Group session on August 23rd, and Lake County hosted a public Community Meeting on September 13th.

Quotes from Stakeholder Interviews

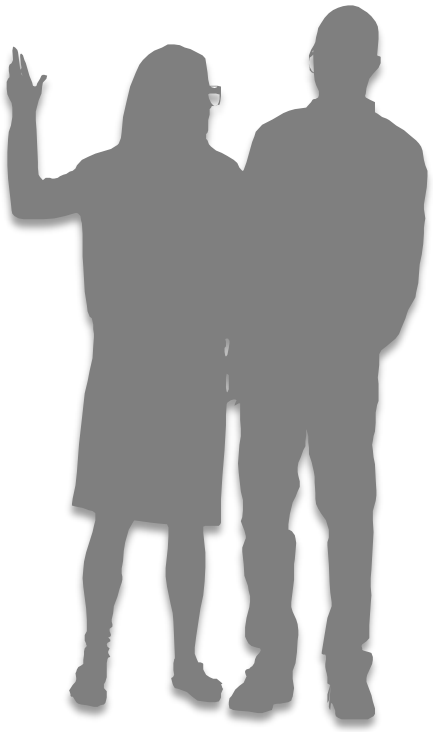
"Approaches endorsed by local governments and utilizing partnerships will be prioritized [by the State]"

"The challenge with ACP is getting people to sign-up, and stay signed-up"

"In many areas, the issue is more about adoption and affordability"

"Once adults gain some computer skills, we start to hear them say 'I can pursue education, I can do my banking online, I can apply for housing, I can make a doctor's appointment'....things many of us take for granted"

"Ultimately, Counties are best [to lead] because they can apply for grants, manage grants, [and] think more carefully about the application of broadband"



Key Themes

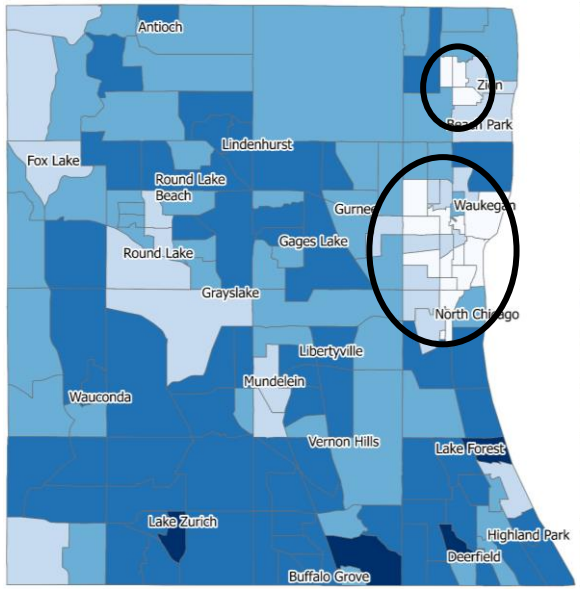
- The majority of the County has some level of broadband access, although not always adequate; and unserved communities should be prioritized.
- Broadband adoption and digital inclusion challenges are spread across the county but are most concentrated within specific populations and geographies – especially non-English speaking, low-income, and senior residents.
- Many municipalities, nonprofits, libraries, schools, and government agencies are working to address digital equity issues, but initiatives may be underfunded and limited to specific geographies.
- There are potential policy and regulatory actions that Lake County could take action to **make it easier for ISPs to invest in the region.**
- **Improving digital literacy and broadband access** will allow for more effective service delivery by Lake County departments and community anchor institutions.

Note: The Focus Group and Community Meeting were held following the completion of the Current State Assessment Report. Please see Appendix D for a complete summary of stakeholder engagement efforts.

EXECUTIVE SUMMARY | Across Lake County, there is a significant correlation between broadband adoption, race, and income

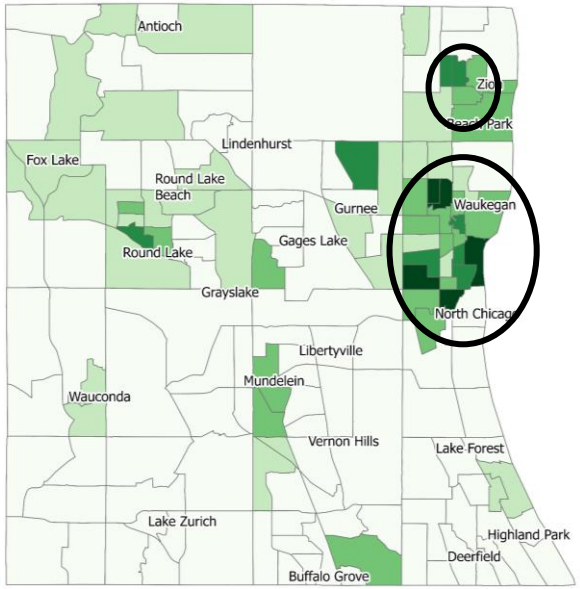
Fiber, Cable or DSL Subscription

≤ 65%	> 65% ≤ 75%	> 75% ≤ 85%	> 85% ≤ 95%	> 95%



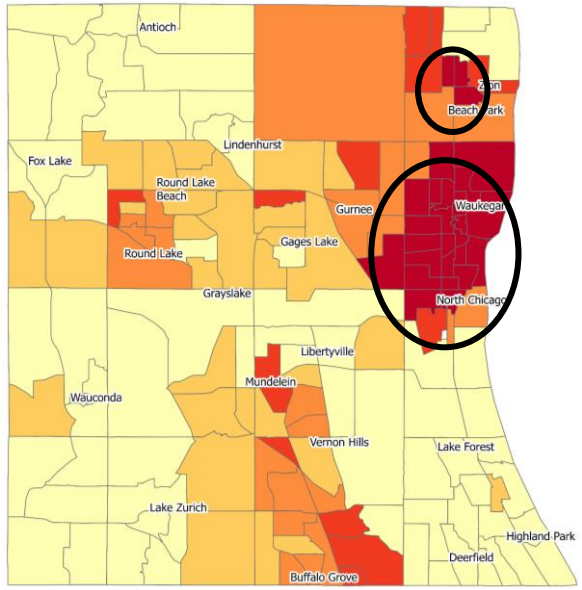
Percent Low-Income Families

≤ 10%	> 10% ≤ 20%	> 20% ≤ 30%	> 30% ≤ 40%	> 40%



Percent Racial or Ethnic Minority

≤ 20%	> 20% ≤ 30%	> 30% ≤ 40%	> 40% ≤ 50%	> 50%



Key Takeaways

Research points to a racial and income divide in broadband adoption. **34,000 Lake County residents (11,600 households) reside in census tracts where:**

- **More than 30%** of the population does not have a fiber, cable, DSL broadband subscription,
- **More than 30%** of families live below 150% of the federal poverty level,
- **More than 25%** of households do not own a laptop or desktop, **and**
- **More than half** of the population is a racial or ethnic minority

Of these 10 "highly vulnerable" tracts:

- 6 are in Waukegan (21,200 residents)
- 2 are in Zion (6,490 residents)
- 2 are in North Chicago (6,460 residents)

Approximately **47,600 (19%) households** do not have a broadband subscription such as cable, fiber or DSL. Cable and fiber are the two technologies able to provide reliable high-speed service.

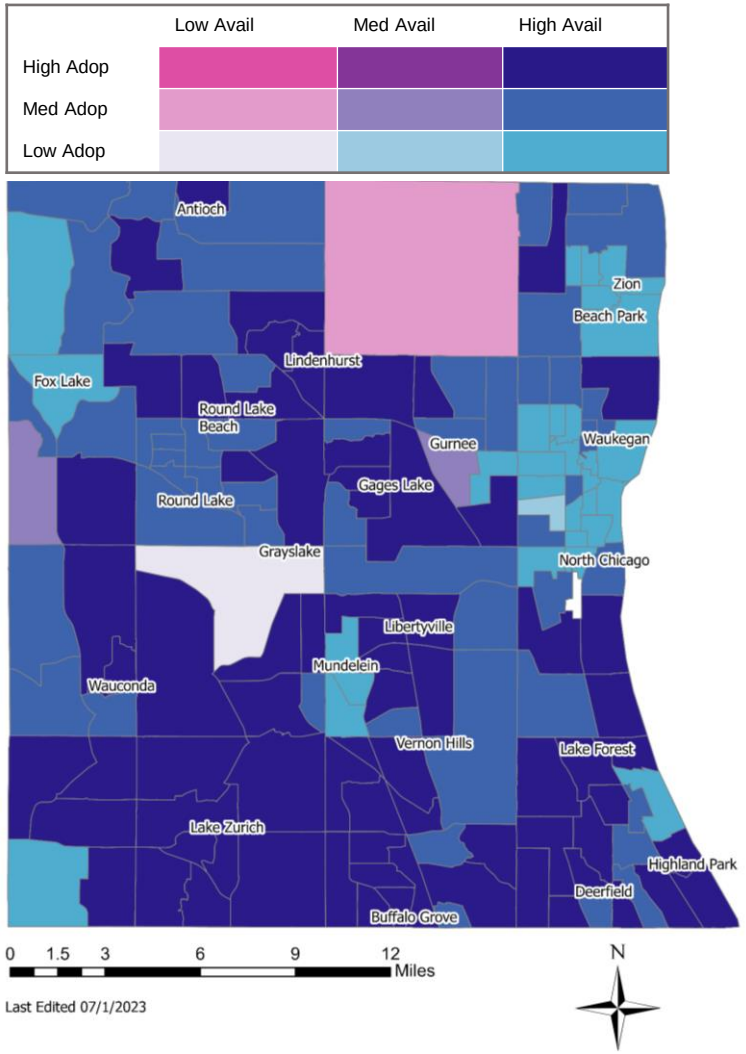
Approximately **18,600 (10%) families** in Lake County have incomes that fall below 150% of the poverty level. The average price for internet service above 100 Mbps download speeds in the County ranges from $50-$100.

Over **215,200 (30%) individuals** belong to a racial or ethnic minority. A 2021 Pew Research Center survey found that black and Hispanic adults in the U.S. are less likely to own a computer or have high-speed internet access at home, compared to white adults.[1]

Source: US Census ACS 2017-2021 [1] Pew Research Center

EXECUTIVE SUMMARY | While 98% of the county is “served” by broadband, initiatives should prioritize disconnected areas of low availability and adoption

Broadband Availability and Adoption



About the Map

The bivariate map analyzes local need at the Lake County census tract level along two dimensions: **broadband availability** and **broadband adoption**. Broadband availability is measured as the percent of broadband serviceable locations (BSLs) where at least one internet service provider advertises speeds that meet or exceed the FCC’s “served” threshold of 100/20 Mbps. Broadband adoption is measured as the percent of households with a broadband internet subscription such as cable, fiber, or DSL per the U.S. Census American Community Survey.

Key Takeaways

1. Digital inclusion and broadband adoption efforts should be prioritized in areas with the greatest concentration of vulnerable communities. While areas near Waukegan, North Chicago, Zion and Beach Park have high levels of broadband availability, they face significant socioeconomic barriers to broadband adoption. In fact, the cluster of census tracts around Waukegan account for only 10% of the county’s total population, but are home to 23% of low-income families, 22% of minority residents, and 23% of individuals with a language barrier.

2. Although the majority of Lake County enjoys high levels of broadband availability, there are still large clusters that experience broadband availability gaps. The areas near the Village of Grayslake and the Village of Round Lake Park face the greatest challenge in terms of broadband availability, with 1,027 (35%) underserved (<100/20 Mbps) and 234 (8%) unserved (< 25/3 Mbps) Broadband Serviceable Locations (BSLs). Near Newport Township, there are 252 (10%) underserved and 294 (12%) unserved locations. Residents in these (often unincorporated) areas of the county generally have fewer options for ISPs (one or no providers), limited access to high-speed technologies (no access to fiber or cable), and experience slower speeds (< 100 Mbps download / 20 Mbps upload).

3. Lake County may consider targeted efforts to expand fiber infrastructure. Access to fiber remains limited in Lake County; an estimated 93% locations in the county lack a fiber connection. Fiber is considered a future-proof technology because of its ability to be scaled up to meet higher connectivity demands. Additionally, fiber is the fastest internet technology in the market and is the only technology that can deliver service at symmetrical speeds.

Source: The bivariate map was constructed using household broadband subscription rates from the 2021 ACS 5-year Summary Estimates and percent of BSLs served by 100/20 Mbps internet at the census tract level from the FCC BDC data. A natural breaks method was used to account for the distribution of data.

EXECUTIVE SUMMARY | The Current State Assessment points to a handful of strategies Lake County may consider to address broadband disparities

Gap(s) Addressed	Potential Strategy	Description	Case Studies
Availability & Adoption	**Consider establishing a coalition of dedicated internal and external broadband stakeholders to drive implementation**	Serving as a convener, Lake County and the stakeholder coalition would be responsible for driving project agendas, applying for funding streams, and coordinating partners, but would leverage the know-how of existing organizations and ISP partners to facilitate implementation.	Montgomery County, OH
Availability	**Assess the feasibility of new County policies that facilitate and streamline broadband expansion**	Lake County could explore enacting new policies and amending existing policies that leverage best practices and encourage fiber/cable infrastructure investment (e.g., Dig Once/Dig Smart policies, One Touch Make Ready, streamlined permitting, template lease agreements, and more).	City of Chicago, IL Arlington County, VA
Adoption & Affordability	**Conduct a county-wide Affordable Connectivity Program (ACP) outreach and enrollment campaign that strengthens existing local efforts**	Lake County could help to coordinate and conduct a multi-pronged ACP outreach and enrollment campaign, relying on the expertise of local partners (such as libraries, school districts, Connect Lake County, and others) that are already engaged in outreach, promotion and sign-up efforts. ACP could be integrated into existing County websites and cross-promoted at County events.	Riverside County, CA
Affordability	**Support the pilot and expansion of free device access and digital literacy programs to reach additional Lake County students, graduates, and adults.**	The Lake County Regional Office of Education and Lake County schools have seen significant success in rolling out 1-1 device access programs for students. Lake County may consider partnering with the Connect Illinois Computer Equity Network, PCS for People, libraries, school districts, and others to increase device donation, refurbishment and distribution locations. Device access programs should be coupled with the expansion of digital literacy training resources for community anchor institutions.	Cook County, IL
Availability	**Explore additional fiber investment opportunities such as a shared governance fiber network for public entities or public-private partnerships.**	Lake County may explore a variety of options to improve fiber access across the County, such as the build-out of a government-run fiber network for public entities that could expand to community anchor institutions; connecting public housing locations with open access Wi-Fi; piloting a neighborhood Wi-Fi access project; or exploring new public-private partnerships with ISPs.	Cook County, IL Durham County, NC

NEXT STEPS: These represent potential initiatives the County may pursue to expand broadband and close the digital divide. The final **Lake County Broadband Plan** will expand on these emerging opportunities, pointing to a larger set of strategic recommendations to address broadband availability, affordability, and adoption gaps – along with recommended timelines, milestones, and potential cost savings.

SECTION 2

INTRODUCTION & CONTEXT

PROJECT ACTIVITIES | The Current State Assessment helps to create the foundation for the Lake County Broadband Plan

40+
Documents & Datasets Reviewed

33
Stakeholder Interviews

24
Focus Group Stakeholders

4
Questionnaires Developed

33
Questionnaire Responses

5
Peer Counties Benchmarked

1
Public Community Meeting Held

Note: The Focus Group and Community Meeting were held following the completion of the Current State Assessment Report. Please see Appendix D for a complete summary of stakeholder engagement efforts.

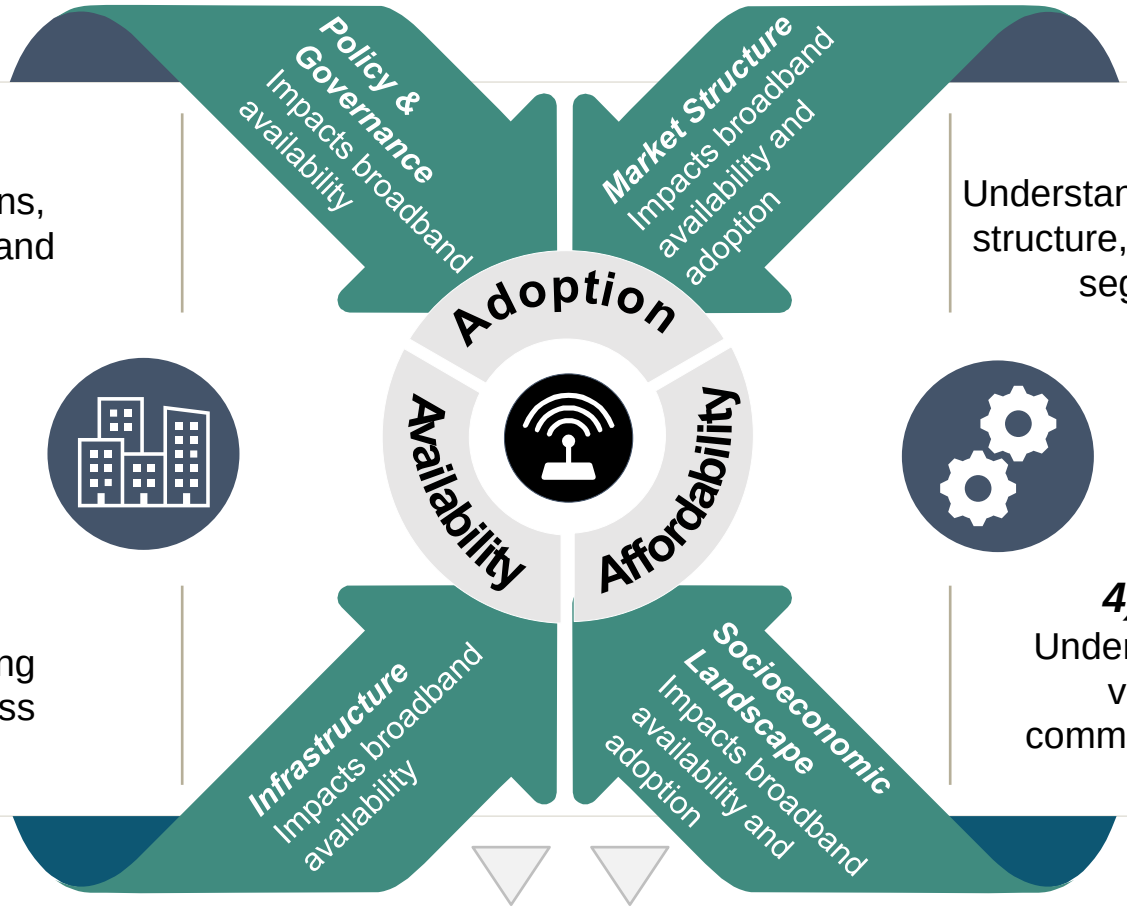
OUR APPROACH | Availability, affordability, and adoption gaps in Lake County drive the framework for the Current State Assessment

1) Policy & Governance
Familiarity with the rules, regulations, and policies related to broadband and digital inclusion in Lake County

2) Market Structure
Understanding the existing broadband market structure, including the major players, market segmentation, pricing, and affordability

3) Infrastructure
Knowledge of the location of existing broadband infrastructure and access technologies, speeds etc.

4) Socioeconomic Landscape
Understanding of relevant socioeconomic variables and the needs of residents, community organizations, and businesses



Optimally Allocate Funding

Maximize Impact and Economic Co-Benefits

Coordinate a Fragmented Stakeholder Ecosystem

Source: Guidehouse

DEFINITIONS & TERMS | Defining broadband and digital equity

Based on the Federal Communication Commission definition, **98% of broadband serviceable locations in Lake County are considered "served" at speeds of 100/20 Mbps or higher**.

This report uses the National Telecommunications and Information Administration and U.S. Commerce definitions of digital equity and inclusion to align with how these terms are defined in federal broadband funding programs (ex. BEAD)

Digital Equity: The condition in which individuals and communities have the information technology capacity that is needed for full participation in society and the economy (Digital Equity Act, 2021).

Digital Inclusion: Refers to the activities that are necessary to ensure that all individuals have access to, and the use of, affordable information and communication technologies, such as:

- Reliable fixed and wireless broadband internet service
- Internet-enabled devices that meet the needs of the user; and
- Applications and online content designed to enable self-sufficiency, participation, and collaboration.

Digital inclusion includes obtaining access to digital literacy training, the provision of quality technical support, and obtaining basic awareness of measures to ensure online privacy and cybersecurity.

Source: NTIA Broadband USA

This report uses the Federal Communication Commission's definition of broadband to align with how it is defined in federal funding programs (ex. BEAD) to classify served, underserved, and unserved locations

Broadband: "High-speed internet access that is always on and faster than the traditional dial-up access." Currently, the FCC defines broadband as a minimum of 25 megabits per second (Mbps) download and 3 Mbps upload speeds.

Broadband Serviceable Location (BSL): "A business or residential location in the United States at which fixed mass-market broadband internet access is, or can be, installed."

Unserved Location: A broadband-serviceable location shown as having no service or lacking access to reliable broadband service **≥25/3 Mbps**

Underserved Location: A broadband-serviceable location shown as lacking access to reliable broadband service **≥ 100/20 Mbps**

There is a significant push in federal funding guidelines to increase minimum broadband speeds to greater than 100/20 Mbps.

Source: NTIA Broadband USA

BROADBAND OVERVIEW | Not all broadband technologies are created equally

What is broadband?

Every website, picture, or video we view on the internet requires data to be sent to a device. Mbps is the rate at which that data can be downloaded to that device, or uploaded from that device, via an internet connection.

The Federal Communications Commission (FCC) defines broadband as "high-speed Internet access that is always on, and faster than the traditional dial-up access."[1]

Underserved locations are those that are served by speeds between 25/3 Mbps and 100/20 Mbps. Unserved households are served by speeds of less than 25/3 Mbps or those that are without any access to a broadband connection.[2]

There is significant variability in broadband technologies, the speeds they provide, and types of online activities they can host.

Broadband access technologies[3]

- **Fiber to the premises (FTTP):** fiber direct to building (25 Mbps to 2 Gbps+ download speeds)
- **Fixed wireless:** uses radio signals and line of sight (25 Mbps to 1 Gpbs+ download)
- **Coaxial cable:** Same network as cable TV (25 Mbps to 200 Mbps download)
- **Copper wire / DSL:** Same network as phones (5 Mbps to 50 Mbps download)
- **Cellular:** 4G, 5G etc. cell towers and small cells (1 Mbps to 25 Mbps download) through spectrum delivery
- **Others:** Satellites, balloons, drones, etc.

How do speeds translate to activities?[4]

Speed	Capability
0 - 5 Mbps	• Check email • Browse web • Stream music on one device
5 - 40 Mbps	• Stream video on one device • Video call • Online gaming for one player
40 - 100 Mbps	• Steam HD video on a few devices • Multiplayer online gaming • Downloading large files
100 - 500 Mbps	• Stream video in UHD on multiple screens • Gaming online for multiple people • Download large files quickly
500 Mbps – 1Gbps	• Do almost anything on numerous devices simultaneously

Available broadband technologies depend on location, scope of provider packages, price, and infrastructure.

Source: [1] FCC; [2] BEAD; [3] NTIA Broadband USA; [4] Ookla; Guidehouse

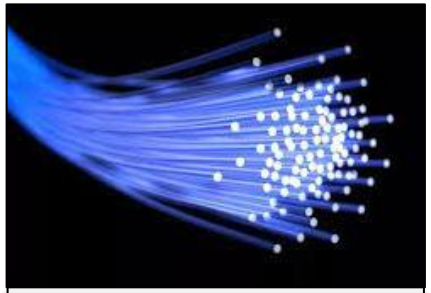
BROADBAND OVERVIEW | Broadband availability relies on adequate infrastructure, but affordability and adoption factors also impact access

The internet is a series of computers that are connected to each other through wires and share data between themselves. This connection can also be wireless, for a time, through a Wi-Fi or cellular connection.

