



Kendall County Broadband Plan

September 15, 2022

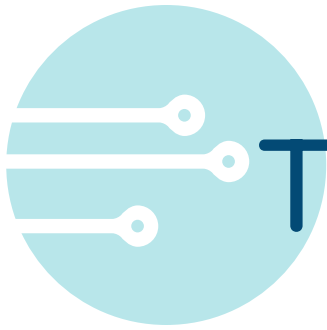
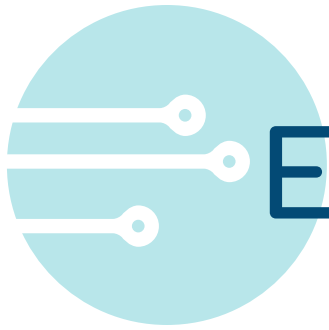


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Executive Summary

The term “globalization” is often used by the media to describe connectivity between geographical areas along with the technology that make this communication possible. This connection allows tangible and intangible assets to be shared and is undoubtedly the most critical infrastructure for present times. It allows real time and constant communication, a sharing of knowledge and data via text, voice and video, eventually turning into virtual and augmented reality which is being described as the “Metaverse”. This enables e-commerce, remote work and learning opportunities, telehealth and entrepreneurial innovation to take place. All of this contributes to societal progress

Fast, reliable, and secure are the adjectives that describe the expectations of current users for Internet connectivity, emphasized by the current COVID-19 pandemic that is key in human development. Responses to the Kendall County Broadband Survey indicated an interest in bridging the digital divide within the County. Similarly, the present results help identify target audiences and communication channels for marketing campaigns to increase the number of answers. These campaigns should be focused in unserved and under-





served areas located in the Southern part of the County, as the market analysis has announced. These zones in need of broadband correspond to less populated census blocks, that is rural areas. In contrast, the North Kendall County region is much denser in terms of end users (residents and businesses) and Internet Service Providers (ISPs).

While we have detailed recommendations within the Next Steps chapter, the biggest need identified is to get fiber to residents and the County by building a fiber middlemile network across the County. This middle mile will serve as the County's core broadband infrastructure connecting anchor institutions that currently provide critical services to the community- emergency and law enforcement services, public waste water utilities, county and township municipal buildings, schools, libraries, park districts and forest service buildings. This infrastructure can also encourage current Internet Service Providers (ISPs) to expand their last mile network along unserved and underserved areas as well as potential new ISPs since network costs are reduced.

The increase in the number of broadband service providers can make service offerings more competitive in terms of speed and price and accomplish the community's interests as indicated in the survey. Furthermore, this middle mile will allow the County to have Internet connectivity independence from third parties adding redundancy in the infrastructure (reliability through close rings) and ensuring security in data transmission.

In order to fulfill the community's preference for fast, reliable, and secure Internet services, an underground fiber optic network is the technology recommended for a municipal middle mile network. Although underground placement of fiber cables is ideal, a balance between the economic resources of the County and the construction technique costs should be considered for project decision-making. Additionally, it should be noted that the construction of the Kendall County Middle Mile can be achieved by connecting to available fiber long haul networks in surrounding areas, driving down construction costs.

One of the major benefits of the preliminary middle mile proposed in this study is the design of closed rings. Apart from the technical advantages of this model (reliability and constant connection), the County can carry out the construction by phases or rings, allowing for the efficient allocation of financial resources. The five rings (Rings 7, 9, 11, 12 and 13- see Chapter 4) that cover the current unserved and underserved areas of the County should be prioritized for build out once the Kendall Broadband Assessment is complete and next steps determined.

Finally, an estimation of the broadband infrastructure construction costs is presented for budgetary purposes in this report. Specifically, Lit Communities has created two financial models both for middle and last mile networks. With respect to the last mile, cost per household is provided as a Key Performance Indicator for potential Internet Service Providers (ISPs). In this regard, current results indicate that small or regional ISPs could be interested parties in Kendall County's last mile versus larger or national ISPs. There will be multiple options for funding including both public and private financing opportunities. Furthermore, together with the budget, the revenue from service offerings (internet, voice, television, telehealth and smart home) has also been estimated.

In order to fulfill the community's preference for fast, reliable, and secure Internet services, an underground fiber optic network is the technology recommended for a municipal middle mile network.



1 Introduction

Broadband Definition

Broadband is the transmission of large volume of data via voice, video, or text through a continuously active high-bandwidth and high-speed Internet connection [1.1] & [1.2]. The Federal Communications Commission (FCC) established the broadband standard for Internet access with download speeds equal to or greater than 25 Mbps (Megabits per second- broadband speed measurement unit) and upload speeds equal to or greater than 3 Mbps [1.1].

Served and Underserved Service Locations

The National Telecommunications and Information Administration (NTIA), a Government agency focused on creating programs and policies that increase the access to broadband Internet across the USA [1.3], catalogues service locations in the following two types based on broadband Internet speeds [1.4]:

Unserved Locations:

- Download speeds are less than 25 Mbps
- Upload speeds are less than 3 Mbps

Underserved Locations:

- Download speeds are equal to or greater than 25 Mbps and less than 100 Mbps
- Upload speeds are equal to or greater than 3 Mbps and less than 20 Mbps

Therefore, served locations have download speeds greater than 100 Mbps and upload speeds greater than 20 Mbps.



REFERENCES

[1.1] Fernando, K. (2021). Broadband Definition. Available at: <https://www.investopedia.com/terms/b/broadband.asp>

[1.2] Federal Communications Commission (2014). Types of Broadband Connections. Available at: <https://www.fcc.gov/general/types-broadband-connections>

[1.3] National Telecommunications and Information Administration – NTIA (2022). About NTIA. Available at: <https://www.ntia.doc.gov/about>

[1.4] National Telecommunications and Information Administration – NTIA (2022). Economics of Broadband Networks: An overview. Available at: <https://broadbandusa.ntia.doc.gov/sites/default/files/2022-03/Economics%20of%20Broadband%20Networks%20PDF.pdf>



Broadband Connection Types

Broadband transmission technologies are catalogued as follows [1.2]:

1. Fixed (wired) Broadband:

Data is transmitted through cables. Depending on the material, cables can be:

Fiber Optic Cables: It provides fast transmission speeds (download speed from 250 to 1,000 Mbps and upload speed from 250 to 1,000 Mbps [1.5] as data travels through an optic material (glass fibers) as pulses of light.

Cable Modem (coaxial cables): Data transmission is through TV cables at download speeds from 10 to 500 Mbps and upload speeds from 5 to 50 Mbps [1.5].

Copper Phone Lines (DSL - Digital Subscriber Line): Traditional copper telephone lines are utilized to transmit data at download speeds from 5 to 35 Mbps and upload speeds from 1 to 10 Mbps [1.5]. DSL is categorized in the following types:

- Asymmetrical Digital Subscriber Line (ADSL): Download transmission speed is higher than upload transmission speed. It does not interrupt telephone calls.
- Symmetrical Digital Subscriber Line (SDSL): Download and upload transmission speeds are similar.
- High data rate Digital Subscriber Line (HDSL) and Very High data rate Digital Subscriber Line (VDSL): They are faster DSL transmission types.

2. Wireless Broadband:

Data is transmitted through radio waves in the following two ways:

Mobile Wireless: The signal travels between the Internet Service Provider's antenna (located on a tower which is wired connected to the rest of the Internet network) and the customer's receiver/transmitter which can be:

- An antenna fixed placed and connected to a router via a wireline: This broadband transmission is called Fixed Wireless. Download and upload speeds depend on the type of customer [1.6]: Residential download and upload speeds are similar to DSL or Cable Modem, and business download and upload speeds are faster than residential offerings (approximately 500 Mbps of download and upload speed).
- A mobile device: The "fifth generation" mobile wireless or 5G is the latest standard. Download and upload speeds depend on frequency range and distance covered [1.7]. Hence, 5G is catalogued in three types [1.7]: I) Low-Band 5G: Speeds are up to 300 Mbps covering an area of 20 miles; II) Mid-Band 5G: Speeds are up to 1 Gbps and the coverage area is up to 10 miles; and III) High-Band 5G: Speeds are up to 4 Gbps covering an area less than 0.6 miles.

Satellite: The customer has an antenna wired connected to a satellite modem and router. The satellite operates as a data transmission link between the Internet Service Provider's antenna and the customer's antenna. Speed offerings range from 12 up to 100 Mbps in the near future [1.8] & [1.9].

In terms of transmission, wired services are more reliable than wireless options based on the medium used to transmit the data. Data transmitted via radio waves are more susceptible to interference due to physical and/or other wireless signal obstacles between the transmitter and receiver.



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[1.2] Federal Communications Commission (2014). Types of Broadband Connections. Available at: <https://www.fcc.gov/general/types-broadband-connections>

[1.5] BroadbandNow (2022). DSL vs. Cable vs. Fiber: Which Internet Option Is the Best Available at: <https://broadbandnow.com/guides/dsl-vs-cable-vs-fiber>

[1.6] BroadbandNow (2022). Terrestrial Fixed Wireless Internet In The United States. Available at: <https://broadbandnow.com/Fixed-Wireless>

[1.7] BroadbandNow (2022). 5G Internet in the USA. Available at: <https://broadbandnow.com/5G>

[1.8] BroadbandNow (2021). Satellite Internet in the USA. Available at: <https://broadbandnow.com/Satellite>

[1.9] BroadbandNow (2021). Best Satellite Internet Providers. Available at: <https://broadbandnow.com/internet/best/satellite>



Why Fiber Optic?