1

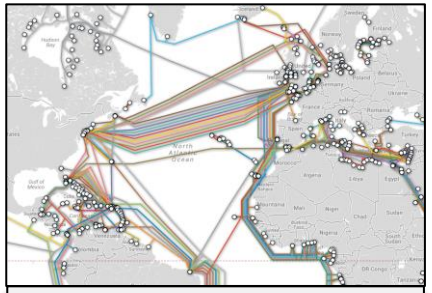
All data is stored locally or in a **data center** (e.g., the cloud)

2



Data can be parsed into bits and bytes (8 bits) and sent via **fiber-optic cables** (“fiber”) through light pulses

3

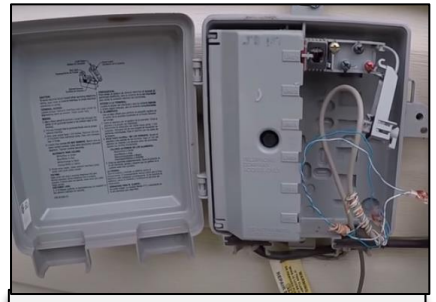


Internet “**backbone**” connects data centers and internet exchange points, allowing networks to access one another. These connections span countries and oceans.

4

Fiber lines from internet exchange points and data centers connect to local communication huts and nodes which is the “**middle mile**”

5



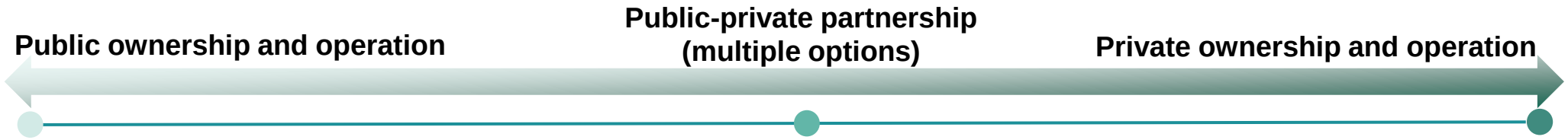
Getting from a local node to the end user is the “**last mile**” and can be achieved through a variety of technologies (fiber, cable, DSL, fixed wireless, cellular)

Source: FCC; NTIA Broadband USA; Guidehouse

SECTION 3

POLICY & GOVERNANCE

KEY TAKEAWAYS | There are no significant restrictions that Lake County faces in Illinois law in relation to broadband – allowing for multiple potential approaches



	Public ownership and operation	Public-private partnership (multiple options)	Private ownership and operation
What this looks like	**Publicly owned and operated network in unserved areas** and programs with minimal private sector involvement	**The County partners with private investment** through policies and potentially some funding	**Privately financed, owned, and operated network** (laissez-faire approach)
How it works	Lake County pursues public funding or financing options to build out connections to unserved locations and provides retail service through a county-owned utility	**P3 examples:** • County helps fund private infrastructure buildouts • County builds and/or provides infrastructure, ISP provides service	The County does not invest significant public funds toward build-out, but may be instrumental in streamlining permitting and construction processes
Feasibility	**All of these operating models are feasible for Lake County to pursue, and none are mutually exclusive.** Illinois State law allows Lake County to pursue a fully **government-led broadband buildout/service** or public-private partnerships, to **lease new or existing broadband infrastructure (ex. fiber) to ISPs** on a non-discriminatory basis, and/or to facilitate private investment by allowing **privately-led infrastructure development** (dependent on market demand).		

NEW LEGISLATION | New state legislation shows potential practices for Lake County to follow, as well as opportunities for partnership

Governor Pritzker signed **SB0851 on August 4, 2023,** which directs the Illinois Broadband Advisory Council to **evaluate a potential expansion of the Illinois Century Network to Illinois public schools, public libraries, and State-owned facilities.** The study shall be completed by January 1, 2024.

Relevance to Lake County:
If the State does pursue an expansion of the Illinois Century Network, this means that Lake County schools and libraries could gain access to a likely lower-cost fiber network. The new law also directs the Broadband Advisory Council to explore partnerships between local governments with fiber networks to provide public broadband service to schools and libraries.

Lake County could also follow the example of the Illinois Century Network in considering a buildout of its own fiber-network. A Lake County network could similarly serve governmental agencies and/or community anchor institutions. A potential Lake County network could partner with the Illinois Century Network

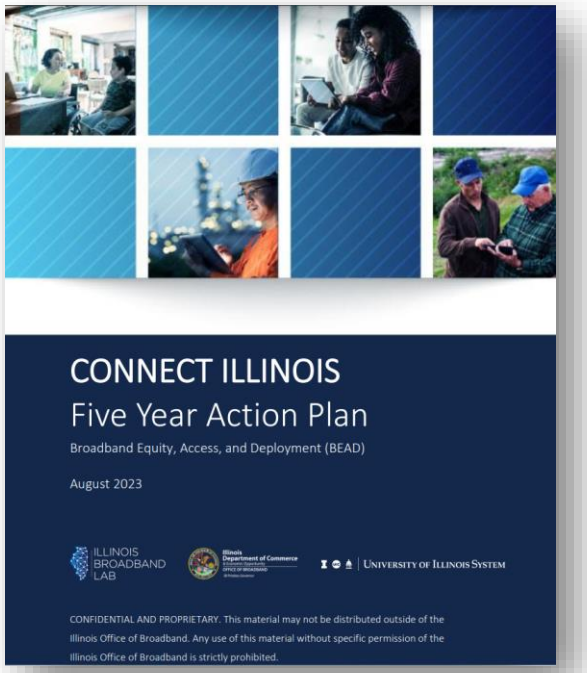
The Illinois Dig Once Act was signed by the Governor on July 28, 2023. **"Dig Once" policies** minimize disruptions due to excavation and construction of existing critical infrastructure like roadways or sewer systems by installing or laying the groundwork for new, much needed digital connectivity or other infrastructure at the same time.

Relevance to Lake County:
As the State of Illinois pursues construction projects in Lake County, the State may also lay the groundwork for additional broadband infrastructure. The State of Illinois' Dig Once Act provides a model that Lake County and other local governments can follow or adjust to fit their needs.

Other local governments that have established Dig Once or similar policies include San Francisco, California; Boston, MA; Nevada County, CA; Arlington County, VA; and more.

Source: https://www.ilga.gov/legislation/ilcs/ilcs4.asp?DocName=060500050HArt%2E+10+Div%2E+3&ActID=1745&ChapterID=45&SeqStart=54500000&SeqEnd=55900000&Print=True

STATE BROADBAND PLANNING | Illinois' Five-Year Action Plan provides a preview into state priorities for broadband and digital equity funding



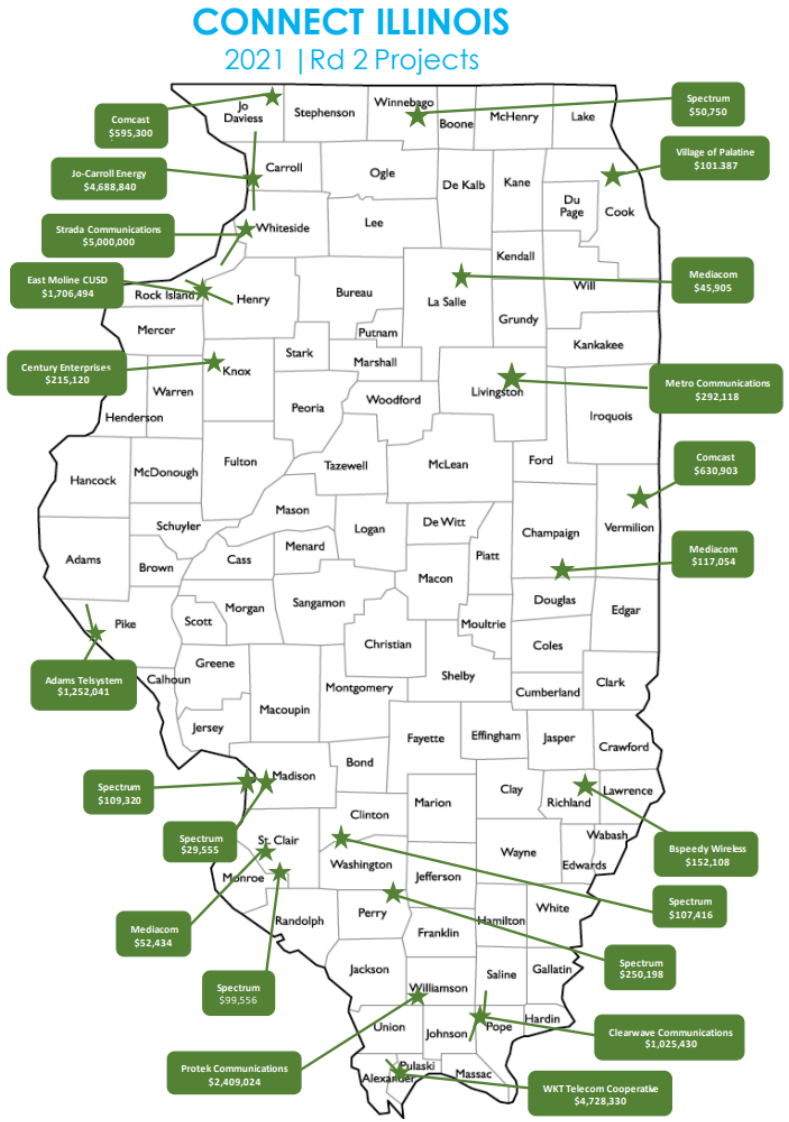
Illinois' goals for BEAD funding:

- **Access**: By 2030, at least 100/20 Mbps for all Illinois residences and businesses and at least one Gigabit symmetrical broadband service for all community anchor institutions (CAIs)
- **Adoption**: Leverage new and existing resources for achieving universal digital literacy and increase adoption
- **Utilization**: Expand opportunities for inclusive workforce development empowered by broadband

Potential opportunities for alignment to Illinois BEAD strategies:

- **A1b.** Work with relevant state and local agencies (such as IDOT) to incorporate fiber network expansion into forthcoming roadway improvement projects
- **A1c.** Use public-private partnerships to expand the fiber network
- **A1f**. Explore setting a higher standard for service (such as 100/100 Mbps) for internet service providers deploying infrastructure
- **A2a.** Deploy fiber technologies for CAIs to support robust internet access at a higher bandwidth
- **B1b**. Partner with and support local digital equity coalitions (such as the Connect Lake County) to launch and scale identified recommendations for promoting digital equity
- **B1c**. Scale existing Accelerate Illinois, Broadband Breakthrough, and Illinois Connected Communities (ICC) programs to support local government and local organizations in developing digital equity and broadband strategies
- **B1f**. Create a statewide Digital Navigator program to target hard-to-reach and covered populations
- **B2a**. Expand device loans, subsidies, and access points available through CAIs
- **B2e**. Drive ACP adoption through awareness campaigns and targeted partnerships with trusted community partners
- **C2b**. Work with state education agencies to explore interest in broadband-focused programs on campuses
- **C2e.** Work with local governments to share best practices for encouraging participation in educational workforce development programs through scholarships, internships, and employer incentives
- **C3c.** Work through local and state organizations to partner with local libraries to create digital literacy programs that provide information and educate residents on tools designed for digital health

CONNECT ILLINOIS PROGRAM | The Connect Illinois initiative also provides important insight into what the state's BEAD priorities and processes may look like



Lake County may leverage the existing frameworks of the Connect Illinois program as it designs projects that could be eligible for BEAD funding.

The State of Illinois intends to utilize its $1B BEAD funding allocation to build upon its $420 million Connect Illinois broadband infrastructure initiative. Launched in August 2019, Connect Illinois includes a $400 million broadband grant program administered by the Department of Commerce and Economic Opportunity (DCEO) to deploy statewide broadband expansion for those communities most impacted by the digital divide – and a $20 million capital program for the Illinois Century Network, a high-speed broadband network serving K-12 and higher education institutions, among others .

Connect Illinois has been awarding grants in multiple rounds and is **currently on Round 3.** Eligible project categories includes:

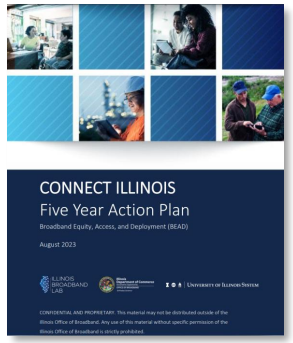
- **Broadband Access** - New and/or upgrade broadband networks that connect Illinois homes, businesses, and community anchor institutions in unserved or underserved areas
- **Broadband Innovation** - Projects that deploy broadband networks for social and economic development and related applications
- **Urban Broadband** - Projects that foster access, equity and/or innovation in qualified Illinois cities or metropolitan areas of 75,000 residents or more

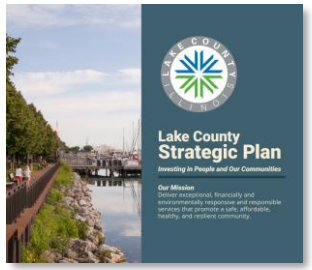
Projects have been selected based on: Program Impact; Nonstate Match & Demonstration of Need; Community Support; Project Readiness; Project Viability & Sustainability; Affordability & Adoption Assistance; Open Access, Shared Use, & Business Strategy

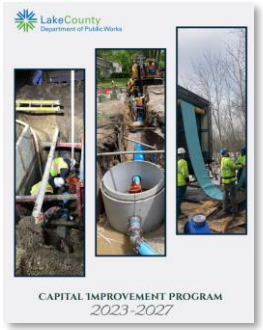
Source: https://dceo.illinois.gov/connectillinois/connectil.html

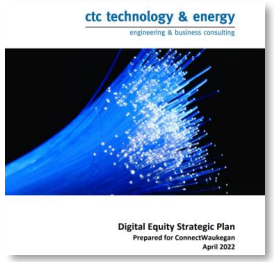
STRATEGIC ALIGNMENT | Local strategic plans and policies represent crucial opportunities for Lake County to align with cross-stakeholder efforts

Bridging the digital divide in Lake County is about more than improving broadband access – these efforts help to drive and strengthen local initiatives across economic development, infrastructure, public health, equity, and more.









"Leverage federal infrastructure investments to expand broadband infrastructure in Lake County and address barriers to internet access, such as digital literacy, access to devices, and affordability."
- Comprehensive Economic Development Strategy

"Advance regional infrastructure solutions and services in partnership with and through the support of federal, state, and local agencies"
- Lake County Strategic Plan (August 2023 Draft)

"Engage nontraditional economic development partners, in conjunction with workforce development and education partners, to launch digital literacy initiatives and improve access to broadband-ready devices"
- Comprehensive Economic Development Strategy

"With local and state partners, explore and design a model of a community connection center that will address adoption and utilization"
- Connect Lake County Digital Equity Strategic Plan

BROADBAND AS A KEY DRIVER | The Lake County Broadband Plan has the potential to facilitate broader policy change and impact strategic County goals

DRIVES	ENABLES	ALIGNS	SOMEWHAT ALIGNS	NOT ALIGNED	NOT RELEVANT
• Strategy is intentional in its efforts to improve broadband access and bridge the digital divide – and the Lake County Broadband Plan will help drive its goals	• Strategy is directly related to broadband and digital equity and the Lake County Broadband Plan \ supports its goals and implementation	• Strategy aligns with the Lake County Broadband Plan, but the plan neither drives nor enables its execution	• Strategy is somewhat linked to the Lake County Broadband Plan, but the plan does not progress it further	• Strategy runs counter to the overall objectives of the Lake County Broadband Plan and is potentially hindered by it	• Strategy is not relevant to the Lake County Broadband Plan

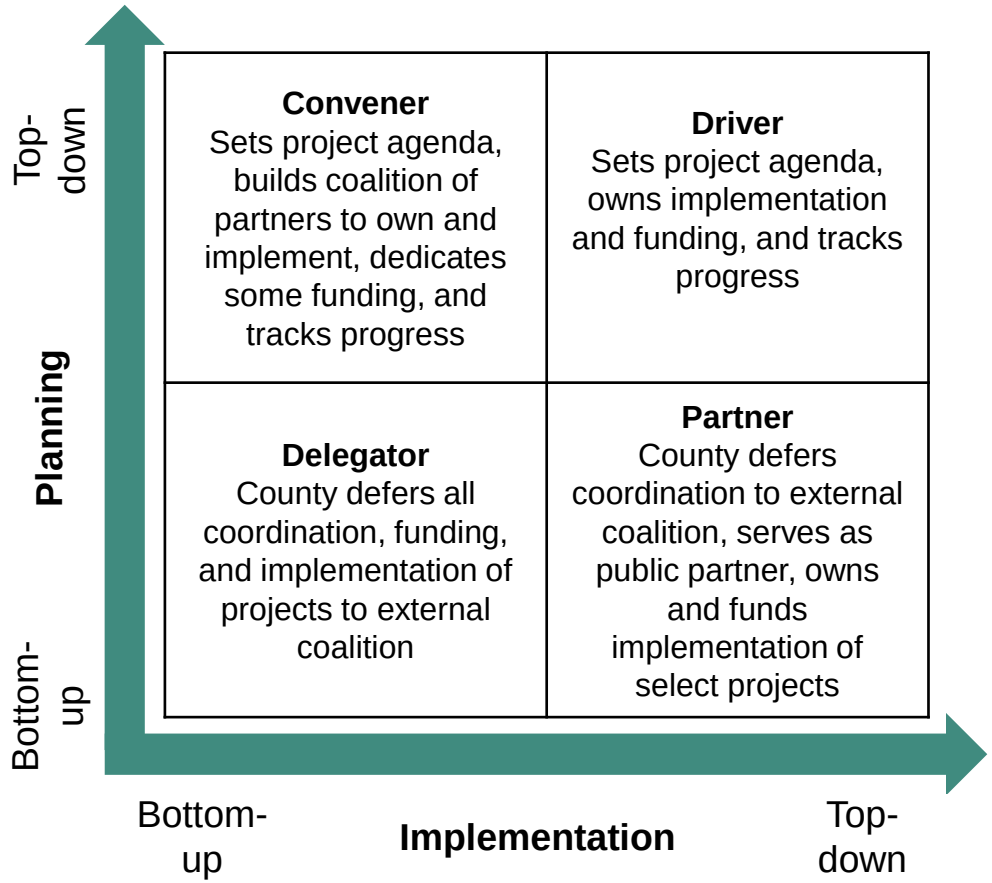
Selection of Plans, Goals, and Strategies									
Connect Illinois Five-Year Action Plan	By 2030, ensure universal access to affordable, reliable, fully scalable high-speed internet service of at least 100/20 Mbps for all Illinois residences and businesses	By 2030, ensure that every CAI has access to at least 1 Gigabit symmetrical broadband service	Achieve universal digital literacy, including basic awareness of online privacy and cybersecurity, focusing on covered populations	Ensure that all Illinoisans, including members of covered populations, have access to affordable subscriptions, devices, and tech support	Ensure that every student, school, and district within Illinois participates in a sustainable one-to-one initiative	Increase the use of broadband services to facilitate aging in place	Accelerate the use of digital agriculture applications across rural Illinois	Expand broadband-powered opportunities for inclusive workforce development in communities throughout Illinois, with a focus on covered populations	Expand access to broadband-powered health-related services for covered populations to provide additional healthcare options to communities throughout Illinois
Lake County Strategic Plan (2023 DRAFT)	Build and maintain safe communities through programs that enhance education and prevention, law enforcement, and behavioral health services while promoting an accessible and equitable justice system.	Expand access to economic opportunities to strengthen the growth of Lake County.	Develop and implement modern infrastructure solutions that are equitable, resilient, safe, and sustainable.	Protect and enhance our natural resources and environment through nature-based solutions, climate resilience initiatives, and innovative open space strategies.	Increase health equity to ensure a thriving Lake County	Embrace innovative and cost-effective methods of service delivery and invest in a high performing workforce			
Lake County Comprehensive Economic Development Strategy	Form a competitiveness task force comprised of public and private sector members	Promote the region's high quality of life for talent attraction and retention through marketing and network building	Strengthen existing business growth and retention programs, as well as bolster business recruitment efforts, to build economic resiliency	Increase collaboration between entrepreneurs and the private sector to spur innovation	Support and preserve the development of commercial and industrial employment centers	Structure conversations around infrastructure and regional mobility from an innovation perspective.	Increase the number of housing units (owner occupied and rental) across the spectrum of affordability and density	Leverage federal infrastructure investments to expand broadband infrastructure in Lake County and address barriers to internet access, such as digital literacy, access to devices, and affordability	Build awareness of career opportunities in the region, especially in science, technology, engineering, and mathematics (STEM) occupations and the trades

BROADBAND AS A KEY DRIVER | The Lake County Broadband Plan has the potential to facilitate broader policy change and impact strategic County goals

DRIVES	ENABLES	ALIGNS	SOMEWHAT ALIGNS	NOT ALIGNED	NOT RELEVANT
• Strategy is intentional in its efforts to improve broadband access and bridge the digital divide – and the Lake County Broadband Plan will help drive its goals	• Strategy is directly related to broadband and digital equity and the Lake County Broadband Plan \ supports its goals and implementation	• Strategy aligns with the Lake County Broadband Plan, but the plan neither drives nor enables its execution	• Strategy is somewhat linked to the Lake County Broadband Plan, but the plan does not progress it further	• Strategy runs counter to the overall objectives of the Lake County Broadband Plan and is potentially hindered by it	• Strategy is not relevant to the Lake County Broadband Plan

Selection of Plans, Goals, and Strategies									
Lake County Health Department Strategic Plan	By 2023, Health Department staff and key community stakeholders are equipped to collect, interpret, and integrate data into their decision-making	By 2025, internal and external partners can access data they need in a timely manner through user-friendly websites	By 2023, assess community needs and ensure that Health Department hours, locations, and services reflect the needs and priorities of those who live, work and play in Lake County	By 2025, assure that Health Department programs and services have the capacity to address unmet community needs	By 2023, assure awareness of and coordination across Health Department and community partners' services and resources	By 2025, facilitate career pathways for Health Department staff and diverse, local applicants	By 2023, the Health Department has implemented a meaningful system for assessing customer service experiences	By 2025, Health Department staff are equipped to integrate trauma-informed, anti-racist principles to create a safe and welcoming environment	
Connect Lake County Digital Equity Strategic Plan	Consider repositioning ConnectWaukegan (Connect Lake County) as a digital inclusion coalition of public and private stakeholders and provide ongoing programmatic guidance	Hire digital navigators and pursue a robust community engagement effort to facilitate expanded enrollment through the ACP and low-cost programs	With local and state partners, explore and design a model of a community connection center that will address adoption and utilization	Consider feasibility of a fixed wireless deployment to assist households unable to subscribe	Consider exploring partnerships with Comcast and AT&T for Internet Essentials subscriptions and bulk-purchase agreements for fiber in apartment buildings				

LOCAL COORDINATION | Lake County may consider taking a greater coordination role in the design and implementation of broadband initiatives



What does the Convener role look like:

- **Identifies and builds a coalition of stakeholders** that will take ownership of implementation of broadband and digital equity projects
- **Sets project agenda,** applies for funding (public and private) and coordinates implementation partners
- **Dedicates funding** to incentivize private sector buy-in and support for agenda
- **Provides policy guidance and/or technical assistance** to support city stakeholders
- **Liaises with NTIA** and Illinois Office of Broadband Development
- **Facilitates access to infrastructure** where feasible and compliant with Illinois and federal regulations
- **Leverages important know-how** of existing ecosystem of stakeholders (e.g., Connect Lake County, ISPs, non-profits)

Considerations from leading practices:

- Places like Cook County, Philadelphia, and Detroit have dedicated staff (e.g., digital equity coordinator) or centralized team to help coordinate broadband and digital equity planning activities

SECTION 4

MARKET STRUCTURE

KEY TAKEAWAYS | Four main ISPs provide service to majority of Lake County residents and businesses

Provider name[1]	% Block Coverage [2]	% BSL coverage [3]	Maximum advertised download speed (Mbps)	Maximum advertised upload speed (Mbps)	Minimum advertised download speed (Mbps)	Minimum advertised upload speed (Mbps)	Median advertised download speed (Mbps)[4]	Median advertised upload speed (Mbps)	Technology Type	Residential & Commercial Customers	Participates in Affordable Connectivity Program	Internet Plan Price Range[6]
Xfinity (Comcast)	97%	98%	6000	6000	1200	35	1200	35		✓	✓	$35 to $100
AT&T, Inc.	83%	74%	5000	5000	0[5]	0	50	10		✓	✓	$50 to $75
Verizon	68%	50%	1000	50	50	4	300	10		✓	✓	$40 to $70
T-Mobile	58%	47%	100	20	0	0	25	3		✓	✓	$50 to $70

A note about Broadband Serviceable Location (BSL) vs. Census Blocks:

- A BSL is "a business or residential location in the United States at which mass-market fixed broadband Internet access service is, or can be, installed." [7]
- Census blocks are "statistical areas bounded by visible features such as roads, streams and railroad tracks…" [8]

Other (smaller) ISPs in Lake County include:

- **Rise Broadband**: National fixed wireless provider, primarily serves Rockford, Champaign, Bloomington, Springfield in Illinois. Services <3% of Lake County BSLs.
- **eVergent:** SE Wisconsin and NW Illinois provider, provides fixed wireless coverage. Services <5% of BSLs in Lake County.
- **Spectrum (Charter):** Services <0.5% of BSLs in Lake County but is a major provider in Wisconsin and across the country.