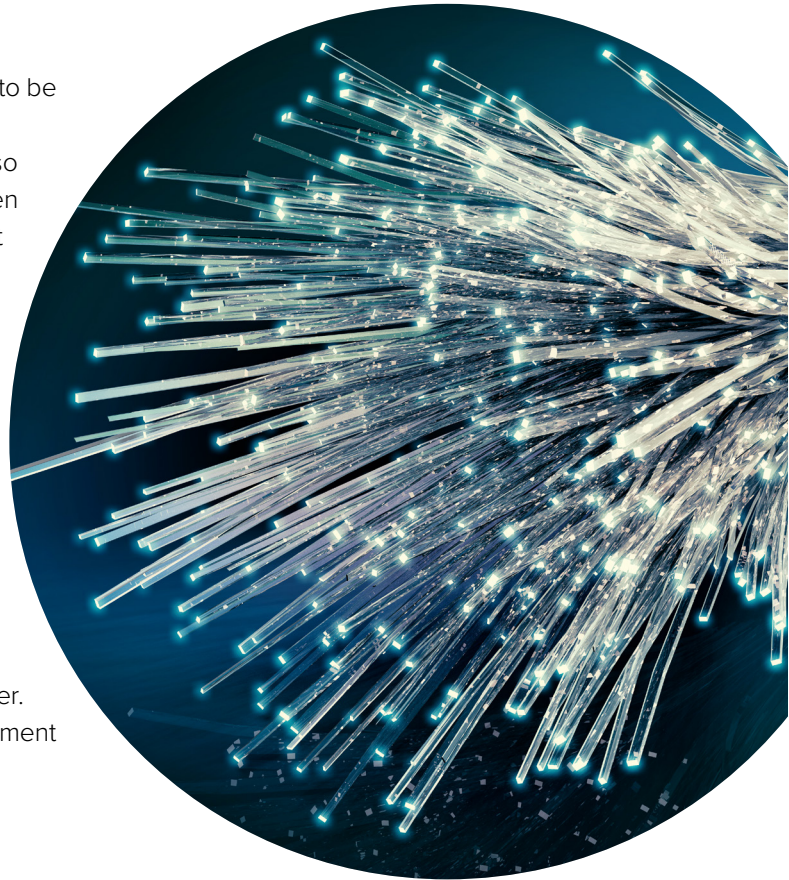
Fiber Optic is the fastest broadband Internet transmission technology [1.5]. Its main competitor is cable modem which could be as fast as fiber optic but the material is a constraint and is not capable of the same speed [1.5].

Fiber optic cables are much thinner and lighter than metal wires, so more fibers can be bundled into a given diameter of cable. This makes fiber optic a faster and more reliable broadband Internet option versus cable modem since [1.5]:

- Fiber optic cables are stronger and thus less likely to be damaged to external hazards as climate.
- Fiber optic cables can carry more volume of data, so users will not experience a reduction of speed when neighbors or family members are using the Internet at the same time.

Likewise, fiber optic cables use digital signals (the natural data transmission form for computer data) rather than electrical signals used by metal cables. Therefore, they are not susceptible to interference from other electrical devices or radio signals. No electricity is passed through optical fibers eliminating the potential for a fire hazard.

Fiber is often said to be “future-proof” because data is transmitted at the speed of light. The rate of the connection is usually limited by the equipment rather than the fiber. This will permit substantial speed improvements by equipment upgrades long before the fiber itself must be upgraded.



Broadband Internet Connectivity Levels

Internet is a global communication network that connects four types of infrastructures:

Tier 1 or Global Backbone Network: It is the fixed broadband Internet infrastructure at an international level that connects countries and continents.

Tier 2 or Long Haul Network: Along the territory of each country, there is a fixed broadband Internet network connecting the different regions. This infrastructure is connected to Tier 1 or Global Backbone Network.

Tier 3 or Middle Mile Network: It is the core broadband Internet network of each region in a country. It is connected to Tier 2 or Long Haul Network. Based on the territorial division of the United States of America, the middle mile infrastructure usually targets counties or cities.

Tier 4 or Last Mile Network: It is the last part of the Internet infrastructure that connects end users (residences and businesses) to Tier 3 or Middle Mile Network.

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[1.5] BroadbandNow (2022). DSL vs. Cable vs. Fiber: Which Internet Option Is the Best Available at: <https://broadbandnow.com/guides/dsl-vs-cable-vs-fiber>



Structure and Content of this Study

Global need for fast, secure and reliable broadband internet networks has accelerated and is now seen as a powerful mechanism for socioeconomic progress. Recognizing this need, Kendall County issued a Request for Proposals for a Broadband Feasibility Study with the intent to further the County's vision that "All Kendall County residents will be able to use convenient, affordable world-class networks that enable us to survive and thrive in our communities and across the globe." This Business Plan by Lit Communities, offers an in-depth study of the broadband internet reality in the County and outlines enhancement options, structured in the following content sections.

Chapter 2: Market Analysis

This is an analysis of current broadband Internet infrastructures and offerings in the County, using different public and private data sources. The analysis will assist the County in effectively allocating financial resources to areas in need of broadband.

Chapter 3: Community Survey

The content has the same objective as the previous section, namely to determine the current health status of Internet connectivity and services in order to bridge the digital divide in the County. The analyzed data is collected from end users (County residents).

Chapter 4: Preliminary Network Design

A high-level design of both a middle and last mile network for Kendall County in order to define the paths and metrics associated to these designs for cost estimation purposes related to network engineering and construction.

Chapter 5: Construction Ride Out (CRO) and Make Ready Engineering Analysis (MREA)

Categorization of the previous preliminary middle and last mile network designs into aerial or underground with the purpose of obtaining a more accurate estimation of the network construction costs.

Chapter 6: Financial Model

Cost estimates for the preliminary designs of middle and last mile networks based on CRO and MREA results mentioned above. This provides the County with the investment required to design, build operate and maintain the middle and last mile networks.

Chapter 7: Grant Services

Evaluation of federal and state broadband funding programs in order to financially support Kendall County middle and last mile networks as well as initiatives linked to economic development, emergency response, and tele-health.





2 Market Analysis

Objective

Market analysis allows for strategic decision making that can minimize risk and amplify success. This analysis is designed to provide the County with a diagnosis of the current health of internet services in the community. The results of this study will enable the County to target those areas that are in need of broadband in order to bridge the digital divide and offer equal broadband opportunities to all residents and businesses. The County can then utilize the economic resources of the community in coordination with other public and private funding sources.



Methodology

Kendall County Market Analysis collected and evaluated data from several sources with the aim of gaining a profound understanding of who the incumbents are, what types of Internet services they offer in terms of broadband speed and price, what areas they cover with those services, what zones are eligible for federal grants, how digital adoption is, and what fiber networks are deployed as well as their redundancy and the possibility of the County to leverage these infrastructures for middle mile purposes.

The information sources utilized can be catalogued as follows:

Public sources: Federal Communications Commission (FCC), Illinois Department of Commerce & Economic Opportunity, and Purdue Center for Regional Development (PCRD).

Private sources: BroadbandNow, Broadbandsearch, and FiberLocator.

The following table summarizes the sources aforementioned and the data captured from them:



SOURCE NAME	SOURCE DESCRIPTION	DATA COLLECTED AND ANALYZED	DATA PURPOSE
Federal Communications Commission (FCC)	"Federal agency responsible for implementing and enforcing America's communications law and regulations" [2.1]	FCC Form 477	Determine broadband incumbents Identify broadband unserved, underserved, and served areas (based on NTIA definitions, see Chapter 1)
		RDOF (Rural Digital Opportunity Fund) Auction 904	Identify federal grant eligible areas in the County
Illinois Department of Commerce & Economic Opportunity	State Department responsible for providing: "... economic opportunities for businesses, entrepreneurs, and residents to improve the quality of life for all Illinoisans" [2.2]	The Illinois Broadband Map	Identify broadband unserved, underserved, and served areas (based on NTIA definitions, see Chapter 1)
Purdue Center for Regional Development (PCRD)	Research center of the Purdue University that pursues the socioeconomic progress of the different regions across the U.S. territory through collaborative innovation [2.3]	Digital Divide Index (DDI) and Digital Distress	Define digital adoption
BroadbandNow & Broadbandsearch	Online databases of available Internet Service Providers (ISPs) [2.4] & [2.5]	Internet service offerings available in the County	Determine broadband speed and corresponding price
FiberLocator	Online telecommunications database of fiber infrastructure [2.6]	Existing fiber infrastructure in the County	Define metro fiber networks (regional level - middle mile; local level - last mile) to evaluate network redundancy Define long haul fiber networks (national level) to be leveraged by the County to connected middle mile

REFERENCES

- [2.1] Federal Communications Commission (2022). About the FCC. Available at: <https://www.fcc.gov/about/overview>
- [2.2] Illinois Department of Commerce & Economic Opportunity (DCEO) (2022). About DCEO. Available at: <https://www2.illinois.gov/dceo/AboutDCEO/Pages/EmploymentOpportunities.aspx>
- [2.3] Purdue Center for Regional Development (PCRD) (2022). About us. Available at: <https://pcrd.purdue.edu/about-us/>
- [2.4] BroadbandNow (2022). About BroadbandNow's Team. Available at: <https://broadbandnow.com/about>
- [2.5] Broadbandsearch (2022). About. Available at: <https://www.broadbandsearch.net/about>
- [2.6] FiberLocator (2022). Resources. Available at: <https://www.fiberlocator.com/>



Results Obtained

1. Broadband Internet Service Providers in the County

Based on the Fixed Broadband Deployment Data from the FCC Form 477 of the State of Illinois [2.7], and specifically considering the census tracts of Kendall County, the following Internet Service Providers have been found:

INTERNET SERVICE PROVIDER	TECHNOLOGY	CUSTOMER TYPE
AT&T Illinois	ADSL2, ADSL2+	Residential
	Asymmetric DSL	Residential
	Fiber	Residential
	Terrestrial Fixed Wireless	Residential
	VDSL	Residential
Cable ONE	Cable Modem - DOCSIS 3.0	Residential & Business
Call One	Fiber	Business
	Other Copper Wireline	Business
CenturyLink	Fiber	Business
	Other Copper Wireline	Business
ClearSKY Systems	Asymmetric DSL	Residential
	Terrestrial Fixed Wireless	Residential & Business
Comcast	Cable Modem - DOCSIS 3.0	Business
	Cable Modem - DOCSIS 3.1	Residential & Business
	Fiber	Residential & Business
EarthLink Business	Asymmetric DSL	Business
First Communications	Fiber	Business
	Other Copper Wireline	Business
Frontier Communications Corporation	ADSL2, ADSL2+	Residential & Business
	Asymmetric DSL	Residential & Business
	VDSL	Residential & Business
Fusion Cloud Services	Asymmetric DSL	Business
	Other Copper Wireline	Business
Future Link IT	Terrestrial Fixed Wireless	Residential & Business