Key

- Terrestrial fixed wireless available
- Copper available (i.e., DSL)
- Cable available
- Fiber available

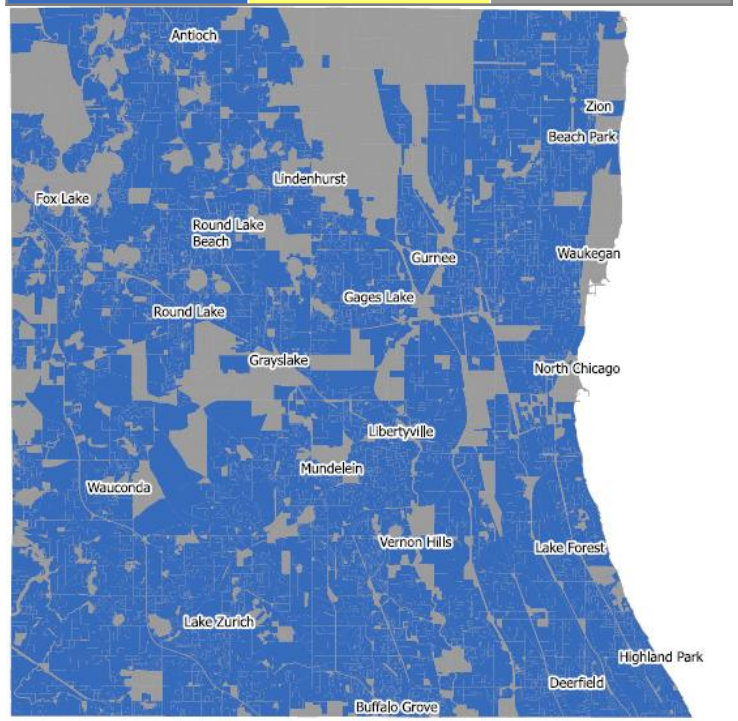
[1] This list highlights the four largest providers in Lake County based on the total number of BSL's serviced at speeds of 25/3 Mbps or higher.
[2] Block coverage was estimated based on percent of populated census blocks where an ISP offers service at 25/3 or higher to at least one location.
[3] BSL coverage was estimated based on percent of BSL's that are served at speeds of 25/3 Mbps or higher
[4] Providers report maximum advertised speed offers for each location where they provide service. The median advertised download speed takes the median of the maximum advertised speed range.
[5] Speeds of 0 Mbps download, and upload are associated with DSL or Fixed wireless connections and indicate speeds of less than 1 Mbps.
[6] Price estimates are based on publicly-available data gathered from provider websites
[7] FCC [8] U.S Census

MARKET STRUCTURE | Xfinity provides broadband coverage to 98% of locations at speeds of 100/20 Mbps or higher

Xfinity is the largest internet service provider in Lake County and provides high-speed (≥100/20 Mbps) internet coverage to 98% of locations, primarily through cable technology.

Xfinity Block Coverage Map

Served (≥100/20)	Underserved (≥ 25/3 & < 100/20)	No Plans



Xfinity

Key business facts

- Xfinity (Comcast) provides high speed internet service at speeds greater than 100/20 Mbps to 98% (~210,800) of broadband serviceable locations in Lake County.
- Services the majority (98%) of Lake County residents at speeds above 100/20 Mbps.[1]
- Xfinity's primary technology offering is cable through which it provides service to over 99% of its locations in Lake County. Less than 0.5% of Xfinity's locations are served by fiber-to-the-premises technology.
- Xfinity's network utilizes a hybrid of fiber optic and coaxial cables. The network backbone is comprised of fiber optic cables that terminate at nodes close in proximity to the end user, at which point the signals are transferred to coaxial cables that directly reach the end users premises.[2]
- Maximum advertised speeds reported to the FCC range from 6000 to 1200 Mbps download and 6000 to 35 Mbps upload.

Initiatives and information of note

- Monthly cost for Xfinity's internet plans range from $35 for 200 Mbps to $100 for 2000 Mbps.
- Xfinity participates in the **Affordable Connectivity Program** to provide a $30 per month discount on internet service to eligible customers.
- **Xfinity's Internet Essentials**[3] program provides low-cost internet plan options to qualifying households, that coupled with ACP could entirely subsidize the cost of internet service.

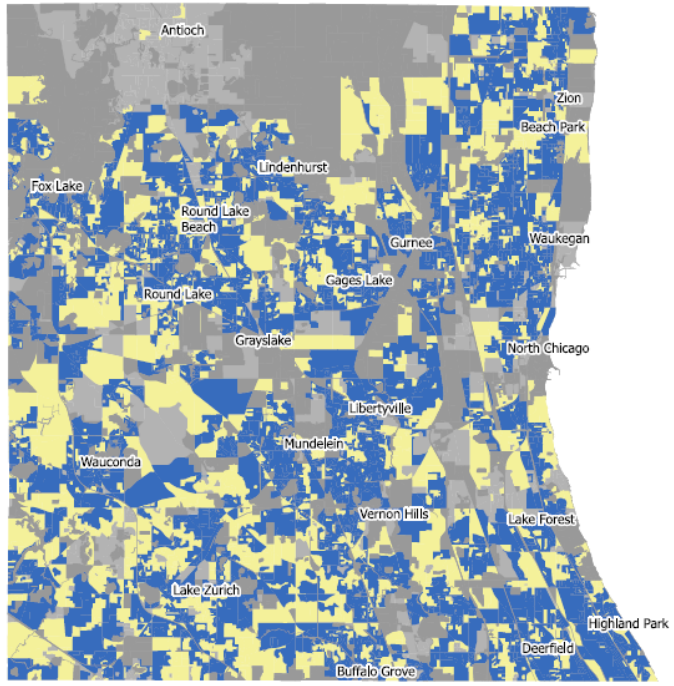
Source: FCC BDC data; [1] Note: Estimate of residents served was derived using 2020 population estimates for census blocks in which the ISP offers service to at least one location; [2] Broadbandsearch; [3] Xfinity

MARKET STRUCTURE | AT&T provides coverage to 20% of locations at speeds of 100/20 Mbps or higher

AT&T is the second largest internet service provider in Lake County and provides service to 55% of locations at speeds greater than 25/3 Mbps and 20% of locations at speeds greater than 100/20 Mbps, through DSL and fiber technology.

AT&T Block Coverage Map

Served (≥100/20)	Underserved (≥ 25/3 & < 100/20)	Unserved (< 25/3)	No Plans



AT&T

Key business facts

- Services 20% (~43,700) of Lake County's broadband serviceable locations with broadband at speeds of 100/20 Mbps or higher.
- Services 59% of Lake County residents at speeds above 100/20 Mbps.[1]
- Provides service primarily through DSL with limited amounts of fiber and terrestrial fixed wireless. Approximately 8% of locations serviced by AT&T offer fiber-to-the-premises (FTTP) technology.
- Fiber coverage is not concentrated in any portion of the county, rather locations serviced by FTTP are scattered throughout AT&T's service area in Lake County.
- Maximum advertised speeds for locations served by fiber range from 1000/1000 Mbps to 5000/5000 Mbps.
- Provides DSL coverage to 95% of its locations in Lake County. Additionally, portions of AT&T's service territory are serviced by legacy DSL connections only, which offer low speeds of less than 25/3 Mbps.

Initiatives and information of note

- Monthly cost for AT&T's internet plans range from $50 for 300 Mbps to $75 for 1000 Mbps, which includes the $10 per month equipment rental cost.
- Participates in the **Affordable Connectivity Program** to provide a $30 per month discount on internet service to eligible customers.

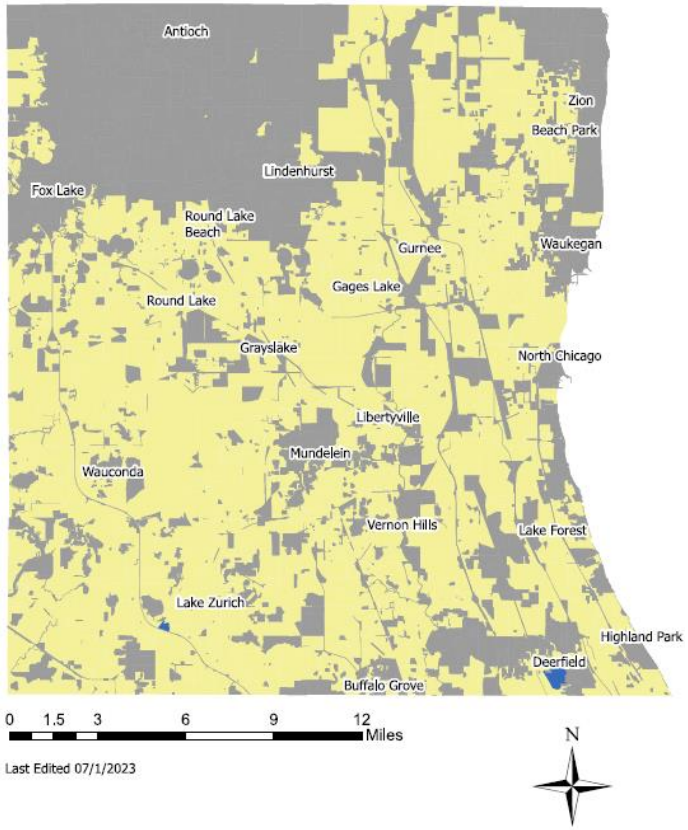
Source: FCC BDC data; [1] Note: Estimate of residents served was derived using 2020 population estimates for census blocks in which the ISP offers service to at least one location.

MARKET STRUCTURE | Verizon provides service to 50% of locations at speeds of 25/3 Mbps or higher

Verizon provides fixed wireless coverage to 50% of locations in Lake County, predominately at speeds between 25/3 and100/20 Mbps.

Verizon Block Coverage Map

Served (≥100/20)	Underserved (≥ 25/3 & < 100/20)	No Plans



Verizon

Key business facts

- Verizon provides coverage to 50% of broadband serviceable locations through licensed terrestrial fixed wireless at speeds that are between 25/3 Mbps and 100/20 Mbps.
- Services 76% of Lake County residents at speeds above 25/3 Mbps.[1]
- Maximum advertised speeds range from 50/4 Mbps to 1000/50 Mbps
- Compared to its competitors in Lake County, Verizon offers low speed. However, Verizon's fixed wireless coverage extends to areas in the unincorporated regions below the northern boundary of Laky County that are not served by the two biggest providers in the county.

Initiatives and information of note

- Monthly cost for Verizon's internet plans range from $40 for 100 Mbps to $70 for 940 Mbps.
- Participates in the **Affordable Connectivity Program** to provide a $30 per month discount on internet service to eligible customers.
- **Verizon Forward Program[2]** is an additional discount Verizon offers customers enrolled in ACP to provide free internet service.

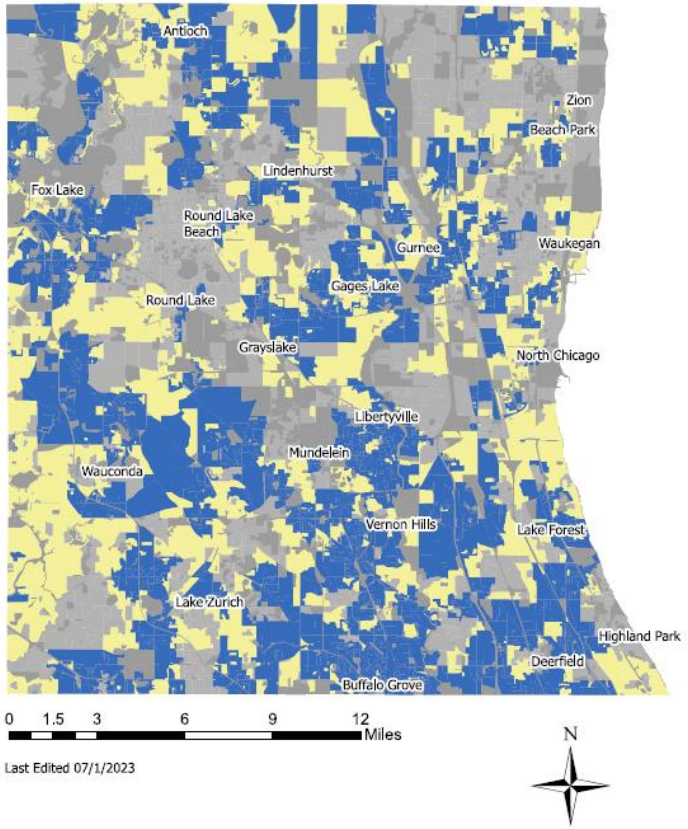
Source: FCC BDC data; [1] Note: Estimate of residents served was derived using 2020 population estimates for census blocks in which the ISP offers service to at least one location; [2] Verizon

MARKET STRUCTURE | T-Mobile provides service to 21% of locations at speeds of 100/20 Mbps or higher

T-Mobile provides fixed wireless coverage to 26% of locations at speeds greater than 25/3 Mbps and 21% of locations at speeds greater than 100/20.

T-Mobile Block Coverage Map

Served (≥100/20)	Underserved (≥ 25/3 & < 100/20)	Unserved (< 25/3)	No Plans



T-Mobile

Key business facts

- T-Mobile provides some level of coverage to 83% of broadband serviceable locations through unlicensed and licensed terrestrial fixed wireless technology. However, it serves 21% of broadband serviceable locations at speeds of 100/20 Mbps or higher.
- Services 34% of Lake County residents at speeds above 100/20 Mbps.[1]
- While T-Mobile offers generally low-speeds, it does provide some level of coverage to locations that are unserved by the two biggest providers in the county.
- Provides the fastest speeds to the southern half of Lake County.

Initiatives and information of note

- Monthly cost for T-Mobile's internet plans range from $50 for 50 Mbps to $70 for 200 Mbps
- Participates in the **Affordable Connectivity Program** to provide a $30 per month discount on internet service to eligible customers.

Source: FCC BDC data; [1] Note: Estimate of residents served was derived using 2020 population estimates for census blocks in which the ISP offers service to at least one location

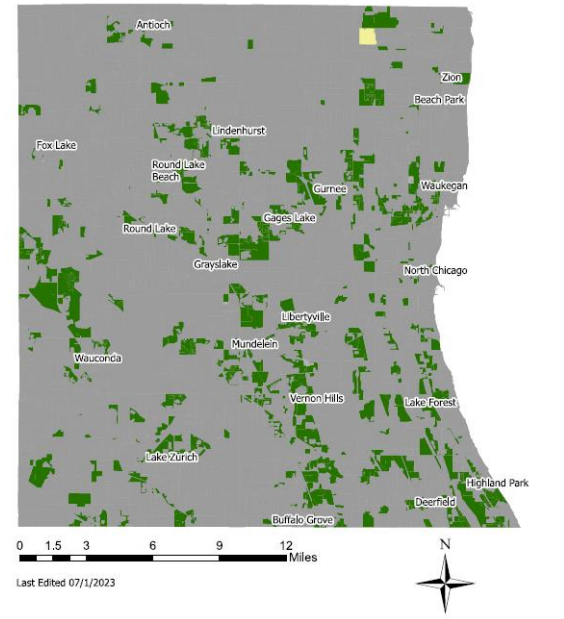
SECTION 5

INFRASTRUCTURE

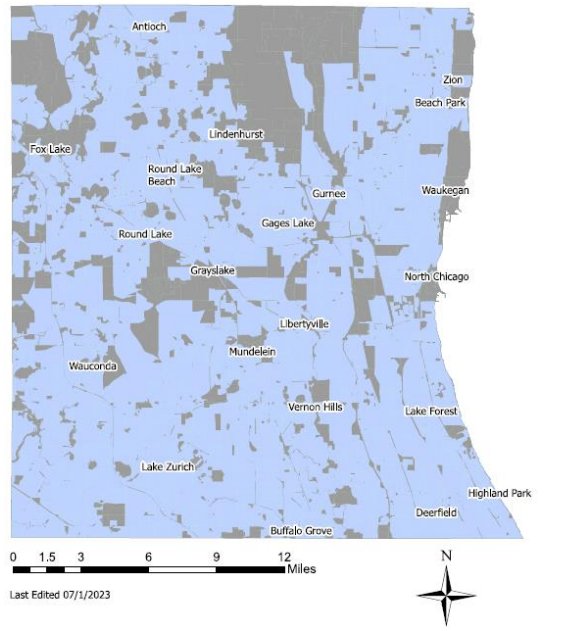
KEY TAKEAWAYS | Cable and fixed wireless coverage are widespread in Lake County, but access to fiber is very limited

Block Coverage by Technology Type

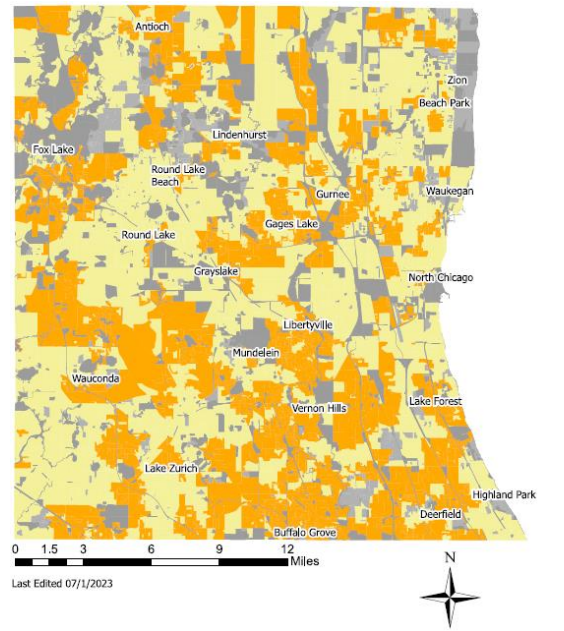
Fiber Coverage by Census Block



Cable Coverage by Census Block



Fixed Wireless Coverage by Census Block



Technology Type	% of populated blocks served by 100/20 Mbps or higher	% of BSLs served by 100/20 Mbps or higher
Fiber	11%	7%
Cable	97%	98%
Fixed Wireless	28%	21%

Source: FCC BDC data

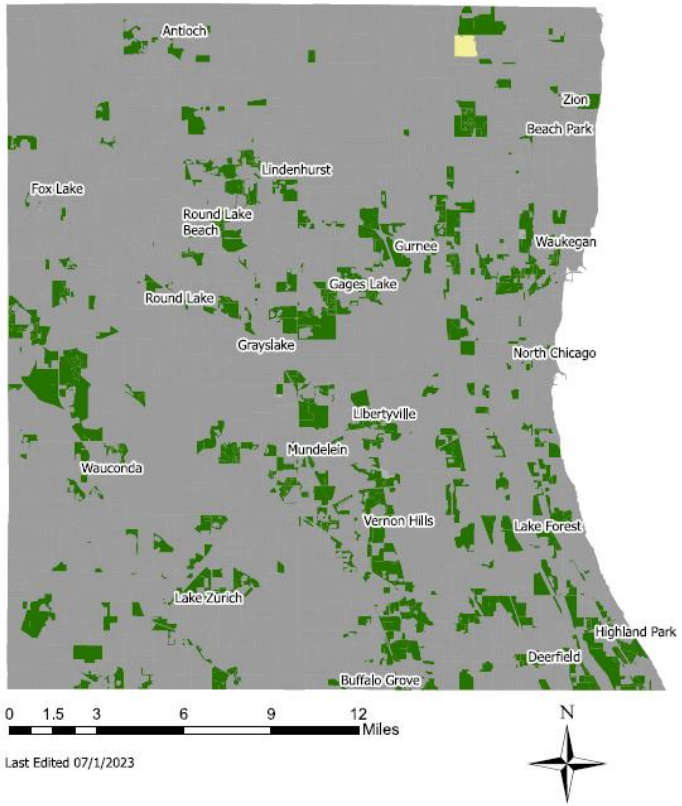
- Gaps in cable coverage correlate to the locations of unserved and underserved blocks in Lake County – **illustrating that some pockets within Lake County have very limited access to necessary broadband infrastructure.**
- Fiber and Cable are important for future-proofing broadband infrastructure. **Fiber is the preferred technology type by NTIA because it provides the fastest speeds** and is the best-suited for meeting rising household demand for internet service. While fixed wireless can provide access to remote locations, it has limitations in terms of bandwidth and reliability.

FIBER | Only 7% of locations in Lake County are served by fiber internet, with one primary provider

Fiber technology enables access to high-speed internet that can be scaled to meet the evolving connectivity demands of County residents.

Fiber Coverage by Census Block

Served (≥100/20)	Underserved (≥ 25/3 & < 100/20)	Unserved (< 25/3)	No Plans



What is fiber internet?

- Fiber internet is a type of broadband connection that uses fiber optic cables composed of glass or plastic strands to transmit data.[1]
- Although other technologies such as cable internet utilize fiber for their backbone infrastructure, fiber-to-the-premises connections install fiber that is directly wired to the home or business. Fiber technology enables access to high-speed internet that can be scaled to meet the evolving connectivity demands of Lake County residents

Why is fiber technology important?

- Fiber internet is the fastest technology type available in the market and allows for symmetrical speeds. Additionally, it is considered a "future-proof" technology as it can be scaled up to meet the evolving connectivity demands of households.
- Deployment of fiber is prioritized by federal broadband programs including the Broadband, Equity, Access and Deployment (BEAD) Program.

Fiber availability in Lake County

- Only 7.4% of locations in Lake County have access to fiber internet.
- **AT&T is the only major provider that offers fiber-to-the-premises service in Lake County** (Xfinity offers very limited FTTP service).

Fiber Coverage		
Speed Threshold	**Populated Block Coverage**	**BSL Coverage**
≥ 100/20 Mbps	10.83%	7.43%
≥ 25/3 Mbps	10.83%	7.43%

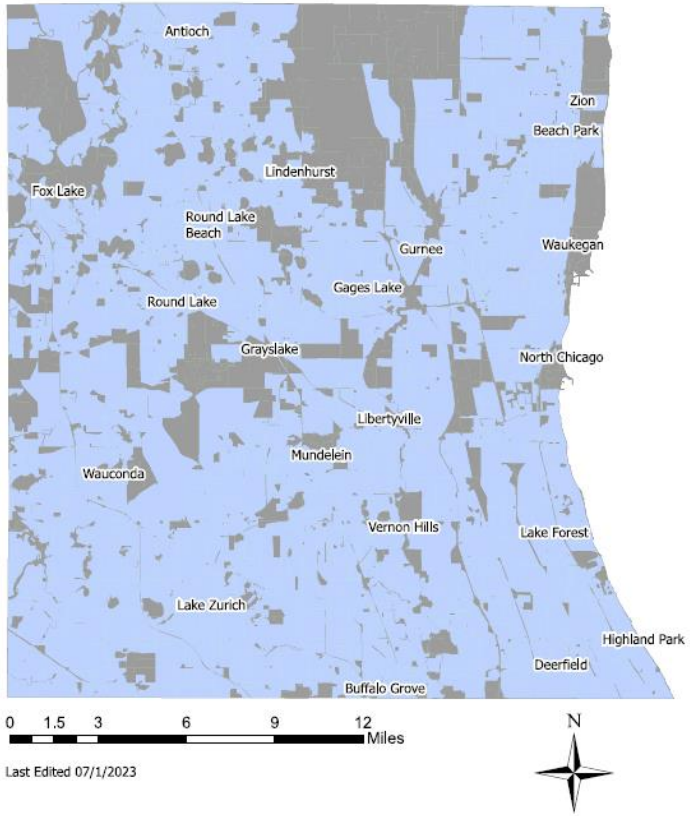
Source: FCC BDC data; FCC Fabric Version 2; [1] NTIA Broadband USA

CABLE | Access to cable is widespread in Lake County, with 98% of locations served at 100/20 Mbps or higher

Although cable technology covers the majority of census blocks, **gaps in cable coverage correspond to un(der)served areas in the county.**

Cable Coverage by Census Block

Served (≥100/20)	Underserved (≥ 25/3 & < 100/20)	No Plans



What is Cable internet?

- Cable internet uses existing coaxial cables to provide internet connections to households and business.
- Modern day cable internet systems utilize a combination of fiber and coaxial cables—fiber cables transmit data over long distances and then transfer the data to coaxial cables for the final connection to the premises.[1]

Cable availability in Lake County

- Cable coverage is widespread across Lake County with an estimated 98% of broadband serviceable locations having access to cable internet to speeds of 100/20 Mbps or higher.
- However, gaps in cable coverage exist near the northern boundary and in the central region of the county, corresponding to areas with high percentages of unserved and underserved locations.
- **Xfinity (Comcast) is the largest cable provider in Lake County**, and provides internet coverage at speeds ranging from 1200/35 Mbps to 6000/6000 Mbps

Cable Coverage		
Speed Threshold	**Populated Block Coverage**	**BSL Coverage**
≥ 100/20 Mbps	96.54%	97.65%
≥ 25/3 Mbps	96.54%	97.65%

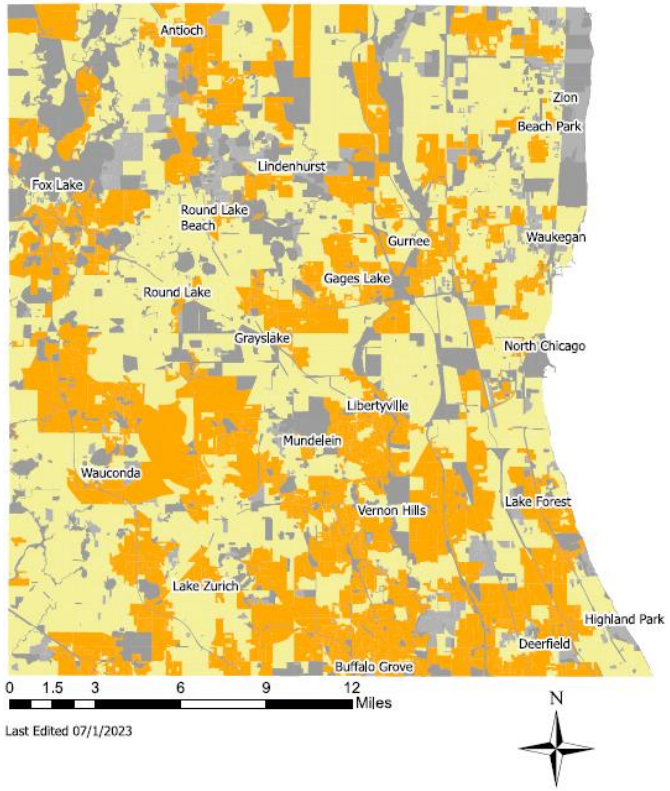
Source: FCC BDC data; [1] BroadbandSearch

FIXED WIRELESS | Fixed wireless provides coverage to 21% of locations in Lake County at speeds of 100/20 Mbps or higher

While fixed wireless provides service to 21% of locations at speeds of 100/20 Mbps or higher, **the technology faces constraints in terms of bandwidth, reliability and scalability compared to fiber optic.**

Fixed Wireless Coverage by Census Block

Served (≥100/20)	Underserved (≥ 25/3 & < 100/20)	Unserved (< 25/3)	No Plans



What is Fixed Wireless internet?

- Fixed wireless internet connects two fixed locations through wireless devices and systems. Since it does not require any cables, fixed wireless is considered to be a less expensive alternative to wirelines internet connections.[1] Fixed wireless may be a suitable technology for areas that are unable to be reached by wireline connections
- Although fixed wireless may be an option to connect rural locations where fiber buildout is not possible, fixed wireless internet has limitations that are important to consider. For instance, fixed wireless has capacity limitations that impact the number of users able to be on a network. Additionally, fixed wireless can be impacted by obstructions that hinder the networks line-of-sight to households. Further, unlike fiber, fixed wireless faces significant challenges in terms of scalability and increasing bandwidth.[2]

Fixed Wireless availability in Lake County

- Fixed wireless served 21% of broadband serviceable locations at speeds of 100/20 Mbps or higher and 53% of locations at speeds of 25/3 Mbps or higher.
- Verizon and T-Mobile are the largest fixed wireless providers in the County
- Generally, fixed wireless offers faster speeds to the southern portion of Lake County

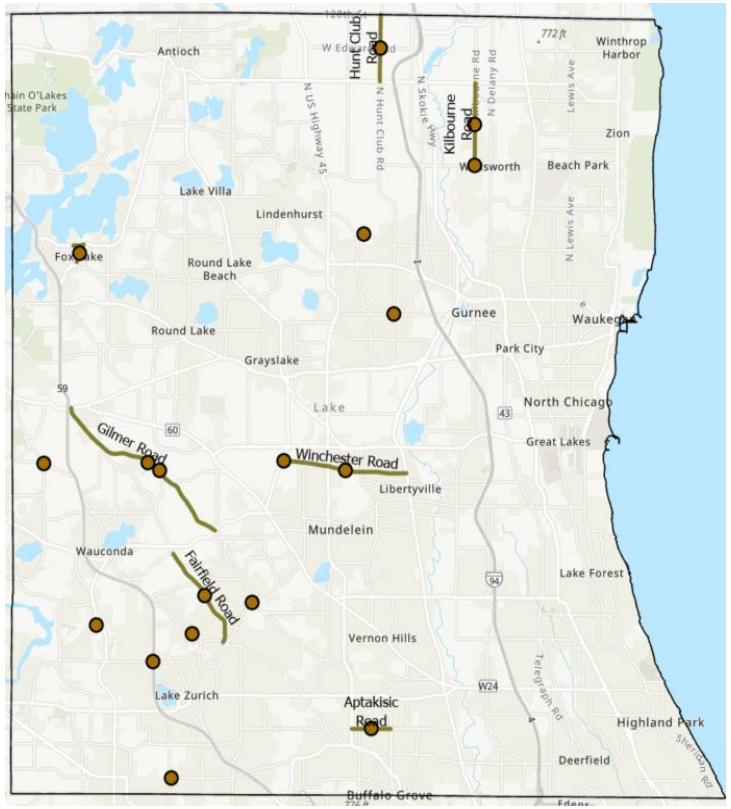
Fixed Wireless Coverage		
Speed Threshold	**Populated Block Coverage**	**BSL Coverage**
≥ 100/20 Mbps	28.32%	20.90%
≥ 25/3 Mbps	87.17%	53.19%

Source: FCC BDC data; [1] NTIA BroadbandUSA [2] Benton Institute

INFRASTRUCTURE PLANNING | Planned projects represent potential opportunities for integrating broadband improvements

Transportation Construction Program (2023)

Project Point | Project Line



Source: Lake County GIS, Lake County Department of Transportation, Lake County Public Works

Division of Transportation Capital Projects – Phase I (Planning)
Cedar Lake Rd Realignment
Deep Lake Rd Resurfacing
Hunt Club Rd at Stearns School Rd
Kenosha Rd at 21st St Intersection
Lake Cook Road Bike Path
Lewis Ave - IL137 to Belvidere Rd
Old McHenry Crossings
Patriot Path (IL Rte 137 Bike Path)
Rollins Rd - Grand Ave to Washington Ave
Rollins Rd Resurfacing and Non-Motorized Improvements
Wadsworth Rd at US41
Washington St at IL21
York House Rd - IL 131 to IL 137

Public Works Capital Projects – Phase I (Planning)
Columbia Bay Road Force Main Replacement
Corporate Woods Reservoir Rehabilitation
Gages Lake Road Water Main Upsizing
Hilltop Road Force Main Replacement
IL Route 22 Sewer Relocation
Jackson Force Main Replacement
Lakeside Force Main Replacement
Liberty Acres Water Main Replacement
Midland Force Main Replacement Part 2
N. Cedar Crest Force Main Replacement
Oak Terrace Well House and System Interconnection
Sanitary Interceptor Sewer Condition Evaluation
Southeast Central Interceptor Drop Chamber Rehabilitation
Teal Lane Force Main Diversion
US Route 41 - North Chicago Interconnect Meter Pit Rehabilitation
Water System Resilience Study: Hawthorn Woods/Forest Lake
West Pump Station Force Main Improvements

KEY TAKEAWAYS

- Capital projects and planned investments represent opportunities to integrate broadband improvements into existing efforts.
- Policy changes such as “dig once” have the potential to support coordination with broadband infrastructure efforts – if significant roadway construction is anticipated as part of a planned project, the County may consider integrating conduit and fiber infrastructure at the same time.
- Planned transportation and public works projects (2024-2027) appear spread across the county, **allowing for possible alignment with projects to serve un/underserved priority areas.**

SECTION 6

SOCIOECONOMIC LANDSCAPE

DATA SNAPSHOT | The Digital Equity Act defines covered populations that have historically been disconnected in terms of broadband adoption and access

By identifying and bridging barriers to digital equity faced by the eight covered population groups, the **Digital Equity (DE) Act aims to promote digital inclusion among all populations.**

Lake County Covered Populations Snapshot

Measure	Estimate	Percent
Total Population	714,484	-
Total Households	252,731	-
Families Below 150% Federal Poverty Level[1]	18,602	10.2%
Individuals aged 60 & Over	148,994	20.9%
Veterans	30,085	5.7%
Individuals with Disabilities	65,809	9.4%
Individuals with a Language Barrier[2]	65,001	9.6%
Racial and Ethnic Minorities	215,225	30.1%
Living in a Rural Area[3]	143,693	20.7%

An analysis of the correlation between covered populations and broadband subscription rates revealed that the following three covered populations had the strongest correlation with low broadband subscription rates in Lake County: **low-income residents**, **minorities**, and **individuals with a language barrier** (non-native English speakers).

Source: ACS 2017-2021; [1] Since publicly available data on low-income households was not available, data on families was used to estimate the low-income population; [2] Does not include individuals with low-literacy [3] DE Population Viewer [4] NTIA; [5] Pew; [6] NTIA; [7] USDOL; [8] Pew; [9] Pew

Low-income populations: Cost is the second most cited reason for not adopting the internet by offline households, according to a study by the NTIA.[4]

Aging populations: Research reveals that compared to the rest of the population, internet use among aging individuals remains lower.[5]

Veterans: Veteran populations, often older, suffering from disabilities and residing in rural areas, face challenges to adopting the internet.[6]

Individuals with disabilities: People with disabilities are less likely to use the internet or have a home internet subscription than people without disabilities.[7]

Individuals with language barriers: Non-native English speakers face challenges in-terms of using the internet for important services.

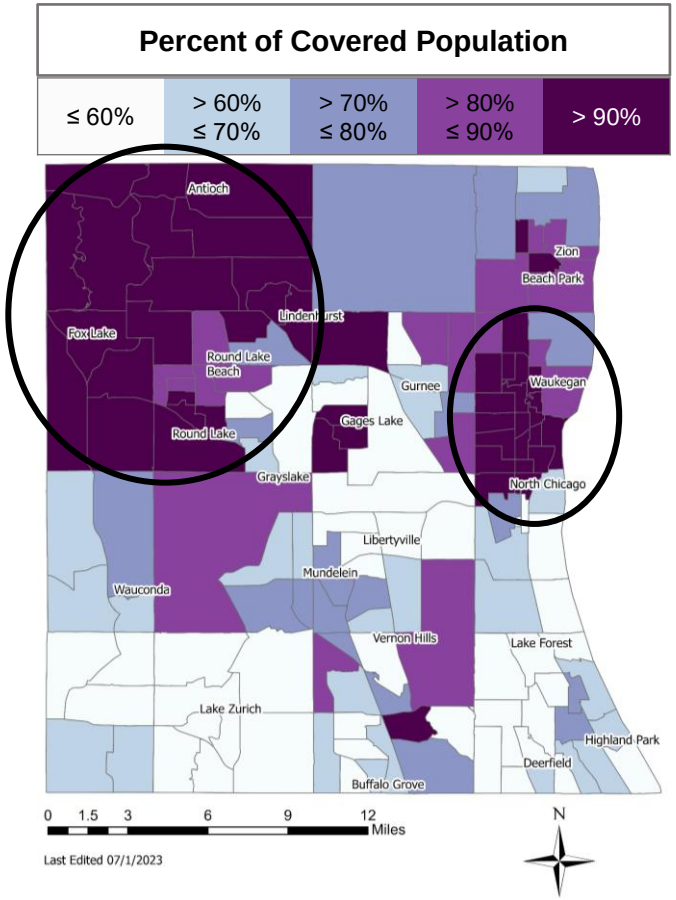
Racial and ethnic minorities: Research has found that non-white adults are less likely to have high-speed internet at home or own a computer.[8]

Rural Populations: Rural populations face challenges in terms of broadband adoption, device ownership and cost of internet subscriptions in rural areas.[9]

Note: The DE act defines the following eight covered populations: households with incomes below 150% of the federal poverty level, aging individuals (60 & above), veterans, individuals with disabilities, individuals with a language barrier, racial and ethnic minorities, individuals living in rural areas and incarcerated individuals. Population estimates are included for each group excluding incarcerated individuals, for which we could not identify a reliable data source for Lake County.

COVERED POPULATIONS | Approximately 76% of Lake County residents fall into one or more of the Digital Equity Act's covered population groups

76% of residents belong to at least 1 of 8 covered populations – with higher percentages in Waukegan, North Chicago, Antioch and Fox Lake.



Source: U.S. Digital Equity Act Population Viewer; [1] BroadbandUSA; [2] NTIA

Covered Populations

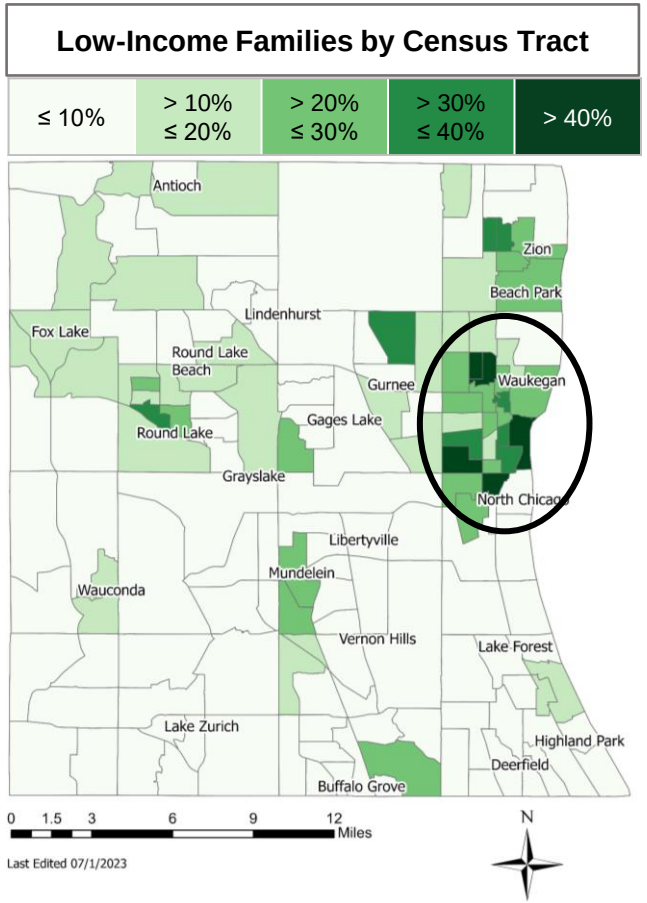
- The State of Illinois was awarded $1.5 million in grant funding through the State Digital Equity Planning Grant Program.[1] Funding was determined using the formula outlined below;
  - 50% of grant is based on the population of the state
  - 25% of the grant is based on the number of individuals in the state that are members of a covered population
  - 25% of the grant is based on the comparative lack of broadband availability and adoption in each state, relative to all eligible states[2]
- In Lake County, 76% of individuals belong to a covered population – compared to 78% in Illinois.
- The northwestern portion of Lake County is home to a higher percentages of covered populations, driven by the rural and unincorporated areas in this part of the county.
- The 3 largest covered population groups in Lake County are **individuals living in rural areas**, **individuals that belong to a racial or ethnic minority** and **individuals aged 60 or above**.

Total Covered Population

	Lake County	Illinois
Total Covered Population	529,644	9,905,000
Percent Covered Population	76%	78%

LOW-INCOME | The cost burden of internet subscriptions prevents many low-income families from getting online

Census tracts with higher percentages of low-income families correspond to census tracts with lower broadband subscription rates.



Source: U.S. Census ACS 2017-2021
[1] NTIA

Low-Income Families

- **Affordability is a significant barrier to broadband adoption for low-income families**. According to the NTIA, cost is the second most cited reason for non-adoption by offline households, following "no need/interest".[1] In Lake County the price for internet service above 100 Mbps download speeds ranges from $50 to $100. For many low-income families, this price may be inaccessible.
- **Approximately 18,600 (10%) families in Lake County have incomes that fall below 150% of the poverty threshold**. Census tracts with the highest percentages of low-income families are clustered near the eastern boundary of Lake County and include cities like Waukegan, North Chicago and Zion.
- A correlation analysis revealed that there is a strong *negative correlation* between percentage of low-income families and broadband subscription rates, meaning that census tracts with high percentages of low-income families correspond to census tracts with low broadband subscription rates.

Broadband Subscription Rate by Household Income in Lake County

Income	Broadband Subscription Rate
Less than $20,000	72.3%
$20,000 to $74,999	87.9%
$70,000 or more	97.3%

Stakeholder Insights

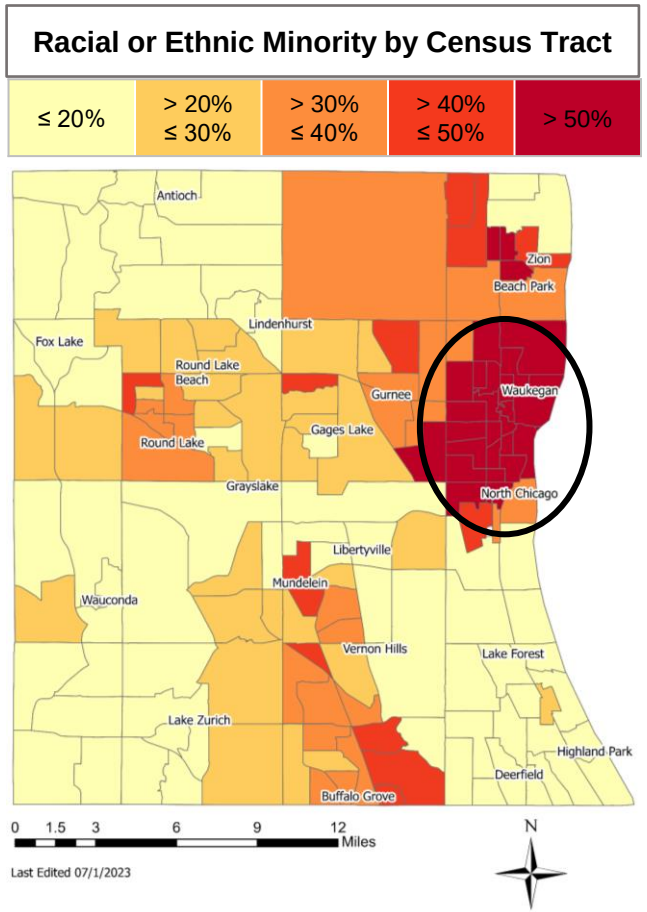
"We serve a lot of the people most at risk: [people] without broadband access at home are often those who can't afford it"

Stakeholder Insights

"There is very inelastic demand for the internet"

RACE & ETHNICITY | Minority populations are less likely to have a broadband subscription or own digital devices

Census tracts with higher percentages of racial or ethnic minorities correspond to census tracts with lower broadband subscription rates.



Source: U.S. Census ACS 2017-2021

[1] Pew Research Center

Racial or Ethnic Minority

- Research points to a racial divide in broadband adoption and device ownership. In fact, a 2021 survey from Pew Research Center found that black and Hispanic adults in the US are less likely to own a computer or have high-speed internet access at home, compared to white adults.[1]
- **Over 215,200 (30%) individuals in Lake County belong to a racial or ethnic minority, ranking it as the largest covered population group**. The highest percentages of racial or ethnic minorities are near the eastern boundary of Lake County in Waukegan, Zion and North Chicago.
- A correlation analysis revealed that there is a negative correlation between minorities and broadband subscription rates, meaning that census tracts with high percentages of racial or ethnic minorities correspond to census tracts with low broadband subscription rates.
- Additionally, tracts with high percentages of minorities correspond to tracts with high percentages of low-income families, suggesting that certain communities face compounding disparities.

Broadband Subscription and Computer Ownership by Race in Lake County

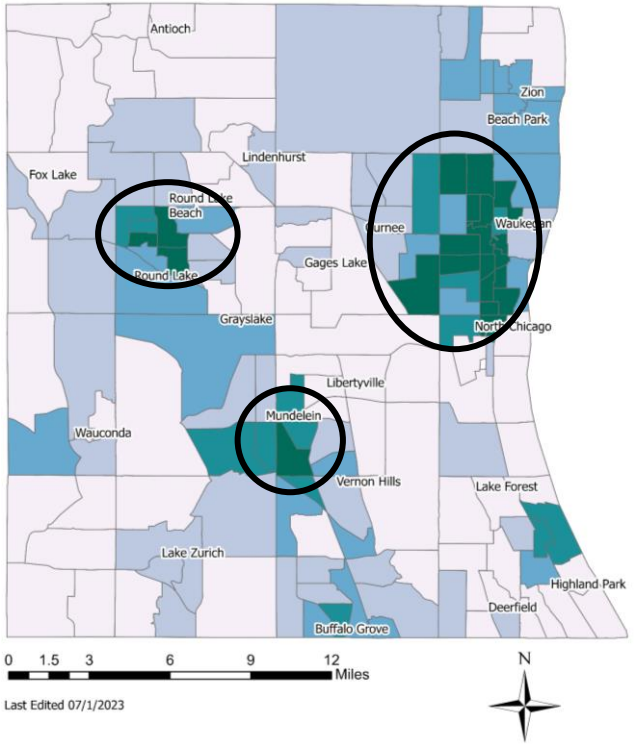
Race	Percent with a computer **and** broadband subscription
White alone	95.0%
Black or African American alone	90.4%
Asian alone	97.4%
Hispanic or Latino origin (of any race)	93.6%
Some other race alone	94.4%
Two or more races	94.8%

LIMITED ENGLISH PROFICIENCY | Non-native English speakers face limitations in accessing internet services

Census tracts with higher percentages of individuals with a language barrier corresponds to census tracts with lower broadband subscription rates.