REFERENCES

[2.7] Federal Communications Commission (2022). Fixed Broadband Deployment Data from FCC Form 477. Available at: <https://www.fcc.gov/general/broadband-deployment-data-fcc-form-477>



1. Broadband Internet Service Providers in the County

(continued)

INTERNET SERVICE PROVIDER	TECHNOLOGY	CUSTOMER TYPE
GCI Communication	Satellite	Business
HughesNet	Satellite	Residential & Business
MCI	Other Copper Wireline	Business
McLeod USA Telecommunications Services	ADSL2, ADSL2+	Business
	Fiber	Business
Media Net Wifi	Terrestrial Fixed Wireless	Residential & Business
Mediacom Illinois	Cable Modem - DOCSIS 3.1	Residential & Business
Metronet	Fiber	Residential & Business
NewarkNet	Terrestrial Fixed Wireless	Residential & Business
Next Level Technology Partners	Terrestrial Fixed Wireless	Residential & Business
PAETEC Business Services	ADSL2, ADSL2+	Business
	Fiber	Business
PAETEC Communications	ADSL2, ADSL2+	Business
Rise Broadband	Terrestrial Fixed Wireless	Residential & Business
SNET	Fiber	Business
Surf Broadband Solutions	Terrestrial Fixed Wireless	Residential & Business
T-Mobile	Terrestrial Fixed Wireless	Residential & Business
Tailwind Voiceand Data	Terrestrial Fixed Wireless	Business
United States Cellular Corporation	Terrestrial Fixed Wireless	Residential
Urban Communications	Terrestrial Fixed Wireless	Residential & Business
Viasat	Satellite	Residential & Business
VSAT Systems	Satellite	Residential & Business
XO Communications	Other Copper Wireline	Business



The latest COVID-19 pandemic has demonstrated the importance of having a secure, robust, reliable, and fast broadband Internet for all municipalities and counties within the United States.

2. Internet Service Providers' Offerings in terms of Speed and Price

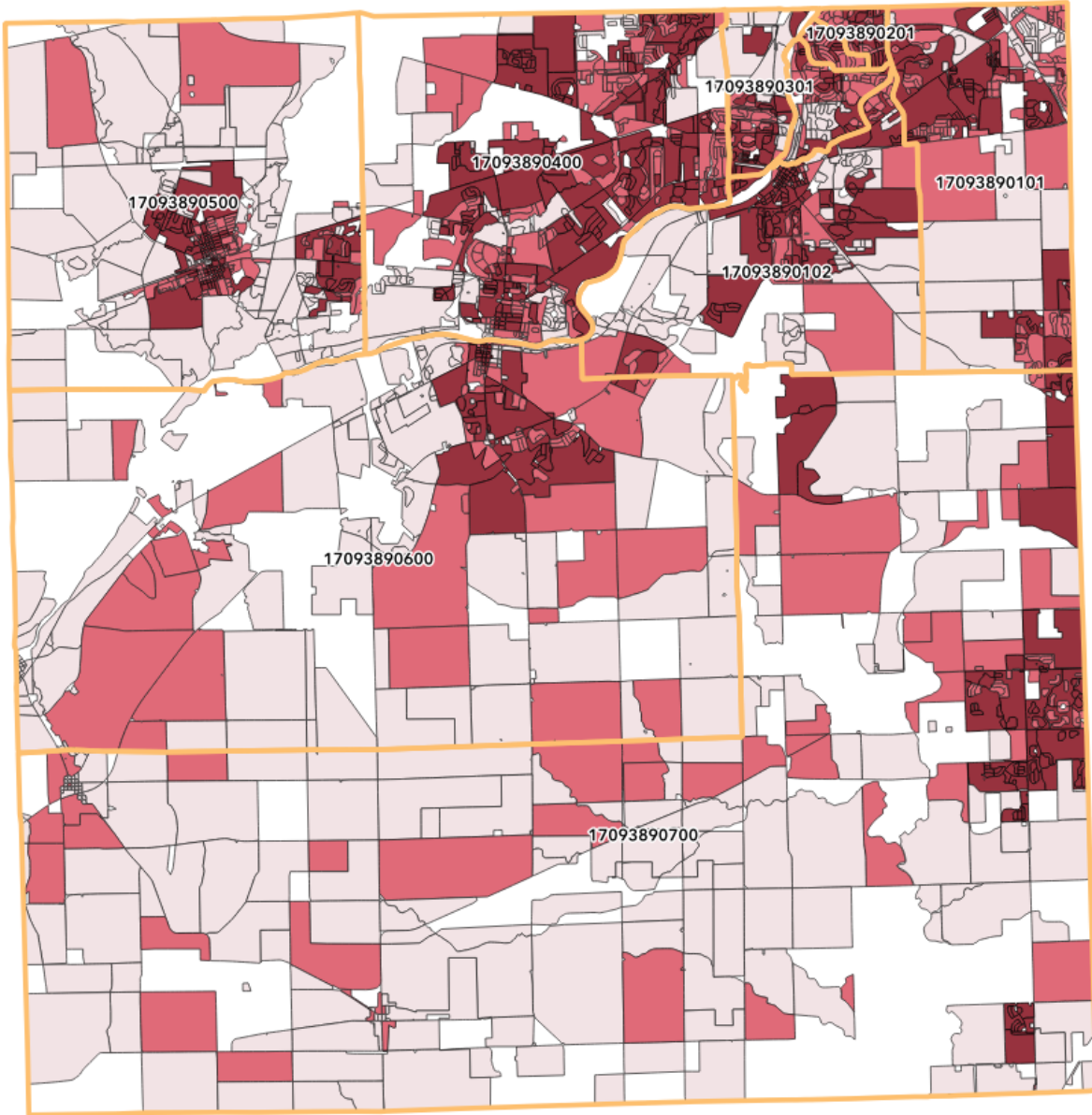
According to the information collected from BroadbandNow and Broadband search (see Appendix A), the following Internet speeds and corresponding prices are provided in the County:

CUSTOMER TYPE	TECHNOLOGY	MAXIMUM DOWNLOAD SPEED (Mbps)	MAXIMUM UPLOAD SPEED (Mbps)	PRICE (\$)
Residential	Fixed Wireless	40	8	34.99 - 212.00
	DSL	100	20	129.99 - 144.99
	DSL & Fiber	5000	5000	49.99 - 154.99
	Fiber	1000	Not listed	89.95
	Cable	1200	Not listed	Not listed
	Satellite	50	3	49.99 - 159.99
	5G Internet	1000	23	39.99 - 159.99
Business	Fixed Wireless	100	8	25.00 - 124.95
	DSL	10	Not listed	Not listed
	DSL & Fiber	5000	5000	180.00
	Fiber	5000	5000	39.95 - 180.00
	Cable	1000	Not listed	Not listed
	Copper	1.5	Not listed	Not listed



3. Areas Covered by Internet Service Providers' Plans

The following broadband Internet speed maps for Kendall County have been created based on the Fixed Broadband Deployment Data from the FCC Form 477 of the State of Illinois [2.8]



RESIDENTIAL SPEED

- Unserved Blocks: Download Speed < 25 Mbps and Upload Speed < 3 Mbps
- Underserved Blocks: 25 Mbps ≤ Download Speed < 100 Mbps and 3 Mbps ≤ Upload Speed < 20 Mbps
- Served Blocks: Download Speed ≥ 100 Mbps and Upload Speed ≥ 20 Mbps

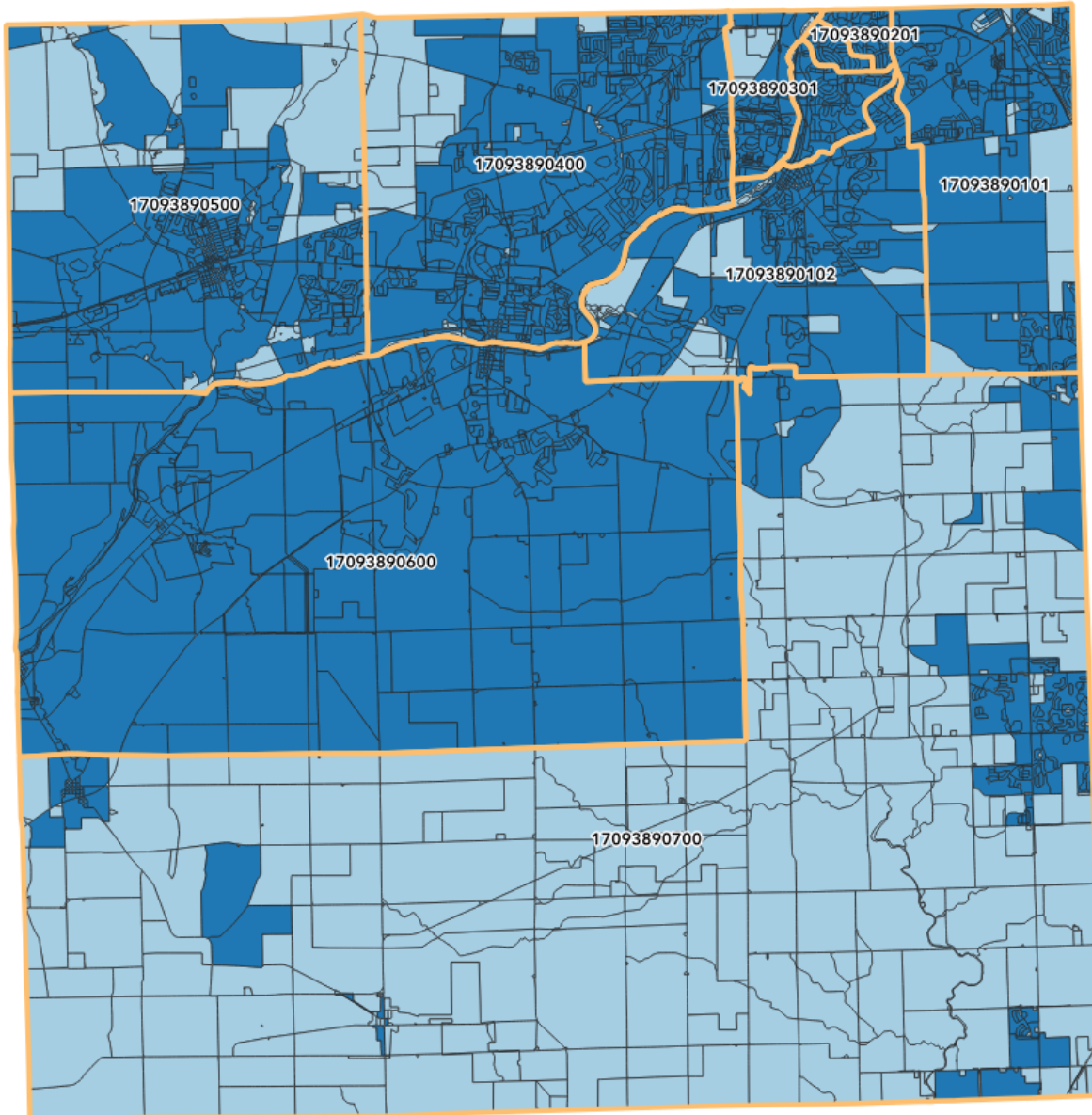
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[2.8] Federal Communications Commission (2022). Fixed Broadband Deployment Data from FCC Form 477. Available at: <https://www.fcc.gov/general/broadband-deployment-data-fcc-form-477>