Individuals with a Language Barrier by Census Tract

≤ 5%	> 5% ≤ 10%	> 10% ≤ 15%	> 15% ≤ 20%	> 20%



Source: U.S. Census ACS 2017-2021

[1] Internet Society Foundation; [2] National Skills Coalition

Individuals with a Language Barrier

- English is the dominant language of the internet, with more than half of all online content written in English.[1] Therefore, individuals with a language barrier (non-native English speakers) face added challenges to navigating and utilizing the internet.
- Additionally, research suggests that immigrants and Limited English Proficient workers are more likely to have limited or no digital skills. [2]
- **Nearly 65,000 (10%) individuals in Lake County have a language barrier** (categorized by the Census as individuals that “speak English less than very well”).
- Census tracts with higher concentrations of individual with a language barrier appear to correspond to census tracts with higher concentrations of minority populations.

Stakeholder Insights

"In communities such as ours, there are English as Second Language issues...we have people living in survival mode, who don't realize [using the internet] would make survival easier, doing work online, digital banking, etc."

Stakeholder Insights

"Non-English-speaking populations experience many challenges in Lake County”

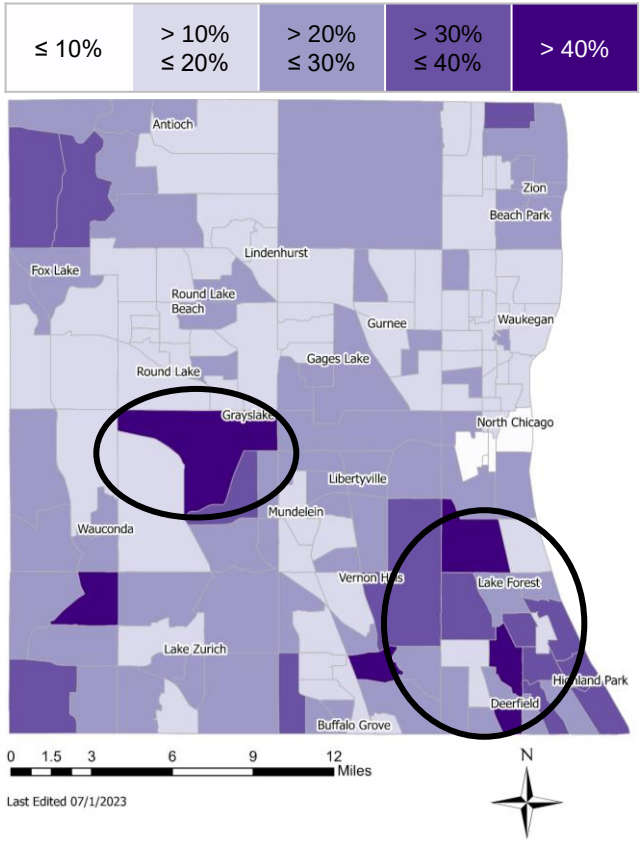
Stakeholder Insights

"Digital literacy efforts targeting seniors and the Spanish-speaking community would make my life easier”

AGING POPULATIONS | Seniors tend to use the internet less frequently due to limited digital skills and access to digital devices

Seniors face numerous barriers to meaningful broadband adoption including, low levels of digital literacy and access to digital devices.

Aging Individuals by Census Tract



Source: U.S. Census ACS 2017-2021 [1] Pew

Individuals Aged 60 & Above (Seniors)

- Although the gap in technology use and adoption between younger and older adults has decreased in the past decade, seniors still face challenges with adopting and utilizing newer technologies. Research from Pew found that there is a significant disparity in the frequency of internet use among young adults and seniors.[1]
- Approximately, 149,000 (21%) individuals are aged 60 or above in Lake County.
- Although the data does not indicate that there is a strong correlation between high percentages of aging populations and broadband subscription rates on the census tract level, multiple local stakeholders mentioned in interviews that county seniors face lower levels of digital literacy which impacts their ability to utilize the internet.
- Additionally, stakeholders mentioned that seniors in Lake County face challenges related to digital device ownership and often lack access to up-to-date technology.

Stakeholder Insights

"Seniors do not have the financial resources or the skills to access and utilize technology"

Stakeholder Insights

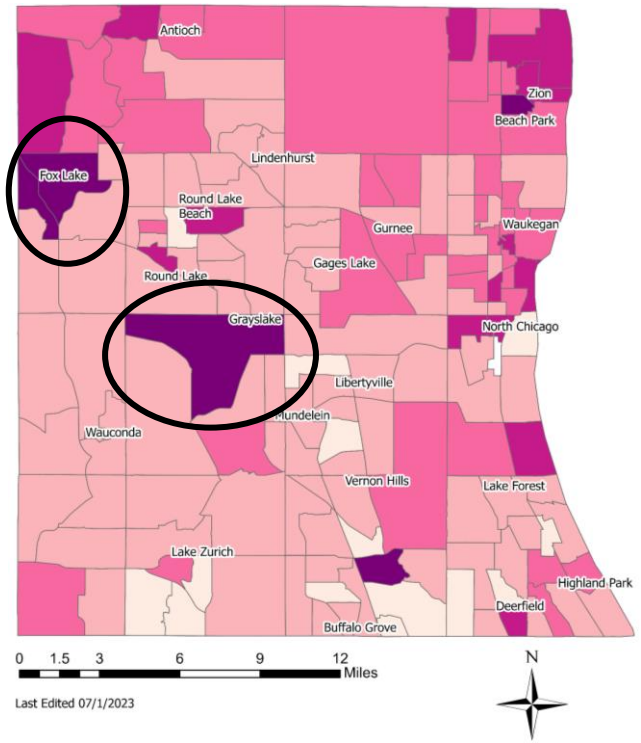
"Although there are programs and resources available to seniors, they would not know about them or how to find them"

DISABILITY | Individuals with disabilities are more likely to face challenges with accessing and using the internet

Individuals with disabilities are less likely to use the internet as frequently, driven by the inaccessibility of internet services and digital devices.

Individuals with a Disability by Census Tract

≤ 5%	> 5% ≤ 10%	> 10% ≤ 15%	> 15% ≤ 20%	> 20%



Source: U.S. Census ACS 2017-2021

[1] U.S Department of Labor

Individuals with a Disability

- Individuals with disabilities are less likely to have a broadband subscription at home and face lower rates of internet use compared to people without disabilities.[1] Additionally, individuals with disabilities may face added challenges to navigating and utilizing the internet due to the lack of accessibility of many online resources.
- Close to 65,800 (9%) individuals in Lake County have a disability.
- Census tracts with higher percentages of individuals with disabilities correspond to census tracts with lower broadband subscription rates.

Stakeholder Insights

"A lot of technology that is available through the internet is poorly designed to serve people who are very ill or have disabilities...we need to dive into the details to know some of the reasons customers are not using the available technology"

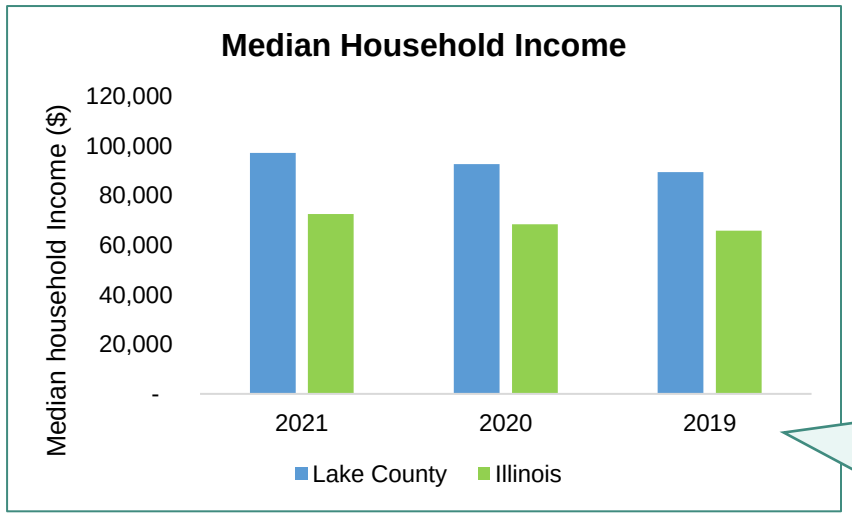
WORKFORCE IMPACTS | Research finds that broadband adoption and digital literacy can promote economic growth[1]

A National Skills Coalition report shows that **90% of job openings in Illinois** "definitely or likely" require digital skills

"In Illinois, 82% of working-age residents with broadband internet access are employed compared to just 77% of their counterparts without access, a difference of 5 percent." -ILEPI[2]

"In Illinois, workers with broadband internet access earn about $60,000 in annual incomes, which is 45% more than the $41,400 earned by their counterparts without access."-ILEPI [2]

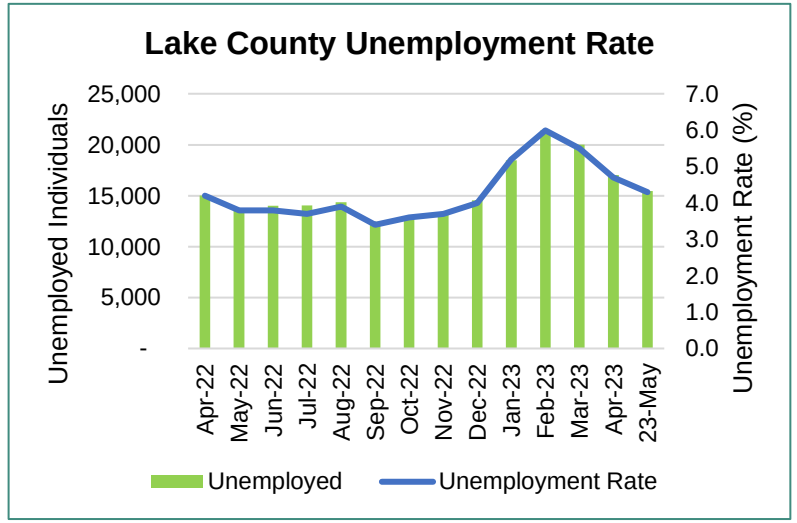
90% of job postings in Illinois include a "likely digital skill" and almost half of all job postings include a "definite digital skill."-NSC [3]



Source: U.S. Census ACS 2017-2021

Stakeholders have highlighted the effectiveness of providing jobseekers in Lake County with digital devices and digital skills in leading to improved employment outcomes.

While the median household income in Lake County is above the that of the State of Illinois, approximately 26% of households in the county had median incomes below $50,000 in 2021.



Source: U.S Bureau of Labor Statistics LAUS

Stakeholder Insights

"[Lack of] digital skills are barriers to getting a job…. people without digital skills lose out…[we] need to be more conscious of local people who aren't digitally educated"

Stakeholder Insights

"Access to digital devices allowed people to complete classes and become employed "

[1] Brookings Institute [2] ILEPI; [3] National Skills Coalition

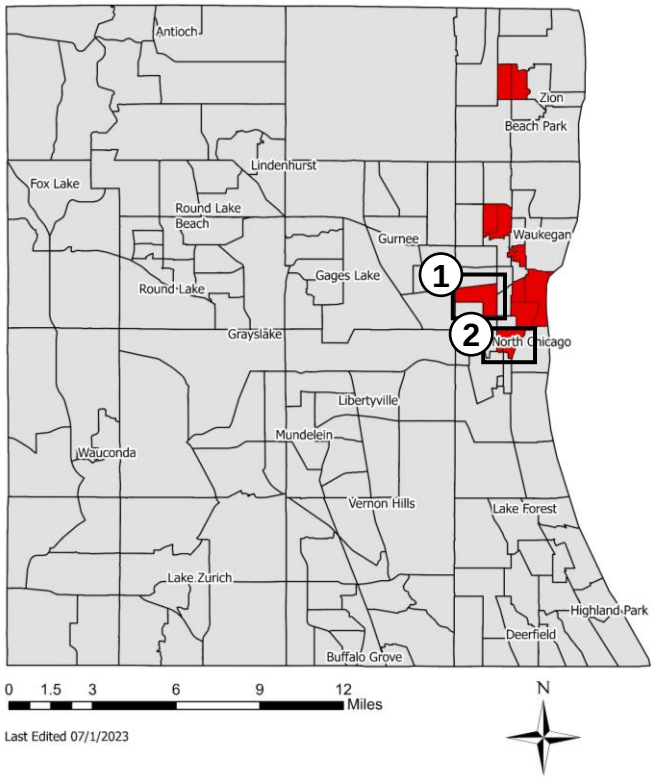
SECTION 7

ASSESSING GAPS & OPPORTUNITIES

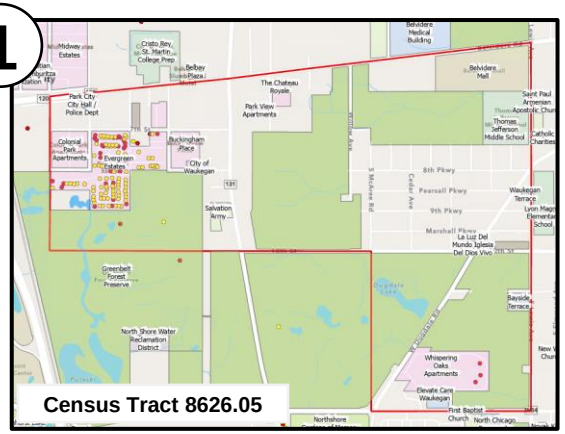
KEY TAKEAWAYS | Analysis points to 10 “high vulnerability” census tracts with compounding disparities in broadband adoption, income, race, and device access

Disparities in broadband adoption are apparent in tracts with high minority and low-income populations; areas that also face affordability challenges.

High Vulnerability Census Tracts

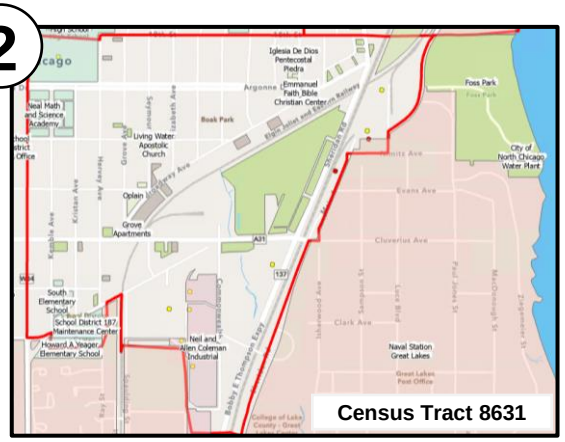


1



Near South Waukegan, 51% of households lack access to a broadband subscription (such as cable, fiber, or DSL)[1]—ranking it as the 2nd lowest tract in terms of broadband adoption. Several factors may be contributing to low broadband adoption rates, such as 58% of the population belonging to a racial or ethnic minority and 38% of families having incomes that are 150% below the poverty level. Additionally, in this area 12% of the housing units are mobile homes, which is almost 7 times the rate in Lake County. Many of the mobile homes have limited broadband access and are either unserved (<25/3 Mbps) or underserved (<100/20 Mbps) based on FCC data.[2]

2



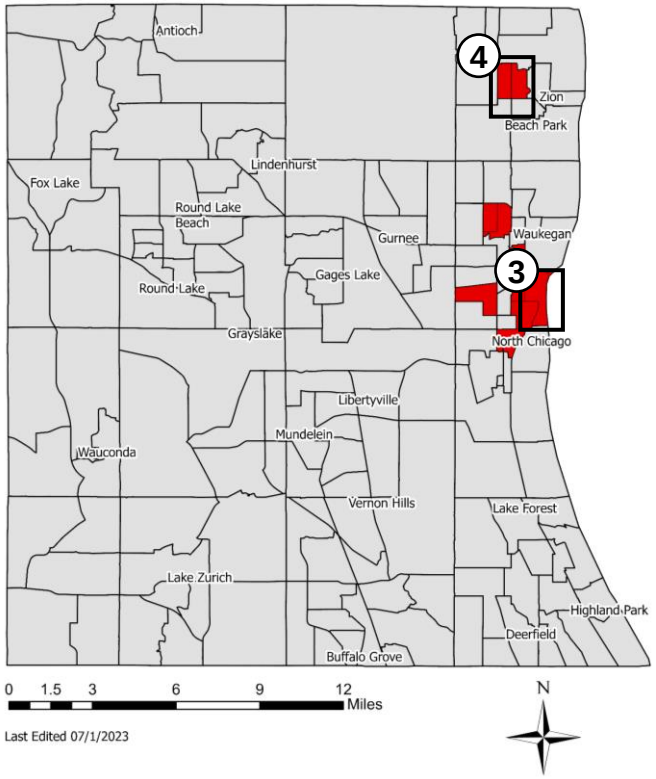
In the North Chicago area bordering the Great Lakes Naval Station, 50% of households lack access to a broadband subscription—ranking it as the 3rd lowest tract in terms of broadband adoption. This area sees an 84% minority population and 46% low-income population. Additionally, this area also faces higher levels of pollution due to its proximity to industrial and manufacturing facilities. In fact, according to the US Climate and Economic Justice Screening tool,[3] this area is considered disadvantaged, and ranks in the 93rd percentile for proximity to a hazardous waste facility.

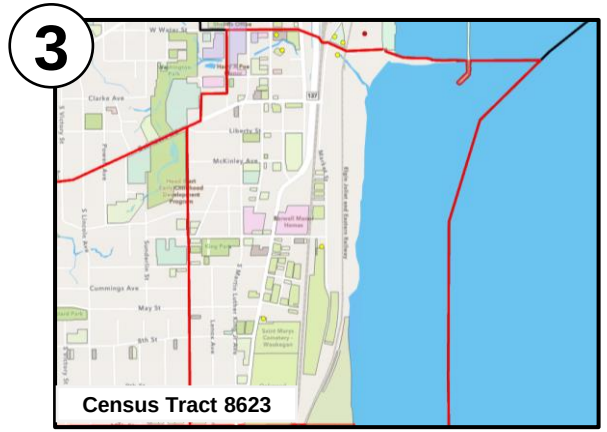
Source: US Census ACS 2017-2021; [1] Wireline broadband subscription measured using ACS estimate of households with a broadband subscription such as fiber, cable or DSL. Does not include cellular access.; [2] FCC BDC data, [3] Climate and Economic Justice Screening Tool

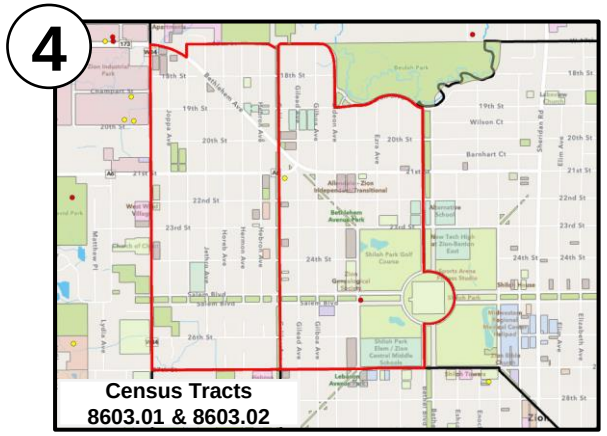
KEY TAKEAWAYS | High vulnerability areas correlate with those identified as over-burdened and underserved by the Climate and Economic Justice screening tool

The **U.S. Climate and Economic Justice Screening Tool (CEJST)**[1] identifies census tracts that meet or surpass thresholds across eight "categories of burden" encompassing: socioeconomic challenges, transportation, health, climate, energy, housing, waste and wastewater, and pollution indicators.

High Vulnerability Census Tracts







The area of southeastern Waukegan that borders the lake has the lowest broadband adoption rate in the county, with 52% of households lacking access to a broadband subscription.[2] Factors that might be contributing to low broadband adoption include a high minority (84%) and low-income (50%) population. This area contains two public housing facilities that provide low-income residents with affordable housing. Additionally, this area is considered disadvantaged by the CEJST; the census tract ranks in the 98th percentile for proximity to superfund sites and 96th percentile for underground storage tanks and releases.

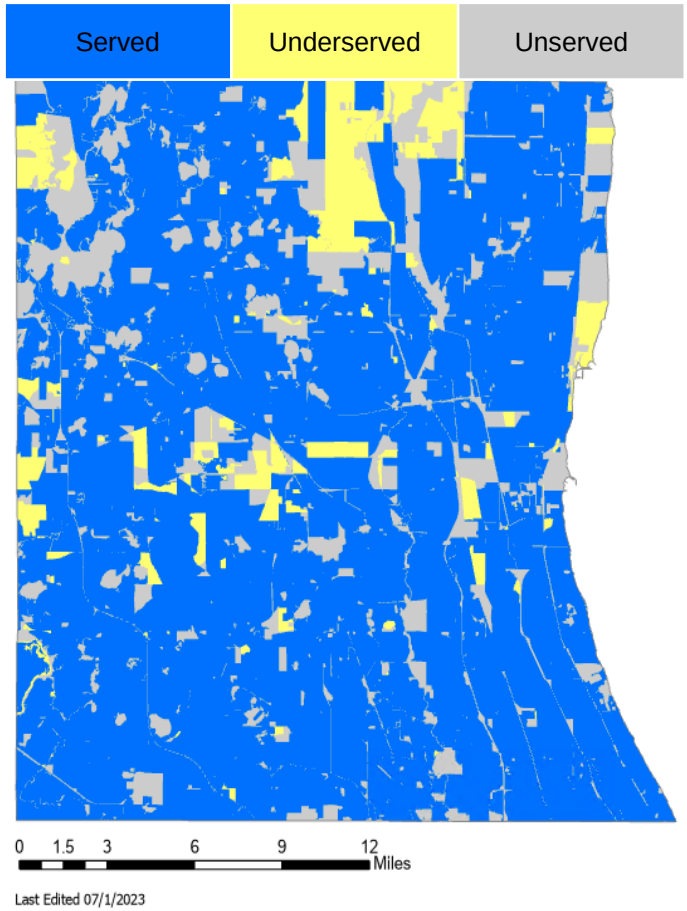
In Zion, in the area between Beulah and Shiloh Parks, 43% and 46% of households do not have a broadband subscription, respectively. Over 60% of the population in both tracts belonging to a racial or ethnic minority and over 33% of families having incomes that fall below 150% of the poverty level. Additionally, according to the CEJST, both census tracts are considered disadvantaged; both are above the 90th percentile for projected future wildfire risk, while one tract is also above the 90th percentile for low life expectancy.

Source: US Census ACS 2017-2021; [1] Climate and Economic Justice Screening Tool ; [2] Wireline broadband subscription measured using ACS estimate of households with a broadband subscription such as fiber, cable or DSL. Does not include cellular access.

BROADBAND AVAILABILITY | 98% of locations in Lake County are served by broadband at speeds of 100/20 Mbps

While majority of Lake County is well covered by broadband infrastructure, **there are clusters in the county that lack access to broadband service at sufficient speeds that should be prioritized**.

Broadband Coverage by Census Block



Key Takeaways

- The FCC defines *unserved locations* as having access to broadband at speeds of 25/3 Mbps or less and *underserved locations* as having access to broadband at speeds between 25/3 Mbps and 100/20 Mbps.
- Areas near the southern boundary of Lake County are comparatively well covered by broadband infrastructure. Gaps in broadband coverage are more prevalent in the central part of the county and closer to the northern border of the county.
- Large clusters of unserved and underserved locations can be observed in Newport Township near the county's northern border and in the Village of Grayslake.

Broadband Availability by Block and Location

Speed (Mbps)	Populated Block Coverage	BSL Coverage
≥ 25/3	98.7%	99.4%
≥ 100/20	97.3%	98.2%

Source: FCC BDC data, FCC Fabric Version 2
Note: The block coverage map includes all fixed broadband technologies other than satellite including, cable, copper, fiber and fixed wireless

Stakeholder Insights

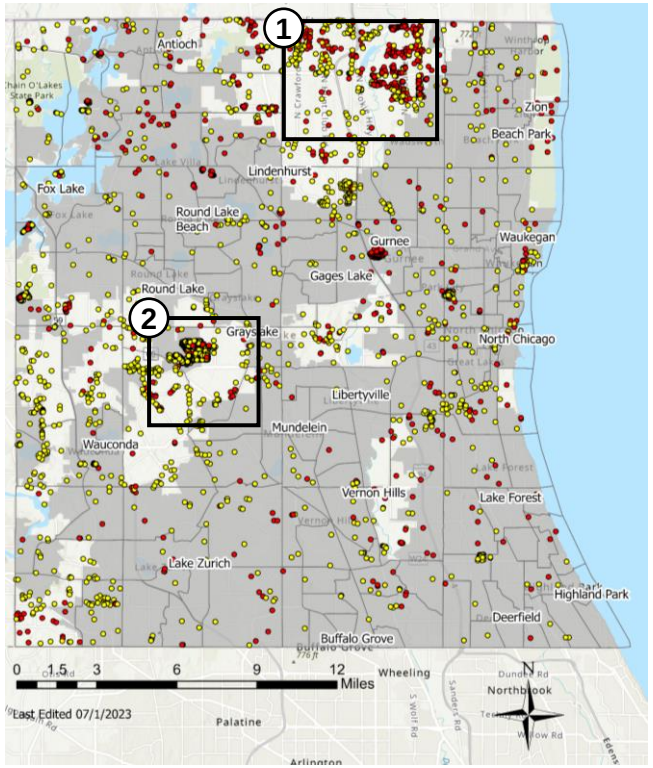
"Unserved and underserved communities exist across income [levels]….underserved areas are still paying a lot [for broadband], but don't have the speed or bandwidth needed to support multiple users or activities."

BROADBAND ACCESS | Approximately 3,870 households and businesses in Lake County do not have access to broadband at speeds of at least 100/20 Mbps

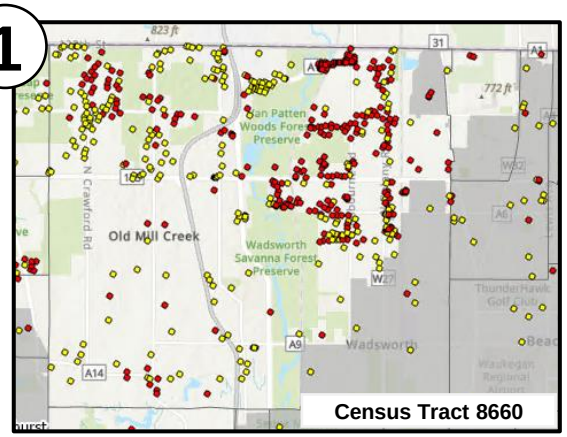
Although broadband infrastructure covers majority of Lake County, **a few unserved areas remain and are at risk of falling behind.**

Unserved and Underserved Locations

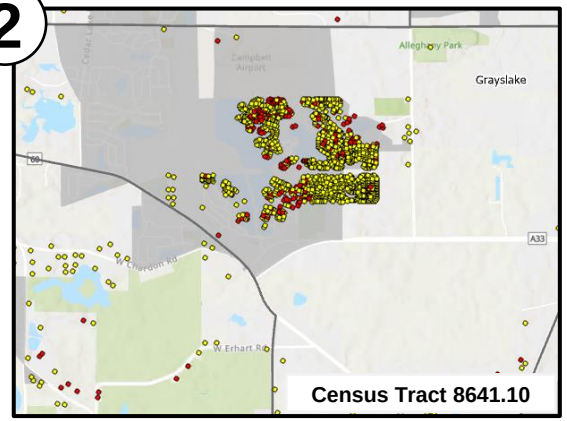
Unserved	Underserved	Urban Area[1]



1



2



The highest concentration of **unserved** locations in Lake County can be found in the more rural areas near Old Mill Creek and Newport Township, surrounding the Forest Preserves and adjacent to the Wisconsin border.

Despite only containing 1% of the total broadband serviceable locations in the county, this area contains 23% of all unserved locations.

The highest concentration of **underserved** locations in Lake County is found in the census tract encompassing Village of Grayslake and Village of Round Lake Park, near Campbell Airport. **This area contains 38% of all underserved locations, despite containing only 1% of the total locations in Lake County**.

The unserved and underserved locations in this area appear largely clustered within a senior (55+) living community (Saddlebrook Farms). Additionally, in this area, 48% of individuals are aged 60 or above.

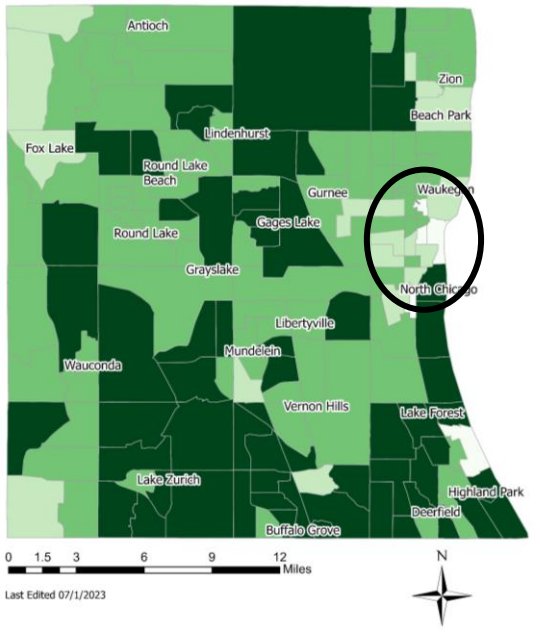
Source: FCC BDC data, FCC Fabric Version 2; [1] Urban Area definitions based on 2020 US Census

BROADBAND SUBSRIPTIONS | Broadband subscription rates serve as a strong proxy for broadband adoption across Lake County

19,400 (8%) households lack any type of broadband subscription, and **47,600 (19%) households** lack a non-cellular broadband subscription such as fiber, cable, or DSL in Lake County.

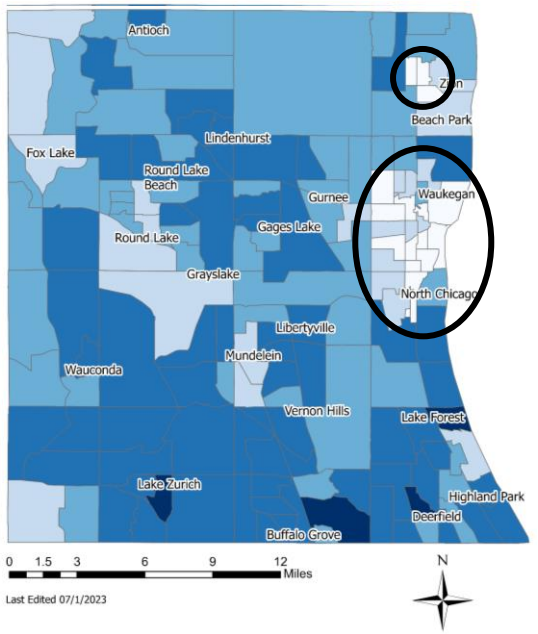
Broadband Subscription of any type by Census Tract [1]

≤ 75%	> 75% ≤ 85%	> 85% ≤ 95%	> 95%



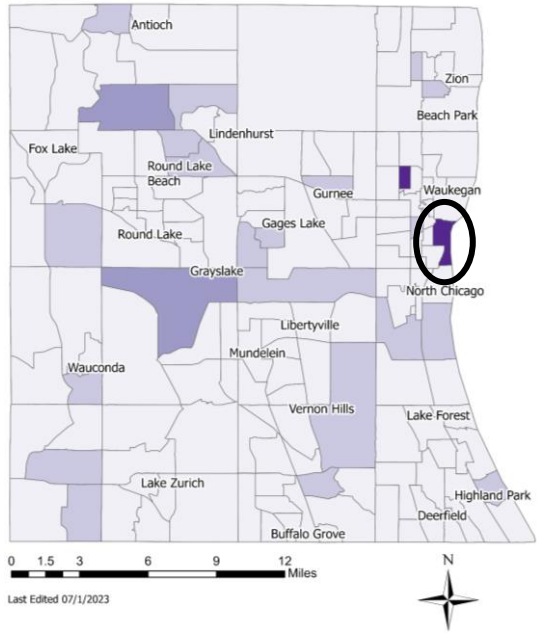
Broadband Subscription such as fiber, cable or DSL by Census Tract

≤ 65%	> 65% ≤ 75%	> 75% ≤ 85%	> 85% ≤ 95%	> 95%



Dial-Up Only internet subscription by Census Tract

≤ 0.5%	> 0.5% ≤ 1%	> 1% ≤ 1.5%	> 1.5%



Source: US Census ACS 2017-2021; [1] Note: The ACS defines a "broadband subscription of any type" as those that responded yes to having at least one of the following types of internet subscriptions: Broadband such as cable, fiber optic, or DSL; a cellular data plan; satellite; or a fixed wireless subscription.

Key Takeaways

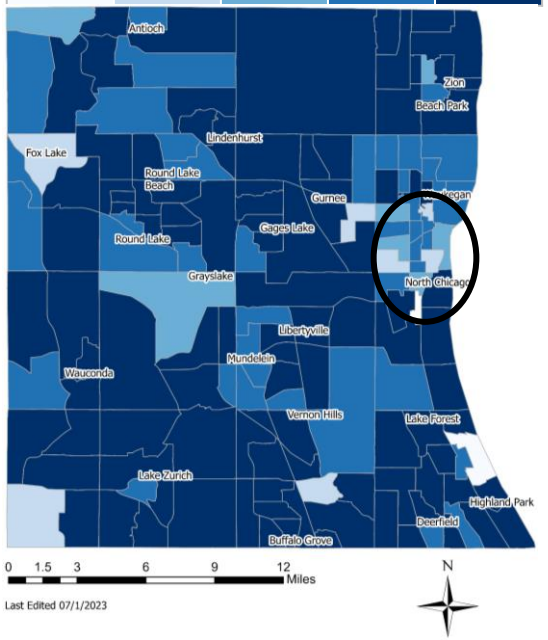
- **Even though the county has a broadband subscription rate of over 92%, adoption is not uniform and certain pockets within the county exhibit rates lower than 75%.** Approximately 19,400 (8%) households do not have a broadband subscription of any kind.
- **Approximately, 22,000 (9%) households only have a cellular data plan and no other type of internet subscription.**
- **Approximately 47,600 (19%) households do not have a non-cellular broadband** subscription such as cable, fiber or DSL. Understanding adoption of cable and fiber is important, as these two technologies are able to provide reliable high-speed service (> 100/20 Mbps) that can support activities such as remote working, online learning, and telehealth.
- **4% of households in Lake County only have access to the internet through a dial-up connection**. Dial-up internet has slow speeds and hence limits the use of the internet for households.

DEVICE OWNERSHIP | Access to digital devices is an important component of digital inclusion efforts

Approximately, **11,000 (4%) households** do not own any type of digital device and **35,800 (14%) households** do not own a desktop or laptop.

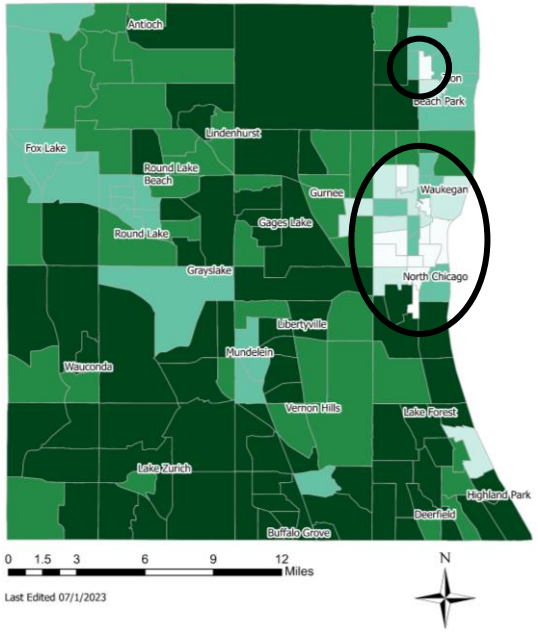
Digital Device Ownership by Census Tract

≤ 80%	> 80% ≤ 85%	> 85% ≤ 90%	> 90% ≤ 95%	> 95%



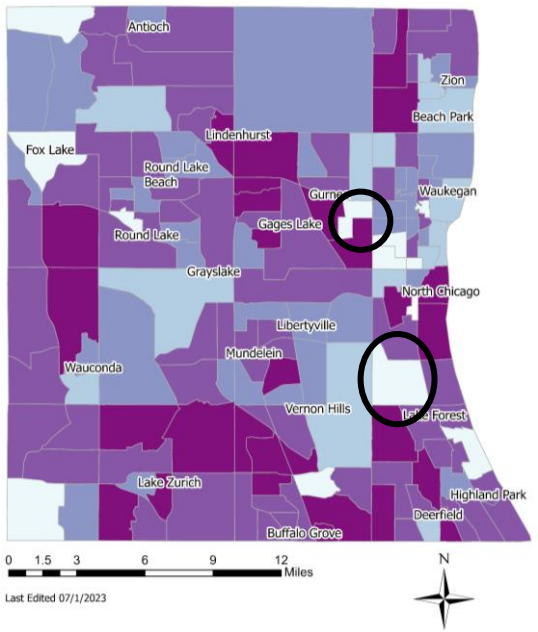
Desktop or Laptop Ownership by Census Tract

≤ 60%	> 60% ≤ 70%	> 70% ≤ 80%	> 80% ≤ 90%	> 90%



Smartphone Ownership by Census Tract

≤ 80%	> 80% ≤ 85%	> 85% ≤ 90%	> 90% ≤ 95%	> 95%



Source: US Census ACS 2017-2021

Stakeholder Insights

"Communities in Lake County are facing challenges in terms of device accessibility and broadband adoption"

Key Takeaways

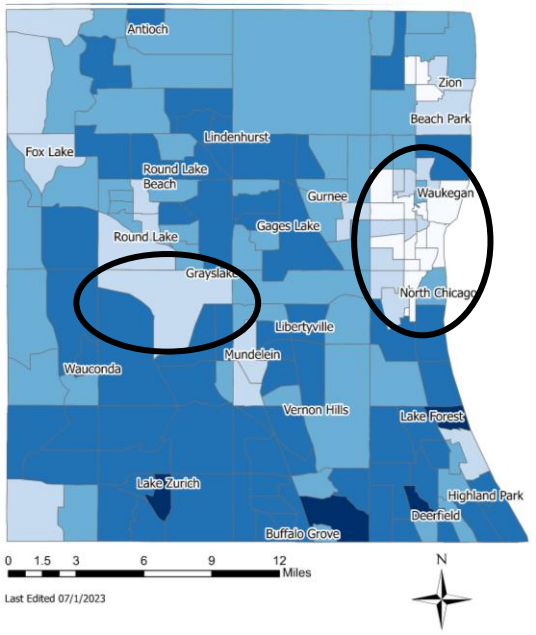
- Approximately 11,000 (4%) households in Lake County do not own a digital device of any kind including smartphone, desktop, laptop, tablet or any other computer. **More than 14,000 households (5.6%) rely on a smartphone as their only computing device.**
- Although the majority of areas in Lake County have digital device ownership rates of 90% or higher, some census tracts have rates that fall below 80%.**The lowest rates of device ownership are observed in areas near the county's eastern boundary.**
- **Over 35,800 (14%) households do not own a desktop or laptop.** Access to personal desktops or laptops provides numerous benefits such as online learning opportunities for students and expanded job opportunities through remote work.
- **Over 24,600 households do not own a smartphone.** One census tract in North Chicago has the lowest County smartphone ownership rate, with almost 300 households lacking access to a smartphone.

LOCAL ECONOMIC BARRIERS | The digital divide disproportionately impacts economically burdened households in Lake County

Corresponding areas of Lake County see **high proportions of cost-burdened households** and **low rates of broadband subscriptions**, including portions of Waukegan and Grays Lake.

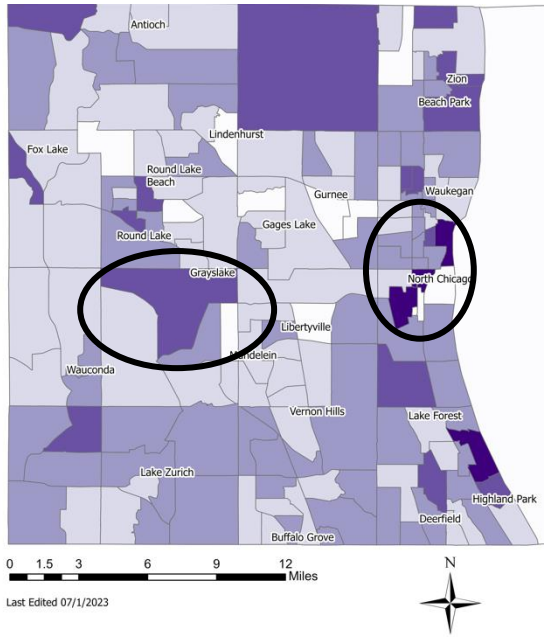
Broadband Subscription such as fiber, cable or DSL by Census Tract

≤ 65%	> 65% ≤ 75%	> 75% ≤ 85%	> 85% ≤ 95%	> 95%



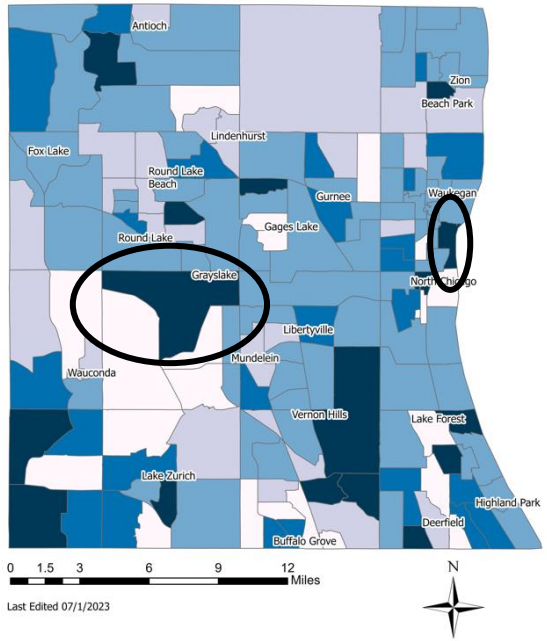
Cost-Burdened Owner Households

≤ 10%	> 10% ≤ 20%	> 20% ≤ 30%	> 30% ≤ 45%	> 40%



Cost-Burdened Renter Households

≤ 15%	> 15% ≤ 30%	> 30% ≤ 45%	> 45% ≤ 60%	> 60%



Source: US Census ACS 2017-2021;
Note: For renter-occupied households housing costs include rent and utilities and for owner-occupied households with a mortgage the housing costs include first and second mortgage payments, utilities, real estate taxes, insurance, mobile home costs and/or monthly condominium fess

Key Takeaways

- Supplementing the NTIA's definition of low-income covered population with data on cost-burdened households paints a more accurate picture of the economic challenges faced by Lake County households.
- **38%** (23,340) of renter-occupied households are considered cost-burdened, spending 35% or more of their income on housing costs.
- **20%** (25,183) of owner-occupied households with a mortgage are considered cost-burdened, spending 35% or more of their income on housing.
- On average, **median monthly housing costs are higher in Lake County than in the State of Illinois overall**.
- The **median monthly cost for homeowners** with a mortgage **is $2,262**, compared to $1,781 in Illinois.
- The **median gross rent in Lake County is $1,286,** compared to $1,097 in Illinois.

BROADBAND AFFORDABILITY | Residents may not be aware if they are eligible for, or know how to apply to, the Affordable Connectivity Program (ACP)

What is the Affordable Connectivity Program (ACP)?