3. Areas Covered by Internet Service Providers' Plans

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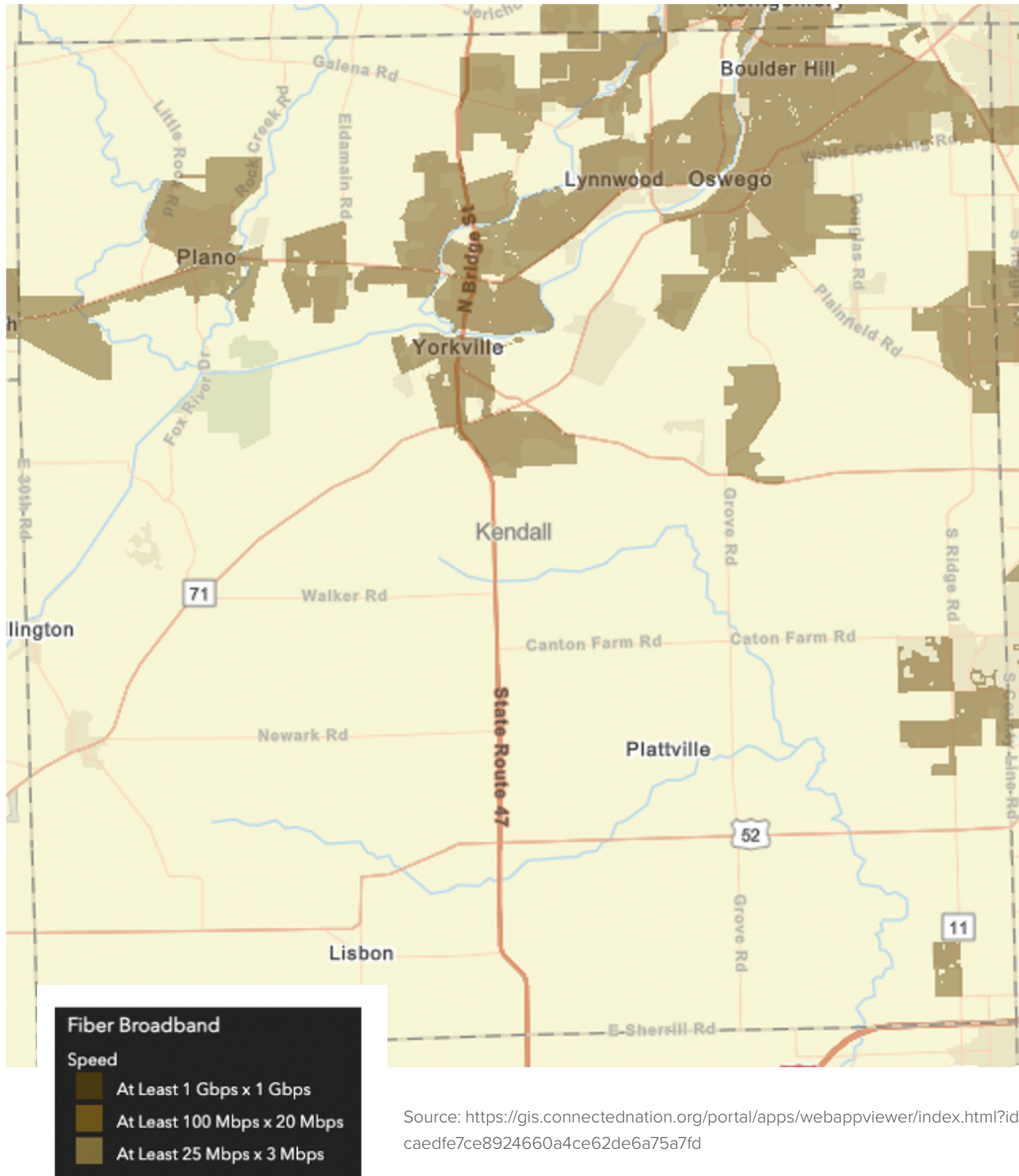
RESIDENTIAL & BUSINESS SPEED

-  Underserved Blocks: 25 Mbps ≤ Download Speed < 100 Mbps and 3 Mbps ≤ Upload Speed < 20 Mbps
-  Served Blocks: Download Speed ≥ 100 Mbps and Upload Speed ≥ 20 Mbps



3a. Types of Broadband Transmission Technologies

Additionally, the Illinois Broadband Map [2.9] shows the areas of the County that are covered by different types of broadband transmission technologies together with the density of Internet Service Providers, as shown below.



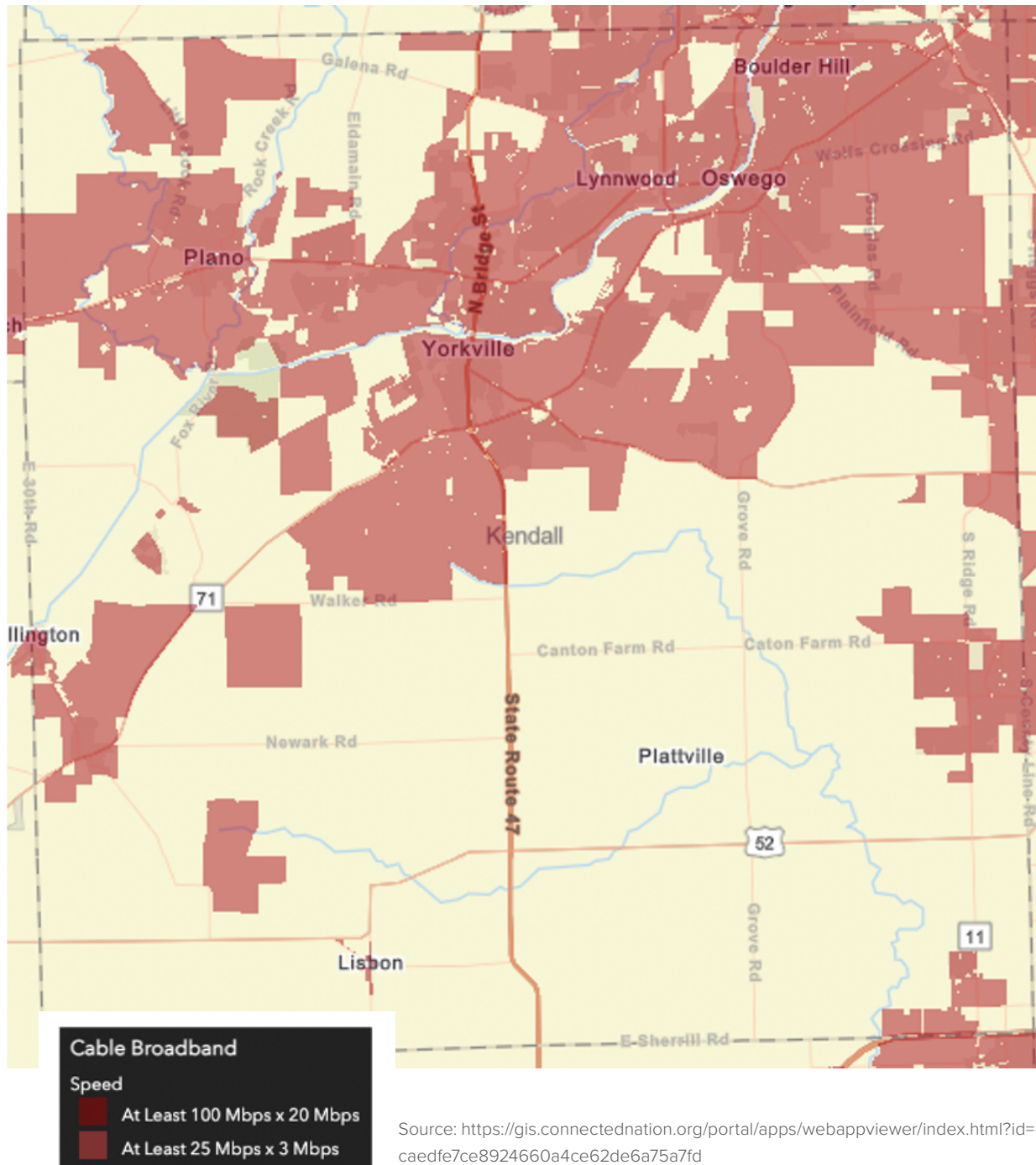
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[2.9] Illinois Department of Commerce & Economic Opportunity - Office of Broadband (2022). The Illinois Broadband Map. Available at: <https://gis.connectednation.org/portal/apps/webappviewer/index.html?id=caedfe7ce8924660a4ce62de6a75a7fd>