- **The Affordable Connectivity Program (ACP) provides eligible households with a discount on broadband service and connected devices**
- The ACP is run by the Federal Communications Commission (FCC)
- In 2021, the Infrastructure Investment and Jobs Act (IIJA) appropriated $14.2 billion for the ACP
  - Intent was to modify and extend the Emergency Broadband Benefit Program to something long term
- Participating broadband service providers receives the funds directly
  - All four major ISPs in Lake County participate in ACP
- Eligible households will continue to receive the benefit for as long as they are eligible, and as long as federal funding persists

Discount Overview

- Up to **$75 / month** for eligible households (new as of August 3rd)
- Up to **$100** to purchase a qualifying device

How to Apply

- **Online** at the ACP website
- **By mail** by sending a printed application to the ACP support center
- **Directly though internet provider**

Recent Program Updates

On August 3rd, the FCC adopted an order to increase the $30 discount to an up-to-$75 monthly broadband benefit for subscribers living in qualifying high-cost areas, in order to further incentivize provider participation in the ACP.[1]

Current Enrollment

As of June 1st, Lake County had more than **15,000** total enrolled households.[2]

Types of eligibility	Eligibility requirements
Income-based eligibility	• Households with an income at or below 200% of the federal poverty guidelines • Meets eligibility criteria for a participating provider's existing low-income internet program
Program-based eligibility	Participates in one of these assistance programs: • Free and Reduced-Price School Lunch Program or School Breakfast Program, SNAP • Medicaid • Federal Housing Assistance • Supplemental Security Income (SSI) • WIC • Veterans Pension or Survivor Benefits • Lifeline

Source: [1] FCC.gov; [2] Universal Service Administration Companyy, ACP Enrollment Data, May 2023

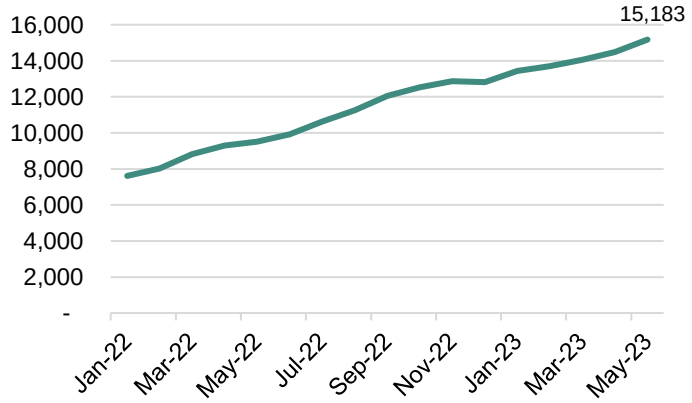
ACP ELIGIBILITY | More than 57,000 Lake County households may be eligible for unclaimed ACP benefits

ACP Eligibility

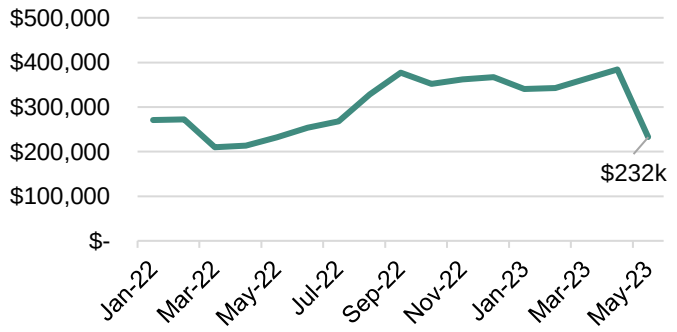
- It is difficult to get an accurate count of ACP-eligible households due to a variety of factors:
  - Granularity of data released by the Universal Service Administrative Company (USAC)
  - Eligibility categories and cutoffs
  - Differing ISP program rules
  - Mis-matching definitions for eligibility criteria and available data to measure qualification

- The Benton Institute's ACP Enrollment Performance Tool calculates eligibility at the ZIP code level. According to their estimations:
  - **Only 20% of eligible Lake County households are enrolled in ACP.**
  - An estimated 72,000 total Lake County households are eligible for ACP – or approximately 27% of all households.
  - **About 57,500 eligible households are not enrolled in ACP and may have unclaimed benefits.**

Total ACP Enrollment in Lake County



Total ACP Support Claimed



ACP Outreach

Existing Outreach Efforts

- Connect Lake County – along with its partner organizations – has been a driver of ACP outreach and sign-up efforts
- Many County School Districts have also been conducting ACP outreach efforts

Potential Opportunities

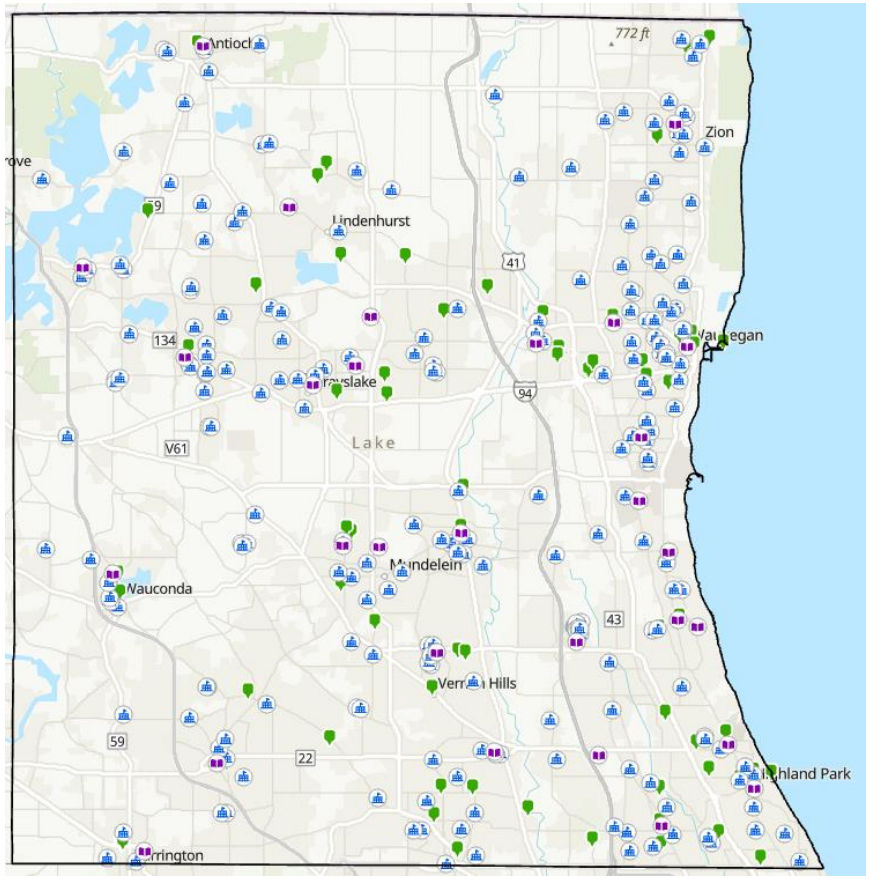
- ACP can be integrated into existing County Department websites and cross-promoted at events
- Letters and emails can be sent inviting pre-qualified applicants (recipients of eligible federal assistance programs) to participate in ACP
- School districts can provide ACP materials in their Financial Aid offices or when promoting Free and Reduced-Price Lunch or other eligible programs
- Libraries and community centers hosting events for could incorporate ACP talking points and offer sign-up assistance
- Lake County can actively sponsor an ACP sign-up event and request an FCC speaker for the event

Source: Benton Institute, Connect Lake County.
Note: National nonprofit *EducationSuperHighway* also calculates ACP-eligible households but does so at the city level. According to their ACP Enrollment Dashboard, an estimated 89,600 total Lake County households could be eligible for ACP and 73,000 eligible households may have unclaimed ACP benefits. We found that estimated vs. actual enrollment numbers were most accurate under the Benton Institute's ACP eligibility calculation method, and the Benton Institute estimates were more in line with the actual total number of households in the County.

COMMUNITY ANCHORS | Lake County has an opportunity to invest in improving the connectivity of community anchors

Community Institutions Across Lake County

Library | School | Community/Recreation Center



Lake County Public Drive-Up Wi-Fi Spots[1]
Antioch Public Library District
Barrington Area Library
Barrington Middle School Prairie Campus
College of Lake County
Cyd Lash Academy
Deerfield Public Library
Ela Area Public Library
Fremont Public Library District
Gages Lake School
Grayslake Area Public Library District
Laremont School
Matthews Middle School
Robert Crown School
Round Lake Area Public Library
South School
Special Education District of Lake County Administrative Building
Vernon Area Public Library District
Warren-Newport Public Library District
Wauconda School District 118
Winthrop Harbor School District
Zion-Benton Public Library

Key Takeaways

- Lake County has a strong network of existing community stakeholders providing crucial digital equity and inclusion services.
- **Many Lake County school districts have initiatives to provide students with internet-accessing devices**, an effort that expanded greatly during the pandemic. However, this may be the only device in the household for some families and may be inaccessible in the summer months or for graduates.
- While the principal focus of BEAD funding is to deploy broadband service to unserved and underserved locations, **NTIA underscores its strong preference to ensure deployment of gigabit connections to community anchor institutions** such as libraries and community centers that lack such connectivity.
- Section I.C.f. of the BEAD NOFO defines **"Community Anchor Institution"** as: an entity such as a school, library, health clinic, health center, hospital or other medical provider, public safety entity, institution of higher education, public housing organization, or community support organization that facilitates greater use of broadband service by vulnerable populations, including, but not limited to, low-income individuals, unemployed individuals, children, the incarcerated, and aged individuals.

Source: Lake County GIS, Illinois Broadband Lab, NTIA; [1] As of 2020.

CURRENT INITIATIVES | At the state and local level, there are various program working to address digital inclusion gaps

Program / Initiative	Description
Connect Illinois Grant Program	Connect Illinois is a state-led initiative and grant program that provides broadband deployment grants that address challenges tied to population sparsity, geography, or low take rate.
Connect Illinois Computer Equity Network	Through a partnership with PCs for People, creates a statewide network to receive, refurbish and redistribute used computers for those in need. To be eligible, residents must be below 200 percent of the poverty level or enrolled in income-based government assistance programs, such as free or reduced school lunch, Medicaid or SNAP.
Digital Equity Capacity Kickstarter (DECK) Grant Program	The recent DECK grant program is managed by the State of Illinois. It is awarding $1 million total with individual awards ranging from $30 thousand to $300 thousand. Applicants are meant to address ACP sign up, digital skills, community tech centers, or broadband access
Illinois Century Network	The Illinois Century Network is managed by the Illinois Department of Innovation & Technology as a high-speed broadband network serving primarily governmental entities
Illinois Digital Navigator Collaboration	The State of Illinois' Broadband Office launched a Digital Navigator Collaboration meant to support digital navigators throughout the state. Navigators will work to address issues such as home connectivity, devices, and digital skills
Illinois Broadband Lab	The Illinois Broadband Lab is a collaborative effort among the Illinois Office of Broadband, the University of Illinois System, the Illinois Office of Innovation and Technology, University of Illinois Extension, and the Benton Institute for Broadband & Society. Currently, the lab leverages university leadership to focus on mapping and data, digital equity and inclusion, and programing and communications.
Illinois Connected Communities (ICC) Grant Program	Illinois Connected Communities is a collaboration among the Illinois Office of Broadband, the Illinois-based Benton Institute for Broadband & Society, and local philanthropy. The six-month program is designed to engage a cohort of communities through best practice curriculum, expert consultation, and a state grant of up to $15,000.
Accelerate Illinois Broadband Infrastructure Planning Program	A planning and capacity building program designed to help Illinois communities leverage historic broadband infrastructure funding for community-driven broadband expansion and public-private partnership. A partnership between the Illinois Office of Broadband, the Benton Institute, and the University of Illinois Extension. Additional cohorts are planned for 2023/2024.
Connect Lake County	Connect Lake County is an initiative that was started by the Waukegan Community Broadband Taskforce. The public private initiative aims to support ACP sign-ups in Lake County and expanding internet access throughout the County

LEADING PRACTICES | Leading practices in broadband accessibility and adoption point to strong partnerships and a focus on affordability

Successful broadband initiatives are investing in:

Inter-agency cooperation	**Centralized operations through County administration** while sharing responsibility for carrying out access strategies with schools, housing authorities, etc.	**Strong partnerships** that include data sharing and active collaboration between municipal organizations and private partners
Pilot programs	**Public projects centered around broadband access,** such as publicly available wi-fi in community centers and municipal buildings, device rentals, and low-cost broadband subscriptions for underserved households.	
Infrastructure	**Making necessary investments** in fiber, vertical assets, and leveraging readily-available assets from utility providers to expand connections in areas of need. (Emphasis on municipality owned infrastructure)	Investments in **critical-infrastructure** as a "jumping off point"
Broadband as a County or Municipal Service	**Providing broadband access** through County, municipal or public-private partnerships, when possible, within the local regulatory environment. This includes active County involvement in pursuing greater broadband access.	
Data Collection to Measure Broadband Performance	**Data sharing between municipalities** of information related to broadband access, "dark zones" without adequate speeds, and updated access maps to focus on areas of need with tailored approached for each community	A **holistic approach** that tackles Accessibility, Affordability, and Adoption
Social Equity Considerations	Opportunities to **incorporate a social equity lens** in program development through targeted low-income assistance, revenue reinvestment into disadvantaged communities, etc.	

GAPS & OPPORTUNITIES | Summary of key takeaways for Lake County

Gaps	Assets	Opportunities
• **AVAILABILITY:** Approximately 3,870 households and businesses in Lake County do not have access to broadband at speeds of at least 100/20 Mbps. Access to fiber remains limited in Lake County, with only 7.4% of locations served by fiber internet, while gaps in cable coverage correspond to un(der)served areas. • **ADOPTION:** Across Lake County, there is a significant correlation between broadband adoption, race, and income. 19,400 (8%) households lack any type of broadband subscription. Approximately 47,600 (19%) households do not have a broadband subscription such as cable, fiber or DSL. Cable and fiber are the two technologies able to provide reliable high-speed service. • **AFFORDABILITY**: Approximately, 11,000 (4%) households do not own any type of digital device and 35,800 (14%) households do not own a desktop or laptop. The lowest rates of device ownership are observed in areas near the county's eastern boundary. Estimates also show that only 20% of eligible Lake County households are enrolled in ACP.	• **Lake County has a strong network of existing community stakeholders providing crucial digital equity and inclusion services:** County schools are providing students with internet-ready devices, libraries and nonprofits are working to improve digital literacy, and many organizations have engaged in ACP outreach and enrollment efforts. Stakeholders have highlighted the effectiveness of providing jobseekers in Lake County with digital devices and digital skills in leading to improved employment outcomes. • **Available broadband assets:** Overall, 98% of locations in Lake County are served by broadband at speeds of 100/20 Mbps and there are four primary providers operating across the County, all of which offer ACP and affordability initiatives. • **Limited regulations**: There are no significant restrictions that Lake County faces in Illinois statute in relation to broadband – allowing for multiple potential approaches, • **Planned capital projects**: Planned projects represent opportunities to integrate broadband infrastructure into existing efforts. • **Many other potential partners:** The County can coordinate with community anchor institutions, community-based organizations, ISPs, utilities, cities and villages, and others to build additional infrastructure and address digital equity.	• **Consider establishing a coalition of dedicated internal and external broadband stakeholders to drive implementation**: Serving as a convener, Lake County and the stakeholder coalition would be responsible for driving the project agendas, applying for funding streams, and coordinating partners, but would leverage the know-how of existing organizations and ISPs to facilitate implementation. • **Assess the feasibility of new County policies that facilitate and streamline broadband expansion**: Lake County could explore enacting new policies and amending existing policies that leverages best practices and encourages fiber/cable infrastructure investment (e.g., Dig Once/Dig Smart policies, One Touch Make Ready, streamlined permitting, template lease agreements, and more). • **Conduct a county-wide Affordable Connectivity Program (ACP) outreach and enrollment campaign that strengthens existing local efforts**: Lake County could help to coordinate and conduct a multi-pronged ACP outreach and enrollment campaign, relying on the expertise of local partners (such as libraries, school districts, Connect Lake County, and others) that are already engaged in outreach, promotion and sign-up efforts. ACP could be integrated into existing County websites and cross-promoted at County events. • **Support the pilot and expansion of free device access and digital literacy programs to reach additional Lake County youth, graduates, and adults:** The Lake County Regional Office of Education and Lake County schools have seen significant success in rolling out 1-1 device access programs for students. Lake County may consider partnering with the Connect Illinois Computer Equity Network, PCS for People, libraries, school districts, and others to increase device donation, refurbishment and distribution locations. Device access programs should be coupled with the expansion of digital literacy training resources for community anchor institutions. • **Explore additional fiber investment opportunities such as a shared governance fiber network for public entities or public-private partnerships:** Lake County may explore a variety of options to improve fiber access across the County, such as the build-out of a government-run fiber network for public entities that could expand to community anchor institutions; connecting public housing locations with open access WiFi; piloting a neighborhood WiFi access project; or exploring new public-private partnerships with ISPs. • **Measure and report on successes**: Study outcomes from County's broadband investments (e.g., others have seen 3x/4x economic gain, possible sustainability wins). This may become helpful when justifying continued investment in broadband.

APPENDIX A

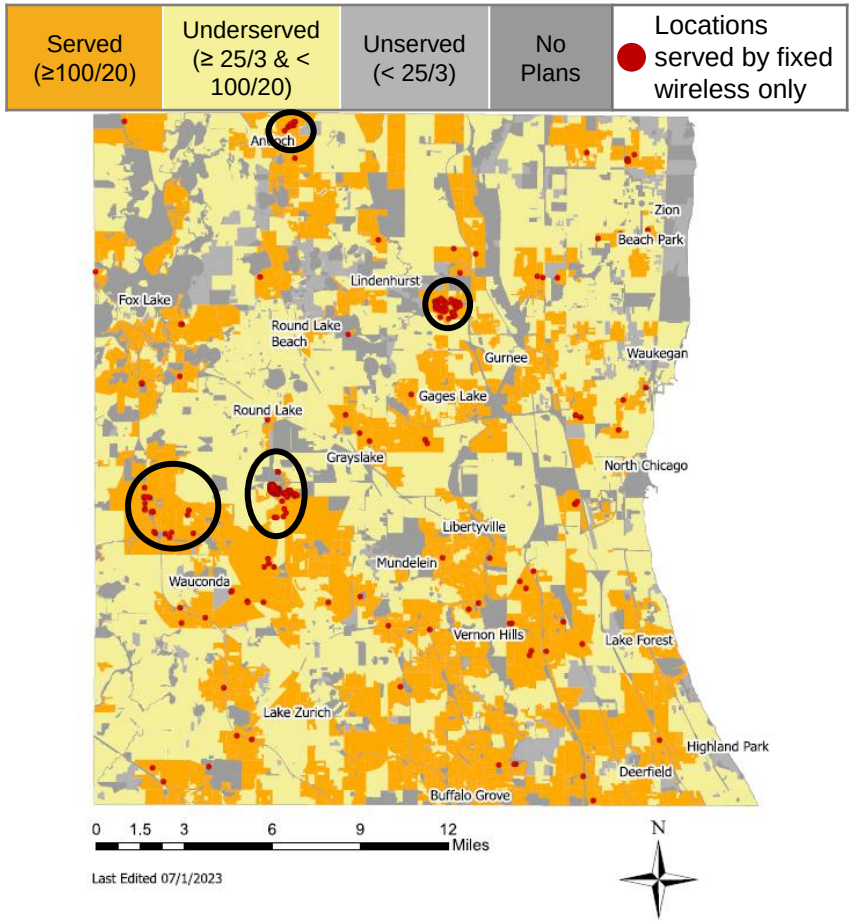
METHODOLOGY

FCC BDC Data Block Coverage Maps
• Maps on pages 27-30, 32-35 and 49 were created by downloading the latest (Dec 31,2022) Fixed Broadband Availability Data from the FCC BDC. The FCC BDC data includes the following Fixed Broadband Technologies: Fiber to the Premises, Copper, Cable, LBR Fixed Wireless, Licensed Fixed Wireless, Unlicensed Fixed Wireless and Other. The BDC data was then filtered for Lake County and joined to Census block geography to create block level coverage maps. The provider and technology block coverage maps were created by filtering the BDC data by “brand name” and “technology”.
Unserved and Underserved BEAD Eligible Locations Map
• The map on page 49 was created using FCC BDC data (available as of Dec 31, 2022) and Version 2 of the FCC Fabric Data. The FCC BDC data includes the following Fixed Broadband Technologies: Fiber to the Premises, Copper, Cable, LBR Fixed Wireless, and Licensed Fixed Wireless. The FCC BDC data was filtered for Lake County locations and categorized by maximum advertised speed using BEAD definitions for unserved and underserved locations. The FCC Version 2 fabric data was used to identify locations that are not served by any provider.
Covered Population Maps
• The maps on slides 39-44, and 51-52 were created using ACS 2021 5-year estimates. The ACS data was joined to 2020 Census tract geography to census tract level maps.

FIXED WIRELESS | About 400 locations in Lake County are considered served at 100/20 Mbps broadband only through fixed wireless technology

Fixed wireless is known to face constraints in terms of bandwidth, reliability and scalability compared to fiber optic and cable. However, **locations that are considered served at 100/20 Mbps by fixed wireless technology alone will likely be overlooked by BEAD funds.**

Fixed Wireless Coverage by Census Block



Key Takeaways

- Approximately **371 locations in Lake County are considered served at 100/20 Mbps through only fixed wireless technology** (and not served by fiber or cable).
- Under the BEAD program any location with access to broadband at speeds of 100/20 Mbps or higher through a *Reliable Broadband Service* technology, is considered served. Reliable Broadband Service includes fiber-optic technology, Cable Modem/ Hybrid fiber-coaxial technology, digital subscriber line (DSL) technology, or terrestrial fixed wireless technology utilizing entirely licensed spectrum or using a hybrid of licensed and unlicensed spectrum.[1]
- ***What is fixed wireless broadband?*** Fixed wireless is a type of broadband technology that uses radio waves to send signals that transfer data from antennas on a base station to antennas on the end customer's home. In a typical fixed wireless network, there is one base station site and likely hundreds of users.[2]
- ***What are the challenges with fixed wireless?*** Fixed wireless technology faces limitations that may cause reliability issues for subscribers. These limitations include 1) capacity and congestion of the service provider's network, 2) physical obstructions that limit line-of-sight between the service provider's infrastructure and the end customers device, and 3) fixed wireless equipment being exposed to interference from other devices operating in the same band.[3]

Source: FCC BDC data (Fabric V2); [1] NTIA [2] Benton Institute [3] Broadband Communities

EXISTING LEGISLATION | Illinois has a number of existing statutes that are relevant to Lake County's broadband planning work

Broadband Infrastructure Advancement Act (220 ILCS 81): Grants the Illinois Office of Broadband and other offices authority to establish rules regarding appropriating funding for broadband deployment, broadband expansion, broadband access, broadband affordability, and broadband improvement projects.

Illinois Department of Commerce & Economic Opportunity
OFFICE OF BROADBAND
JB Pritzker, Governor

Broadband Advisory Council Act (220 ILCS 80): Creates a broadband advisory council to explore ways to expand the availability of broadband services using any available technologies (no tech preference noted), identify barriers to broadband adoption, research ways to eliminate barriers, and other similar purposes.

Illinois Highway Code (605 ILC 5): The Illinois Department of Transportation and Department of Central Management Services shall collaborate to install fiber-optic network conduit in every new state-funded construction project. The Departments may permit a third-party to mange the fiber or conduct conduit leasing. Permits must be obtained prior to any start of work when working within the state's right-of-way.

Public Utilities Act (220 ILCS 5): The Illinois Commerce Commission does not regulate broadband services including rates, terms, conditions, quality of service, availability, and classification. Section to be automatically repealed by the end of 2026. Establishes the Universal Telephone Service Assistance Program for low-income residents.

Small Cell Wireless Facilities Deployment Act (50 ILCS 840): Ensures that there is a fair and consistent process for the deployment of small wireless facilities consistent with area character.

Broadband Infrastructure (Code and Regulation 2.23): Illinois Housing Development Authority ensures the creation of broadband infrastructure for new construction and substantial rehabilitation (for buildings with more than four rental units)

DIG ONCE POLICIES | Following the signing of the State of Illinois Dig Once Act, Lake County could explore enacting its own Dig Once policy

About Dig Once Policies

- Dig Once policies often focus on the installation of new broadband and telecommunications infrastructure during the excavation phase of major infrastructure projects
- Other Dig Once policies focus less on new infrastructure and more on aligning departments and agencies so multiple investments can be made simultaneously, such as upgrading water and sewer lines while rehabilitating a roadway
- Dig Once policies minimize disruptions due to excavation and construction of existing infrastructure (like roadways or sewer systems) by installing or laying the groundwork for broadband/digital infrastructure at the same time.
- Dig Once policies can be applied to capital improvement coordination within a local government and across jurisdictions.
- **Challenges**: Road and infrastructure projects are typically expensive and include much operational oversight and coordination. In some places, transportation and public works departments have opposed dig once policies as they may create more operational overhead and expenses.

Recommendation

- The exploration of a county Dig Once Policy should be considered in tandem with other potential ordinances or statute amendments that facilitate and streamline broadband expansion (e.g. “dig once,” “one touch” policies for pole attachments, streamlined permitting process, etc.)
- **These opportunities will be explored further as part of the final Lake County Broadband Plan.**

Case Studies

- **Boston, MA:** Boston implemented its original Dig Once policy in 1988. In 1994, the city implemented a policy that required all telecom companies to install conduits in the same trench at the same time, on a shared-cost basis. This policy requires a lead company to coordinate with other telecom entities in drafting engineering plans and estimating costs for the trenching and conduit installation. Since then, the city has adopted a Smart Utilities Policy in 2018 that calls for the integration of five smart Utilities Technologies (SUTs) across energy, water, telecommunications, and transportation. Each stage of development review involves multiple city departments and agencies.
- **Chicago, IL:** The City of Chicago created a specific office that handles coordinating construction projects across agencies and companies to minimize disruptions to the public. The Project Coordination Office was formed in 2012 to coordinate projects within public rights-of-way between different service providers and utilities. In 2013, the office expanded to include telecommunications. **The office has helped the city save an estimated $150 million in construction costs since 2012.**
- **Sandy, OR:** The City of Sandy requires private developers to install conduit when disturbing existing roads or building new ones and offers maps of existing installations so that developers can be strategic in how they install conduit. The city was added broadband fiber to the list of municipal infrastructure (such as water, sewer, power lines and mailboxes) that all new developments must include.
- **San Benito County, CA:** San Benito County, part of the Central Coast Broadband Consortium (CCBC), implemented Dig Once practices as part of its multi-use streets policy. It requires county roadway construction projects to include install underground utility conduit. The county, which is part of a municipal broadband network, can then use the conduit to expand the network. The county may also utilize the CCBC’s shadow conduit policy, which recommends trenching digging projects include a 60-day window in order to notify other telecom or utility providers who may be interested in installing conduit at the same time. The county encourages local jurisdictions to adopt similar policies.
- **Arlington County, VA:** Arlington County does not have a specific Dig Once policy, but the county has reached “Dig Once” agreements with utility providers in the past. The county entered into one such agreement with electric utility Dominion Virginia Power. The utility needed to install underground conduit along a congested urban public right-of-way. The county required the utility to install fiber in parallel conduit for the county’s use.