3a. Types of Broadband Transmission Technologies

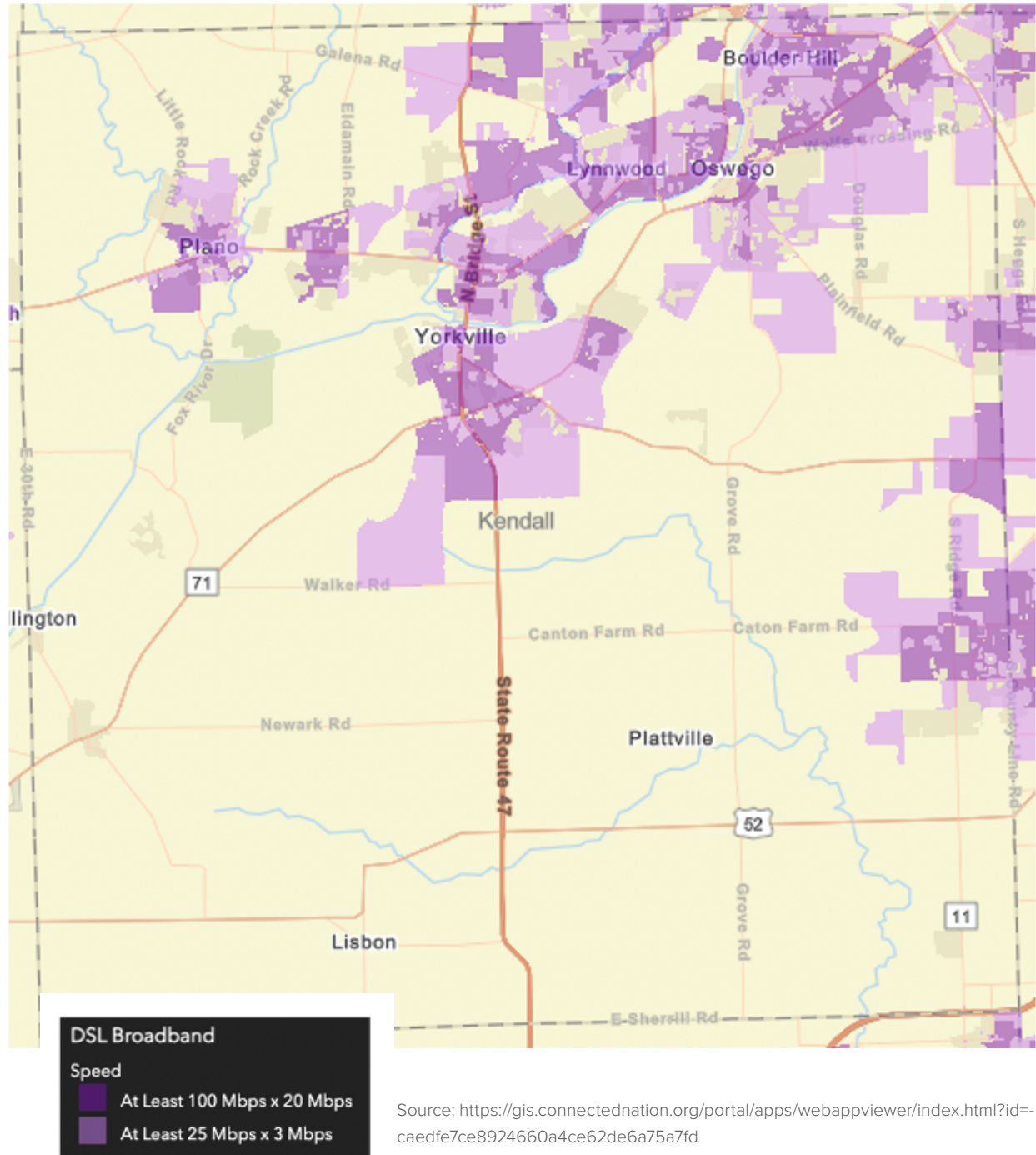
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3a. Types of Broadband Transmission Technologies

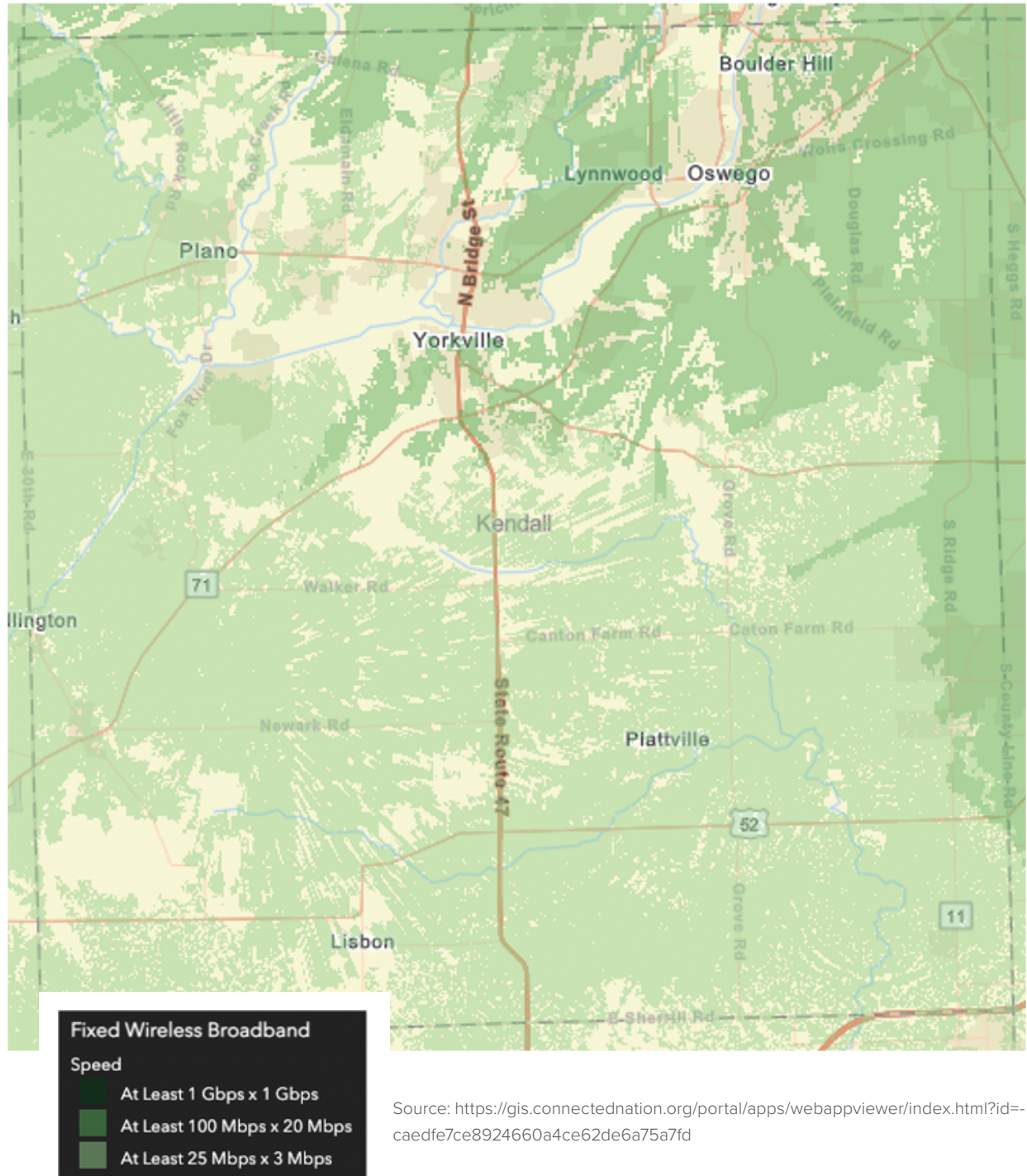
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3a. Types of Broadband Transmission Technologies

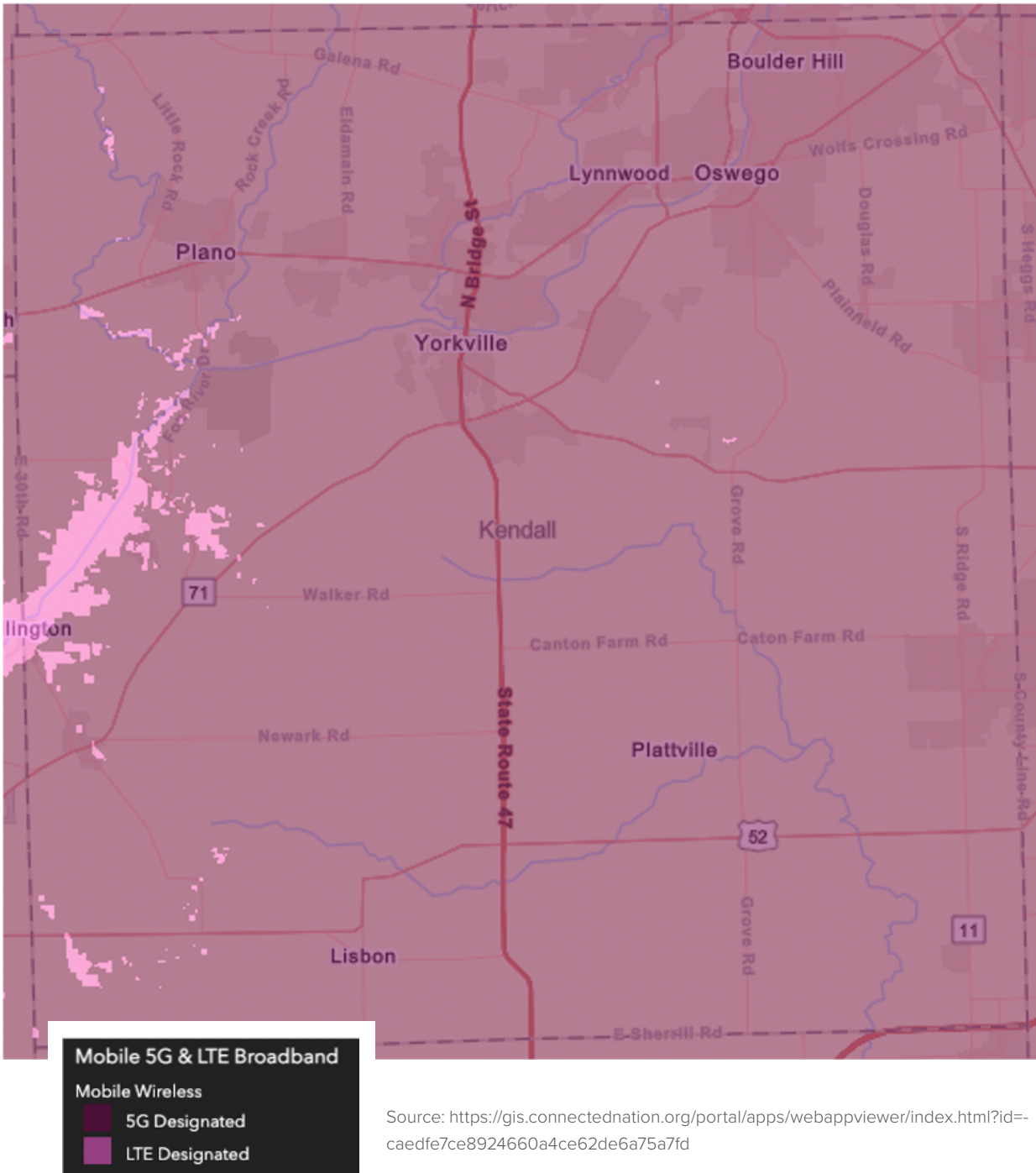
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3a. Types of Broadband Transmission Technologies

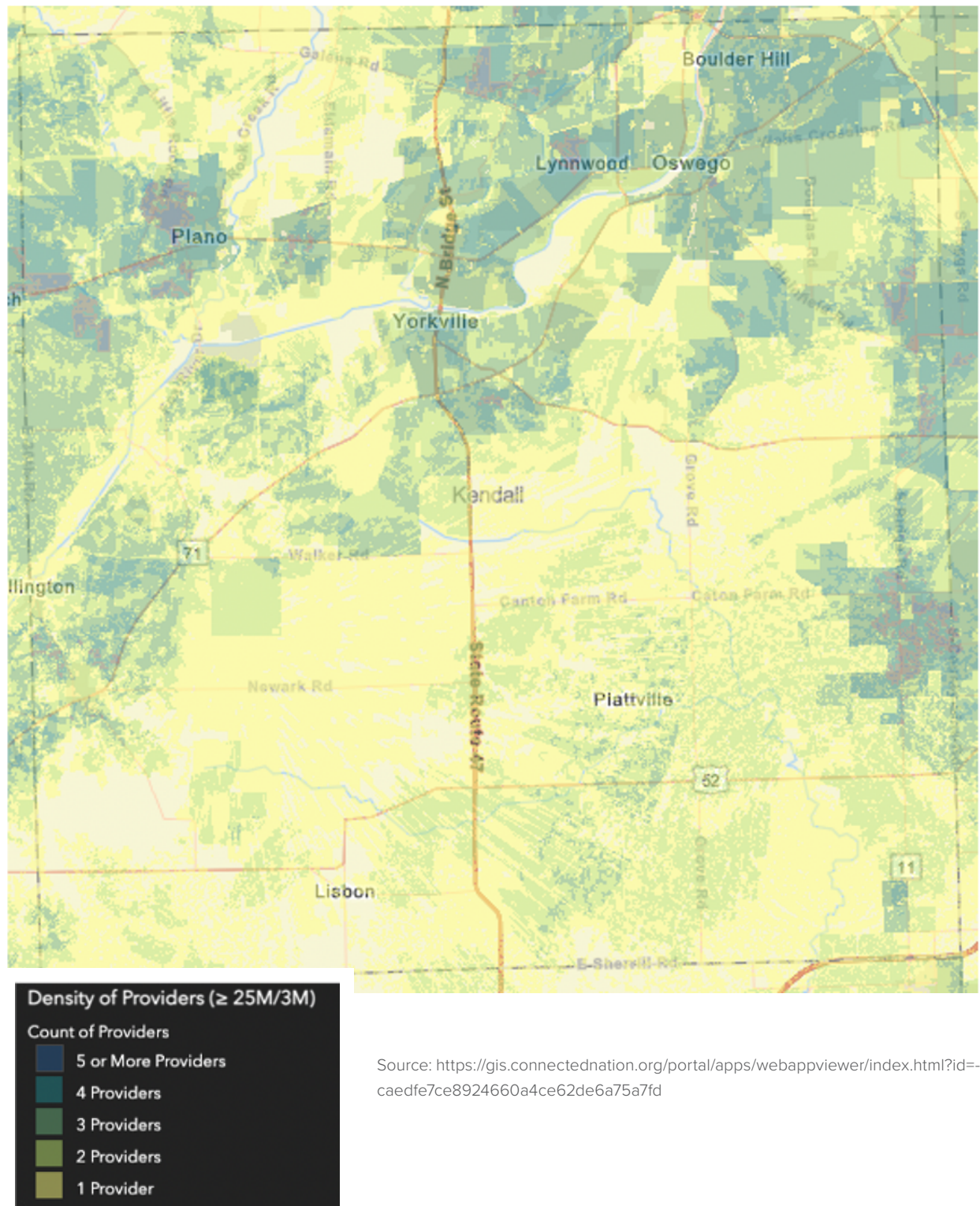
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3a. Types of Broadband Transmission Technologies

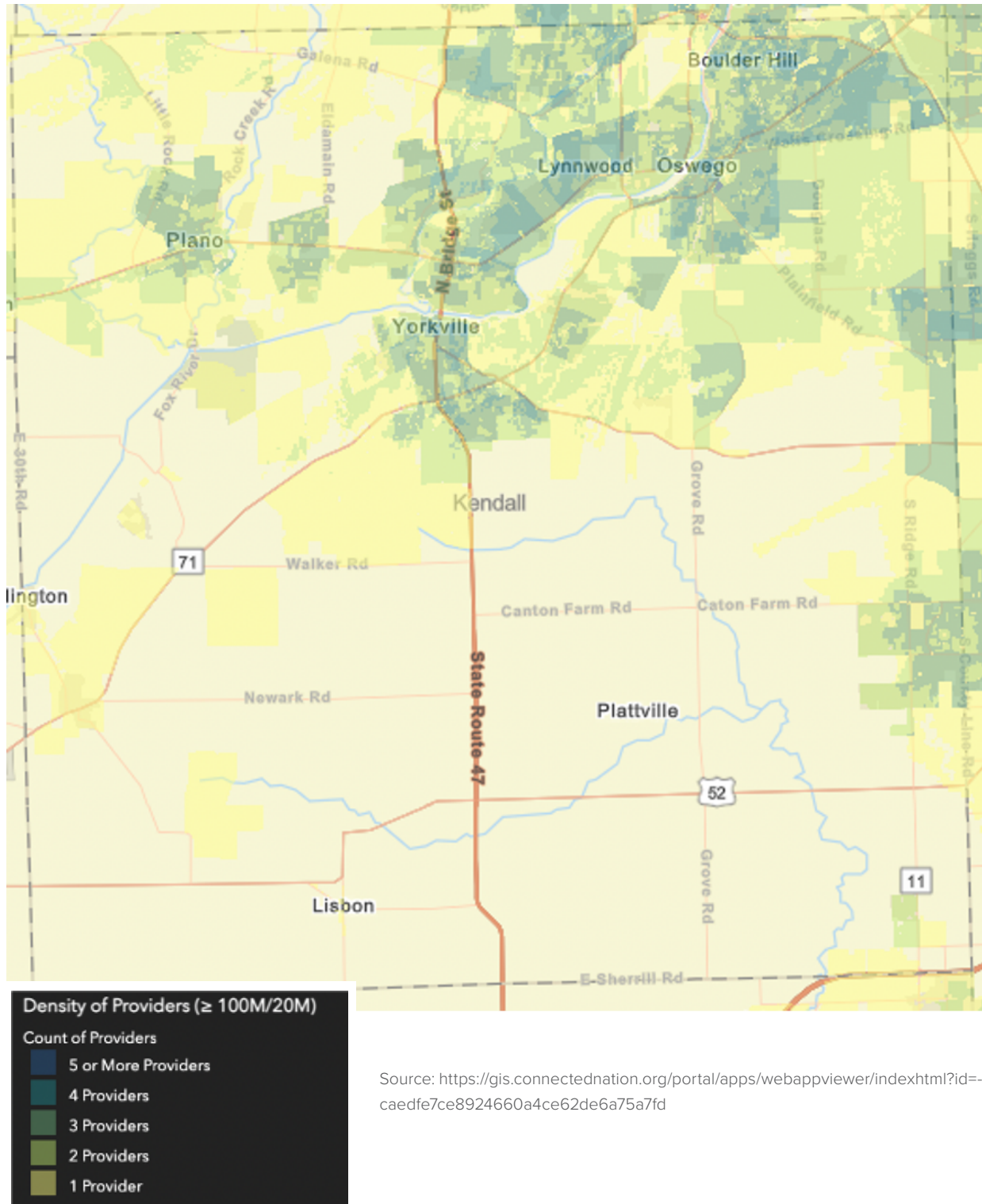
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3a. Types of Broadband Transmission Technologies

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4. Grant eligible areas in the County

The Federal Communications Commission (FCC) established the Rural Digital Opportunity Fund (RDOF - \$20.4 billion over the next ten years) to bring fixed voice and broadband services (up to 1 Gbps) to rural areas (residences and small businesses) [2.10]. The process to allocate this funding is through an auction (Auction 904) and it consists of two phases explained below. Each phase is made up of two steps:

1. Pre-Auction Short-Form Application: Potential bidders should demonstrate their “eligibility to participate in the auction” [2.10]; and
2. Post-Auction Long-Form Application: Winning bidders should demonstrate that “they are legally, technically and financially qualified to receive support” [2.10].