FEDERAL & STATE FUNDING | There is currently an unprecedented opportunity for broadband and digital equity funding at a federal (and state) level

The table below provides an overview of the **primary federal broadband and digital equity funding opportunities**, many of which will be made available through grant programs administered by the Illinois Office of Broadband. The final funding analysis will be included in the Lake County Broadband Plan.

Opportunity Name	Funds Available	Description	Timeline/Future Awards
Broadband, Equity Access, and Deployment (BEAD) Grant Program	**Over $1 billion** allocated to Illinois	Program designed to expand access to unserved (under 25/3 Mbps) and underserved locations (under 100/20 Mbps). Illinois aims to address both unserved/underserved with its funding	Illinois to expected to release funding plans in Fall
Digital Equity Act (DEA) Grant Program	**$1.5 million** Illinois specific planning grant award allocation **Funding pending** for capacity grant program **$1.25 billion** for competitive grant program	DEA provides $2.75 billion for three grant programs. The State DEA planning grant provides funds for states to develop their digital equity plans. The State Digital Equity Capacity Program will support those plans The Competitive Program will fund annual grant programs related to digital equity for five years	Competitive program and capacity program estimated to launch in 2024
Affordable Connectivity Program (ACP)	**$14.2 billion** federal total **$7.4 million** of funds allocated for two outreach programs	ACP provides funds to eligible households towards paying for internet services ACP outreach programs fund entities to encourage ACP signup. The Lake County Housing Authority received funds through the ACP, “Your Home Your Internet” program.	Funds are available until expended Outreach grants have been awarded, but future rounds may become available
Federal E-Rate Program	**$4.46 billion** annual cap	The E-Rate program provides schools and libraries with funding for telecommunications and internet access	Rolling funding window
Connect Illinois	**$400 million awarded** and potentially more in the future	Connect Illinois provides broadband deployment grants that address challenges tied to population sparsity, geography, or low take rate.	Rolling funding window Program is currently on Round 3 of awards

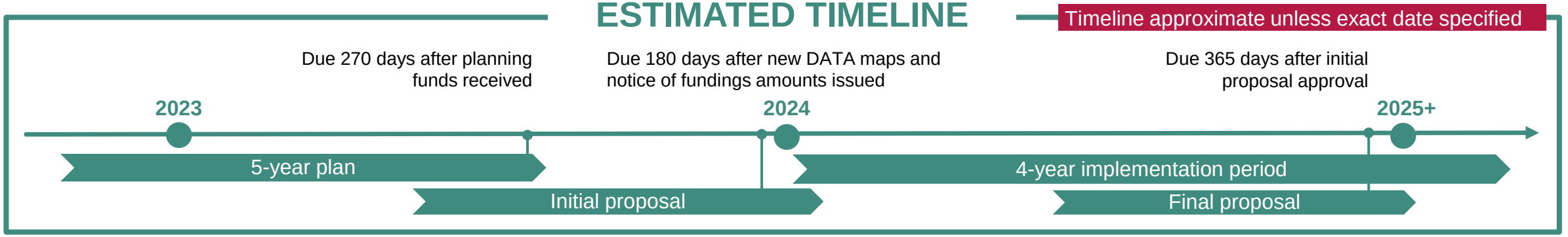
Sources: https://broadbandusa.ntia.doc.gov/resources/federal/federal-funding and https://dceo.illinois.gov/connectillinois/broadbandgrants.html

BEAD PROGRAM | Overview and important deadlines for Lake County

The **Broadband Equity, Access, and Deployment (BEAD)** Program provides $42.45B to expand high-speed internet access by funding planning, infrastructure deployment and adoption programs across the US. The State of Illinois received just over **$1B** in funds. The overall BEAD funding process is managed by the National Telecommunications and Information Administration (NTIA). Each state will design their own competitive sub-grant process.

ESTIMATED TIMELINE

Timeline approximate unless exact date specified



Five-Year Action Plan Dates

July 2023: Illinois Department of Commerce and Economic Opportunity (DCEO) released BEAD Five-Year Action Plan.

- **Note**: Plans do not need to identify project locations or area(s) for investment or specific broadband deployment projects. This information will not be required until the state begins accepting grant applications.

Initial Proposal Dates

September 2023 [expected]: IL releases its Initial Proposal. The state outlines how it will select subgrantees and develops its challenge process.

- **October/November 2023 [expected]**: Anticipated public comment period
- **December 2023**: Initial proposal due to NTIA
- **2024 TBD**: NTIA approves IL initial proposal

2024 TBD: IL publishes locations eligible for funding and definition of Community Anchor Institutions (CAI)

2024 TBD: IL opens NTIA-approved challenge process

- **Note**: During this time localities can begin preparing information on project areas for grant funding but may need to make modifications according to published final determinations
- Local governments, nonprofits, and broadband service providers are eligible to participate in the challenge process

Final Proposal Dates

2024 TBD: IL makes modifications according to challenge determinations and submits to NTIA. NTIA approves modifications.

2024 TBD: IL publishes locations eligible for funding and definition of Community Anchor Institutions

2024-2025: IL begins soliciting and awarding grants using 20% of funds received (min. 60 days after publishing funding eligibility and finalized list of CAIs)

- **Note**: This is when detailed project area and cost estimates will be required from applicants

2025 TBD: IL submits final proposal to NTIA (max. 365 days after approval of Initial Proposal)

2025+: IL awards additional grant funding throughout remaining grant period after NTIA approval of final proposal and remaining funds are received.

Source: NTIA, Office of Illinois Broadband, Illinois Department of Commerce and Economic Opportunity

DIGITAL EQUITY ACT (DEA) | Overview and important deadlines for Lake County

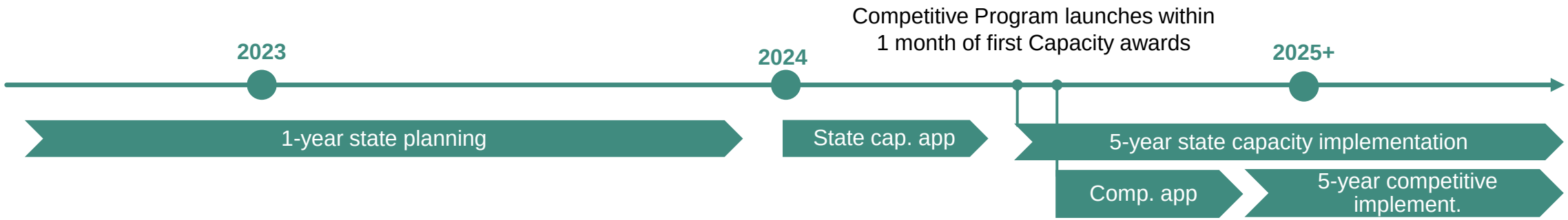
The **Digital Equity Act (DEA)** provides $2.75B to establish three grant programs that promote digital equity and inclusion.

- The **State Digital Equity Planning Grant Program** provides $60M to states to develop digital equity plans. All 50 states submitted applications. Illinois was not awarded.
- The **Digital Equity Capacity Building Grant Program** is a $1.44B grant program for states. It is expected to open in 2024.
- The **Digital Equity Competitive Grant Program** is a $1.25B grant program that will fund five years of digital equity projects. It is expected to open in late 2024.

The overall DEA funding process is managed by the National Telecommunications and Information Administration (NTIA).

ESTIMATED TIMELINE

Timeline approximate unless exact date specified



Digital Equity Plan Dates

Fall 2023 [expected]: Illinois Department of Commerce and Economic Opportunity (DCEO) released Digital Equity (DE) Plan

TBD 2023: Public comment period on DE Plan

TBD: IL submits DE Plan to NTIA

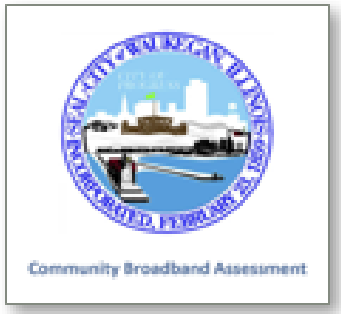
Note: Eligible applicants can apply for Digital Equity Competitive Grant funding directly with the NTIA. This date and Notice of Funding Opportunity (NOFO) has not been released yet; however, localities can begin preparing for any submissions as soon as NTIA publishes its NOFO.

Source: NTIA, Office of Illinois Broadband, Illinois Department of Commerce and Economic Opportunity

LOCAL EFFORTS | Local stakeholders have conducted several targeted broadband assessments in Lake County

An Assessment of Lake County Broadband Needs (Lake County Board Member Casbon)

- Current attempts to bridge the digital infrastructure divide include hotspots, cell phones, computer labs, meeting rooms, and parking lots
- Organizations involved in this process include schools, libraries, nonprofits, and community organizations



Community Broadband Assessment (Connect Lake County & City of Waukegan)

- Waukegan has good broadband and cellular coverage but suffers from lack of participation due to various socio-economic factors (ex. poverty, adult literacy)
- Solutions proposed include creating a broadband advisory team, public school district sponsored plans, and market competition

Digital Equity Strategic Plan (Connect Lake County)

- The main issues with respect to broadband centers around social barriers to connectivity such as difficulties enrolling in ACP and device/skills gaps
- Recommendations include creating a formal digital inclusion coalition, maximizing enrollment in ACP, and creating a community engagement center
- Finds that lower income households may be underserved – 8% of households earning under $25,000 report no service

ILLINOIS CENTURY NETWORK | Potential for expansion to offer services to Lake County schools and libraries

The Illinois Century Network was created in 1997 to create a single, statewide educational fiber network. The Illinois Century Network provides a high-speed broadband network to K12, higher-ed, libraries, and other government entities.

SB0851: Governor Pritzker recently signed SB0851 that has the Illinois Broadband Advisory Council evaluate a potential expansion of the Illinois Century Network to Illinois public schools, public libraries, and State-owned facilities.. The study shall be completed by January 1, 2024.

If the State does pursue an expansion of the Illinois Century Network, this means that Lake County schools and libraries could gain access to a likely lower-cost fiber network. The new law also directs the Broadband Advisory Council to explore partnerships between local governments with fiber networks to provide public broadband service to schools and libraries.

Sources:
https://www.ilga.gov/legislation/billstatus.asp?DocNum=851&GAID=17&GA=103&DocTypeID=SB&LegID=145004&SessionID=112 and
https://icn.illinois.gov/

STAKEHOLDER ENGAGEMENT | We have pursued a four-pronged approach to engage Lake County stakeholders and community members

1:1 Interviews

To capture a nuanced, comprehensive understanding of the digital inclusion landscape throughout Lake County, we will engage government and representative stakeholder organizations that can speak to the **broader digital needs of Lake County** in 1:1 discussions.

The stakeholders engaged in 1:1 discussions will include prioritized groups such as local governments and agencies, anchor and educational institutions, and community-based organizations whose work reaches directly into the homes of Lake County residents. We will also conduct 1:1 interviews with ISPs. As potential projects are scoped, stakeholders may be reengaged to assist in project design.

Questionnaires

We are distributing questionnaires to targeted stakeholders to gather detailed information to **inform asset mapping and digital equity needs**.

Questionnaires with 5-7 questions will be developed based on each group's area of expertise. Additionally, this will give stakeholders a direct avenue to provide feedback on plan development.

Stakeholders receiving questionnaires will span nonprofits, community organizations, anchor and educational institutions, local municipalities and governments, regional agencies, as well as local ISPs.

Focus Group Meeting

In order to engage robust local government support of the development of the Countywide Plan, we plan to hold one **focused group session with key local stakeholders** to understand the **regional nature of digital need** across the County's many covered populations.

This group will include Lake County government departments, the network of Lake County Agencies, and representatives from cities and jurisdictions that are committed to the development of broadband planning in Lake County.

The focus group meeting will drive discussion on regional needs from the perspective of local governments.

Community Meeting

We will host one community-focused public meeting to bring constituents together, listen to concerns and priorities, and **directly capture their perspectives on broadband** accessibility, affordability, and digital literacy and on potential projects Lake County is considering. The meeting will also serve as an opportunity to connect residents with resources like ACP.

This event will be open to the general public and any Lake County resident will be encouraged to attend.

Current Status: Guidehouse is currently interviewing additional stakeholders and reviewing questionnaire responses.

KEY TAKEAWAYS | Digital inclusion efforts in Lake County needs leadership

Digital inclusion issues are spread around the County but are most concentrated amongst specific populations

- Communities without broadband access in Lake County are not confined to one particular geography
- Areas in the north and west of the County were cited by stakeholders as having poor internet speeds
- More urban areas of the County have challenges related to digital adoption
- Seniors, non-English speakers, people in poverty have additional barriers to digital literacy compared to other populations

Stakeholders are already working throughout Lake County to address digital inclusion challenges

- Organizations throughout are working to sign up residents for the Affordable Connectivity Program (ACP) at places like the Lake County Housing Authority
- Community health workers and the court system are providing ad-hoc assistance
- Schools are working to provide devices when necessary to students
- Libraries are providing basic digital navigation services and many are providing digital literacy classes

Bridging the digital divide will enable Lake County to more effectively deliver services

- Teaching residents how to use digital services will allow nonprofits and government agencies to more effectively and efficiently provide residents with services (e.g. knowledge of how to apply for benefits online)
- Lake County government agencies would benefit from better broadband availability in the field that allows them to more quickly communicate with residents about emergency and non-emergency matters

Lake County can lead partnerships to address broadband access and digital inclusion challenges

- Existing internet service providers are aware of areas in Lake County with low-quality service speeds and needs for outside intervention
- Current digital inclusion initiatives may not always be coordinated throughout the County
- Nonprofits and other entities must be convinced of how digital inclusion impacts their core work and requires resources
- The County may leverage existing programs and initiatives to invest in broadband and address digital inequities

Note: Stakeholder insights and key themes will be further updated as final interviews are conducted, the focus group is held, questionnaires are completed, and the community meeting is held.

LEADING PRACTICES | Cook County, IL

Population: 5,109,292

Median Household Income: $72.121

Poverty Level: 13.8

Computer Adoption: 92.6%

Broadband Adoption: 86.5%

Key Takeaways

- Cook County has leveraged federal and state funds to build out a significant fiber network in the South Suburbs of Cook County. This network is self-sustaining due to the fact it has paying customers. Cook County's work in this area shows the ability of a County government in Illinois to build out its own fiber network.
- Cook County's fiber network is a partnership between the County government and numerous entities, including a private company, urbancom.net
- Cook County is also funding a broadband expansion at Housing Authority of Cook County (HACC) properties with the support of American Rescue Plan Act (ARPA) funding

Policy & Governance

- Cook County has hired a Director of Digital Equity to oversee county digital equity initiatives
- The Chicago-Southland Fiber Network and is run through a partnership with the South Suburban Mayors & Managers Association (SSMMA), Cook County, and Urbancom.net are partnered to provide high-speed fiber optic infrastructure to the Chicago-Southland communities

Funding & Financing Models

Cook County has leveraged state and federal funds to support broadband expansion and digital equity programs.

State Funds

- The Chicago Southland Fiber Network received a $1.8 million grant from the State of Illinois to fund expansion in the South Suburbs

Federal Funds

- Cook County is leveraging over $10 million in ARPA funds to expand the Chicago Southland Fiber Network, expand access at housing authority properties, and fund digital equity planning

Digital Inclusion Initiatives

- Cook County is funding digital equity planning work to identify ways to address financial barriers to accessing devices and connects, leverage best practices, and more

Infrastructure Projects

- Chicago Southland Fiber Network serves a variety of customers including Cook County courthouses, south suburban regional hospitals and clinics, municipal governments, public safety agencies, community colleges and universities, and economic development organizations. Business and municipal customers facilitated the ability of the CSFN to encourage community adoption at a far cheaper rate than commercial internet providers.
- Cook County is also funding a broadband expansion at Housing Authority of Cook County properties with the support of American Rescue Plan Act (ARPA) funding

LEADING PRACTICES | McHenry County, IL

Population: 311,747

Median Household Income: $93,801

Poverty Level: 6%

Computer Adoption: 96.7%

Broadband Adoption: 94.5%

Key Takeaways

- McHenry County's has worked to facilitate private investment in broadband expansion in the region, while also supporting a fiber buildout itself
- McHenry County's first fiber buildout connected McHenry County Consortium members to a fiber network and then allowed residents and businesses to connect
- According to i3 Broadband, McHenry County streamlined the permitting processes between communities. This streamlined permitting facilitated i3 Broadband's deployment in the area.

Policy & Governance

- McHenry County created a McHenry County Fiber Consortium through a partnership with the County College, local school district, the City of Woodstock, and the local ETSB board
- McHenry County has an ordinance governing the deployment of Wireless Telecommunication Facilities
- The County's Unified Development Ordinance governing zoning applies throughout the county unless a municipality has passed its own zoning ordinance

Funding & Financing Models

- While McHenry County used its own funds in the past, it does not appear to be currently using its own funds and is seeking private investment and federal funding

Digital Inclusion Initiatives

- Comcast provided a gift of 20 laptops to the McHenry County Workforce Network, these laptops then went to disadvantaged McHenry County residents. This donation was part Comcast's Project UP

Infrastructure Projects

- i3 Broadband is expanding fiber-to-the-home throughout McHenry County in Algonquin, Crystal Lake, Lake in the Hills, McHenry, and Woodstock. The McHenry County administrator responded to this news by saying that "Having another vendor to choose from not only aids this effort, but also furthers consumer choice and will help our local economy thrive."
- In 2013, McHenry County Fiber Consortium completed a $2.1 million project to lay fiber-optic cable up Routes 14 and 47 to connect the members' individual sites, with the opportunity for residents and private businesses to hook into the network

LEADING PRACTICES | Spokane County, WA

Population: 549,690

Median Household Income: $64,079

Poverty Level: 11.2%

Computer Adoption: 94.3%

Broadband Adoption: 89.7%

Key Takeaways

- Through state-based initiatives matching federal funds and a focus on accurate, representative mapping, Spokane County and Washington State have begun to bridge the gap between adoption and access.
- While nearly 90% of the County has access to 25/3 connections, affordability remains the largest barrier, especially in rural areas. This includes affordability of devices in lower income households, as well as the cost of regular internet subscription. Broadband subscriptions stand at 72.1% of the County, despite nearly 100% availability of 25/3Mbps speeds in served households.
- The Lift Zone program sponsored by a large ISP aims to reach nearly 20% of the County's residents located in rural areas, by providing community centers with digital devices, life skills classes, and free WiFi

Policy & Governance

- Washington Statewide Broadband Act – Established access and download/upload speed goals for residences, businesses and communities. Additionally reinforced the statewide mandate for access to funds and grants for broadband projects through Infrastructure Acceleration Grants to match federal initiatives.
- Statewide Survey on Access – The State's mapping initiative and survey help identify gaps in high-speed internet service and areas of broadband infrastructure needs

Funding & Financing Models

- Spokane County leveraged ARPA funds to support broadband expansion through Comcast and start-up Broadlinc.

Digital Inclusion Initiatives

- Spokane Neighborhood Action Partners has leveraged CDBG funds to allow their staff to work remotely

Infrastructure Projects

- A partnership between Spokane County and Comcast is expanding internet access to nearly 60,000 individuals in rural and underserved areas. The program offers 50/10 Mbps to low-income households for roughly $10/month, as well as access to a laptop.
- Spokane County funded a make-ready pole infrastructure project for Comcast to expand into the rural Chattaroy relationship and also create the Public Development Authority, Broadlinc.

LEADING PRACTICES | Greenville County, SC

Population: 547,950

Median Household Income: $65,513

Poverty Level: 10.9%

Computer Adoption: 89.7%

Broadband Adoption: 88.6%

Key Takeaways

- Through an array of public-private partnerships and interagency cooperation between the State and County, Greenville has expanded internet access to nearly 86% of the County.
- The State Office of Regulatory Staff (ORS) has set up a State Broadband Office to provide support to underserved communities and broker partnerships with regional broadband providers and utility companies.
- Greenville County has enjoyed a high percentage of broadband connectivity in the region. Despite encompassing rural and traditionally underserved areas, less than 1.5% of the County is unserved or underserved by broadband.
- By leveraging available distribution assets, the County has established pilot programs and coordinated with public entities (Santee-Cooper) and nonprofits (such as the Electric Cooperatives) to reach underserved areas.

Policy & Governance

- Broadband Accessibility Act – provides incentives to smaller power companies and cooperatives to allows internet providers to provide their service alongside electric lines (September 2020).
- State Initiatives: Rural Broadband Grant Program – State provision of $30M in grants for rural connectivity initiatives

Funding & Financing Models

- Greenville County has leveraged funding by the South Carolina Broadband Office

Digital Inclusion Initiatives

- Project Connect – Greenville County has financed the implementation of solar powered wi-fi hotspots in underserved neighborhoods with CARES Act funding. These hotspots provided students without f to 25/3 speed with a connection to attend classes online. The program was implemented through the Greenville County School District.

Infrastructure Projects

- Upcountry Fiber – Pilot program between the Blue Ridge Electric Cooperative and the Western Carolina Telephone Cooperative to build a fiber network in underserved areas across Greenville, Anderson, Oconee, and Pickens Counties (1Gbps access). State and County-owned lines are acting as a “jumping off point” for fiber installation. The County has allowed Upcountry Fiber to begin utilizing its vertical assets.
- The South Carolina Broadband Office announced a project to build AT&T fiber to roughly 2,500 customer locations through a competitive state grant

LEADING PRACTICES | Durham County, NC

Population: 332,680

Median Household Income: $67,000

Poverty Level: 13.4%

Computer Adoption: 95.1$

Broadband Adoption: 90.1%

Key Takeaways

- Durham County has been able to reach underserved populations by collaborating on connectivity initiatives with the city's housing authority to provide wi-fi in publicly-accessible areas
- They have greatly expanded their fiber availability through County-wide initiatives
- Durham has made substantial strides in increasing fiber availability in the City of Durham and county-wide. Through key partnerships with technical and constituent stakeholders (Duke, MCNC, and DHA), the County has been able to substantially increase access for underserved populations.

Policy & Governance

- HB 129/"Level Playing Field" Act – Law that prohibits competition between municipal entities and private ISPs, limiting ability of local governments to engage in municipally-owned broadband networks or service.
- Digital Durham is an organization that brings together Durham County, other governmental agencies, nonprofits, and educational institutions

Funding & Financing Models

- The City of Durham is leveraging ARPA funds for Digital Literacy programs
- Durham County is also leveraging private investment through Lumos Internet

Digital Inclusion Initiatives

- Digital Durham promotes ACP sign up throughout the City and County

Infrastructure Projects

- The City of Durham entered into a partnership with DHA to provide high speed wireless internet for the residents of eight Durham Housing Authority properties. Emphasis was placed on providing internet connections for students in Durham County Schools
- Triangle Fiber Project - Duke University established a fiber optic network, in collaboration with MCNC and Durham County, to reach universities and low-income individuals through outfitting community centers and public buildings with accessible internet.
- Lumos Interent is building out fiber-optic internet in the area