Unsubsidized providers can apply for this fund who will be evaluated based on a weighting system which prioritizes [2.10]:

- Higher speeds (minimum supported speed is 25 Mbps (download speed) and 3 Mbps (upload speed));
- Lower latency; and
- Greater usage allowances



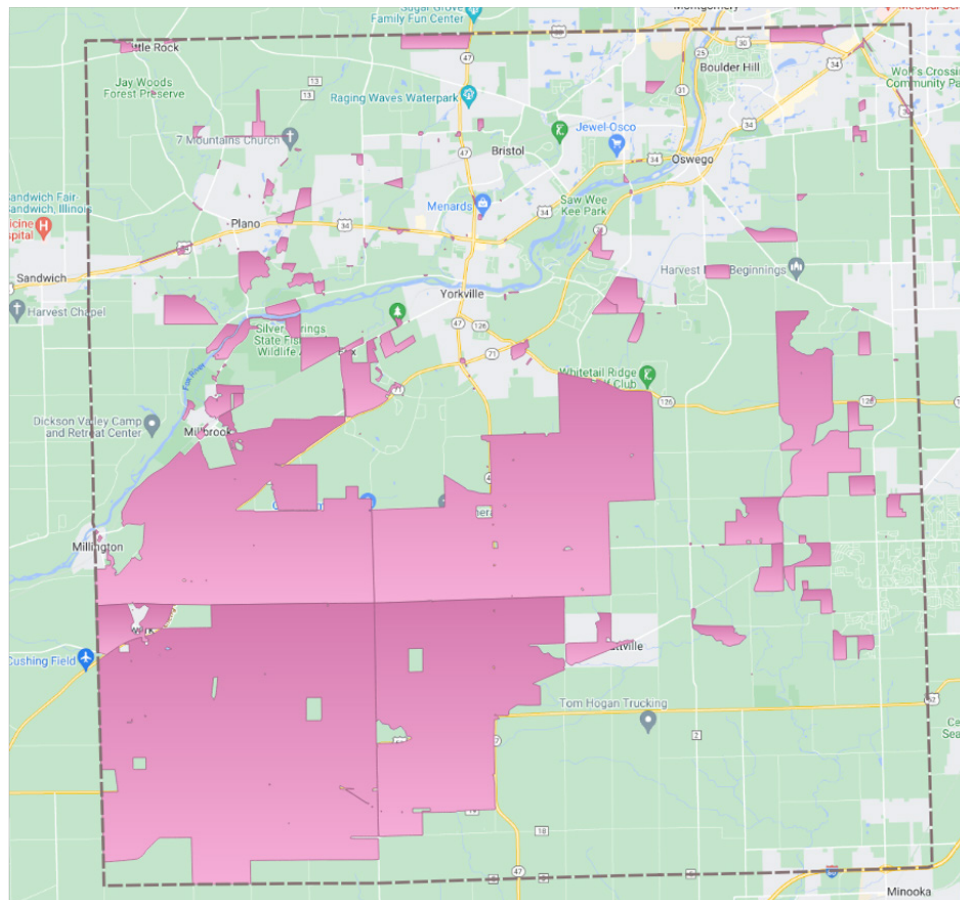
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[2.10 Federal Communications Commission (2022). FCC Launches \$20 Billion Rural Digital Opportunity Fund. Available at: <https://www.fcc.gov/document/fcc-launches-20-billion-rural-digital-opportunity-fund-0>



Phase I (\$16 billion) to cover unserved census blocks [2.10]: The FCC notified prospective bidders regarding eligible census blocks for the RDOF grants in 2020 [2.10]. For that purpose, the FCC:

1. Created a preliminary list and map of eligible census blocks using the most updated FCC Form 477 data and published this information on March 2020 [2.10]; and
2. Published on October 2020 the final list and map of eligible census blocks available for Phase I bidding utilizing the most current data of FCC Form 477 to date [2.10]. The final eligible census blocks for Phase I related to Kendall County are represented on the map below¹. According to the addresses received from Kendall County to develop the present study, a total of 1,436 service locations (residences and small businesses) are located in eligible areas for Auction 904 Phase I.



 **KendallCountyBoundary**
 **Kendall County Auction 904 Phase I Final Eligible Areas**
 **Google Maps**

¹ Federal Communications Commission (2022). Auction 904: Rural Digital Opportunity Fund. Final List of Eligible Areas - October 8, 2020. Available at: <https://www.fcc.gov/auction/904>



The FCC published the list of winning bidders (prior to post-auction) in December 2020². In the case of Kendall County, the awarded bidders were the following:

Rural Digital Opportunity Fund Phase I Auction Results by State/Territory and County				
State	County	Bidder	Locations	Assigned Support (10 years)
Illinois	Kendall, IL	LTD Broadband LLC	1,945	\$5,938,595.80
Illinois	Kendall, IL Total		1,945	\$5,938,595.80

Following the FCC's announcement of initial RDOF Phase I awards, LTD Broadband LLC has since been disqualified from the auction. As a result there are no winning bidders in Kendall County for RDOF Phase I.

Phase II (\$4.4. billion) to cover partially served census blocks as well as unserved census blocks not awarded in Phase I [2.10].

The FCC will announce the eligible census blocks for RDOF Phase II based on the Digital Opportunity Data Collection⁴ or suitable alternative data source. Since there are no winning bidders for RDOF Phase I to date and considering that Phase II will also cover non awarded unserved eligible areas of Phase I, potential and eligible bidders can benefit from RDOF Phase II in order to provide those underserved and unserved areas with broadband services.

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[2.10 Federal Communications Commission (2022). FCC Launches \$20 Billion Rural Digital Opportunity Fund. Available at: <https://www.fcc.gov/document/fcc-launches-20-billion-rural-digital-opportunity-fund-0>

² Federal Communications Commission (2022). Auction 904: Rural Digital Opportunity Fund. Summary by State and County (xlsx). Rural Digital Opportunity Fund Phase I Auction Results by State/Territory and County. Available at: <https://www.fcc.gov/auction/904/round-results>

³ Federal Communications Commission (2022). Auction 904: Rural Digital Opportunity Fund. Authorized Auction 904 Long-Form Applicants (updated 8/5/2022). Available at: <https://www.fcc.gov/auction/904/round-results>

⁴ According to the Federal Communications Commission [Reference: Federal Communications Commission (2021). Establishing the Digital Opportunity Data Collection. Available at: <https://www.fcc.gov/document/fcc-takes-next-step-collect-more-precise-broadband-mapping-data>]: "... Digital Opportunity Data Collection, a new data collection distinct from the FCC Form 477, to collect geographically precise and detailed data on broadband service deployment, which would be subject to stakeholder challenges..."

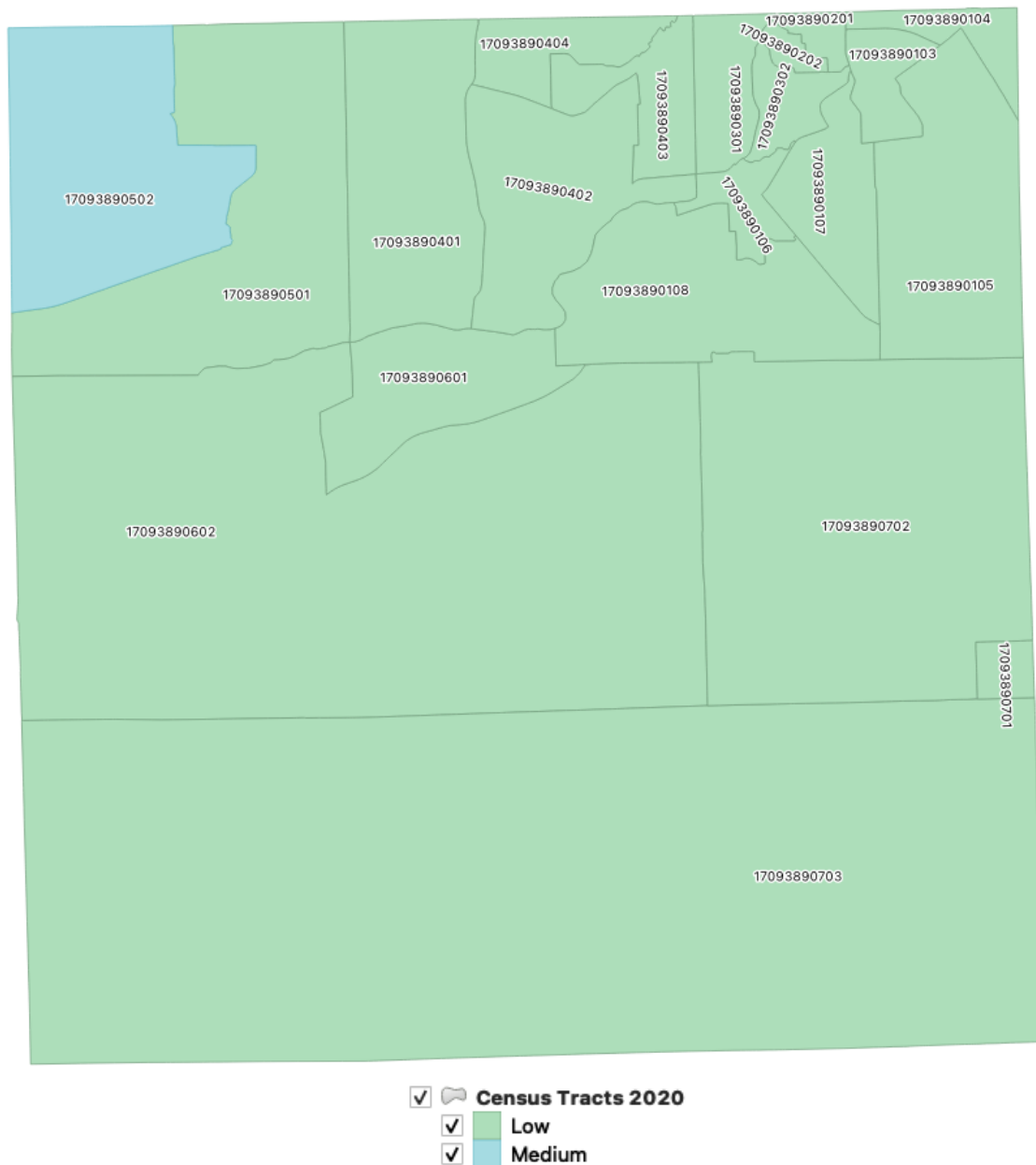


5. Digital Adoption in the County

The Purdue Center for Regional Development (PCRD) provides the following two metrics (per 2020 census blocks) for decision making on broadband infrastructure investment.

Digital Divide Index (DDI)

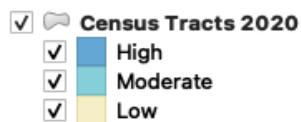
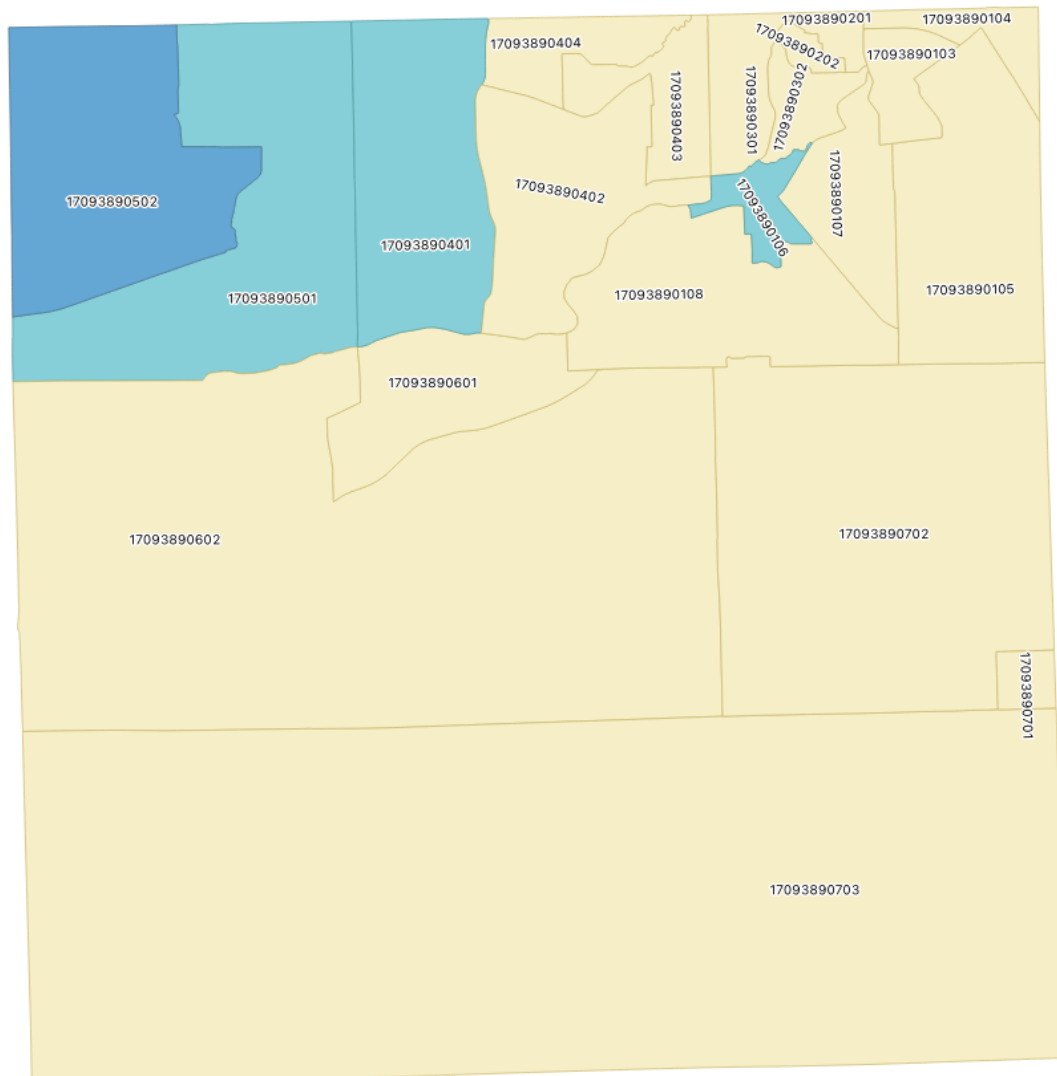
DDI consists of the following two measurements, INFA (INFrastucture/Adoption) score and SE (SocioEconomic) score. The values of DDI, INFA, and SE are between 0 and 100, meaning that the higher the score (DDI/ INFA/SE), the higher the digital divide. Likewise, if $INFA > SE$ there is a need to improve the broadband infrastructure, but if $SE > INFA$, then digital literacy and the benefits of the technology for human progress should be promoted. The following map represents the DDI of Kendall County (see Appendix A):





Digital Distress

Digital Distress analyzes digital inclusion metrics. The map of Kendall County Digital Distress is as follows (see Appendix A):

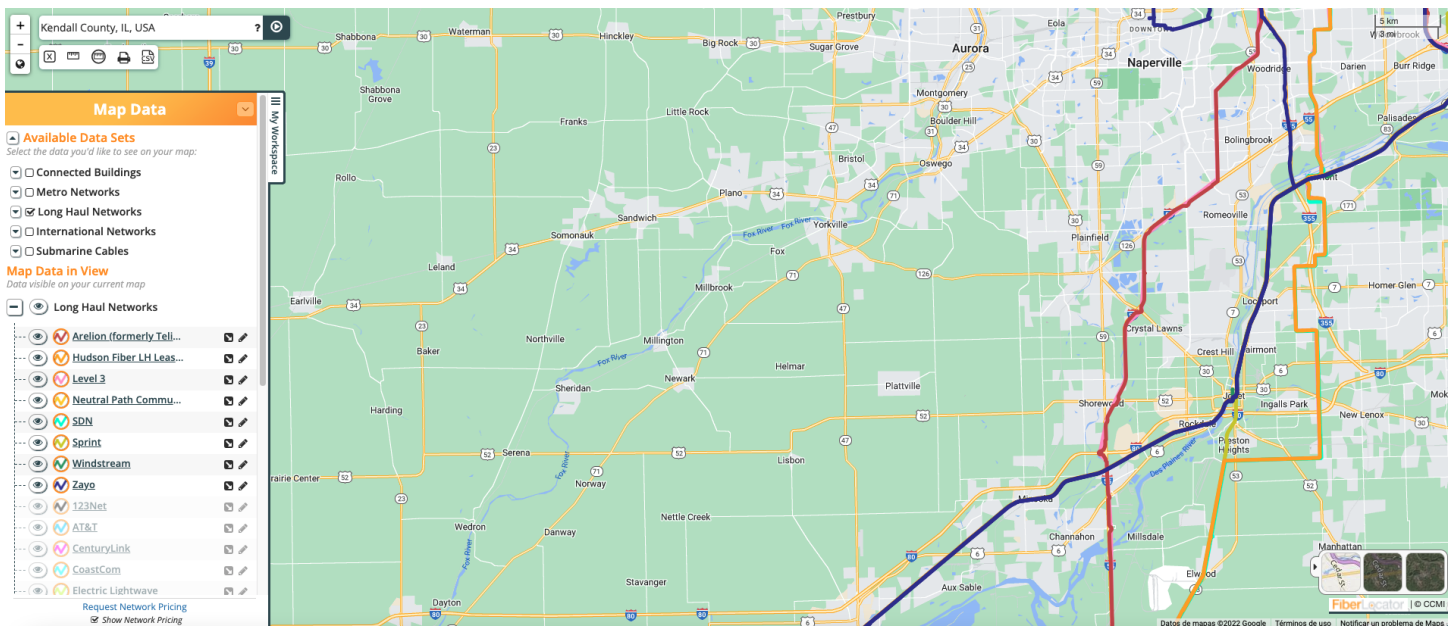




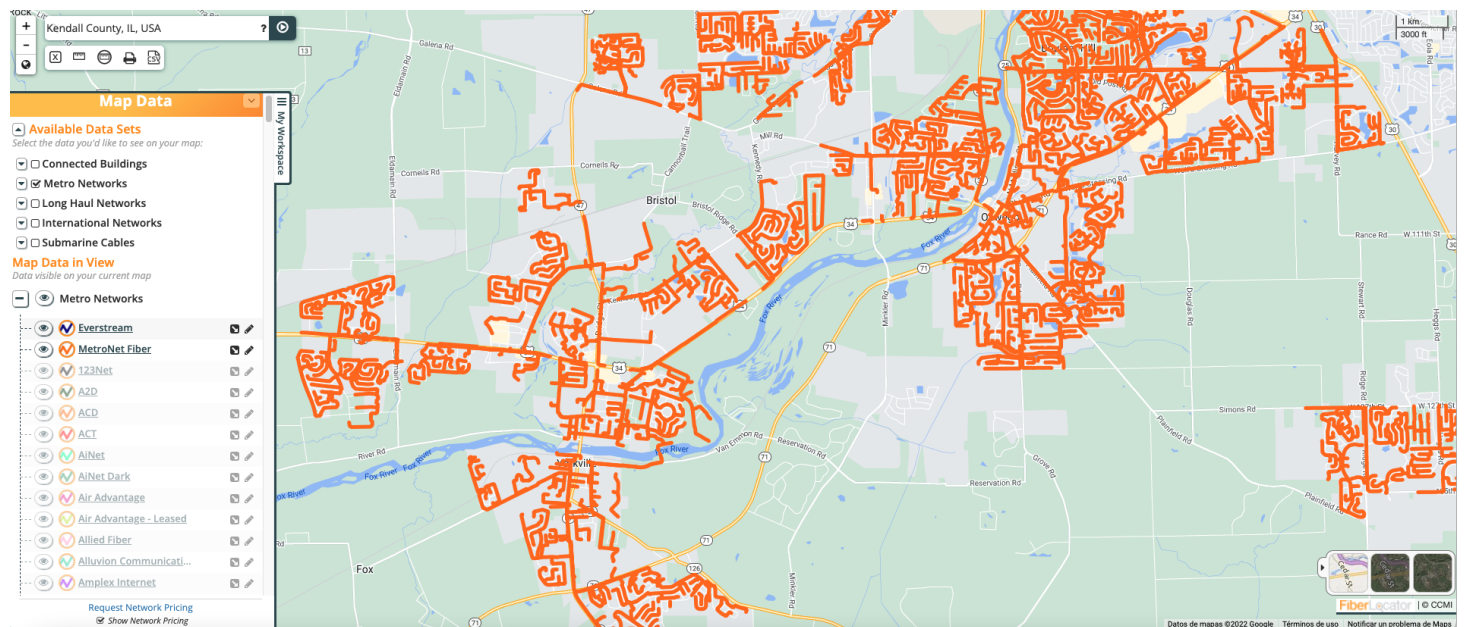
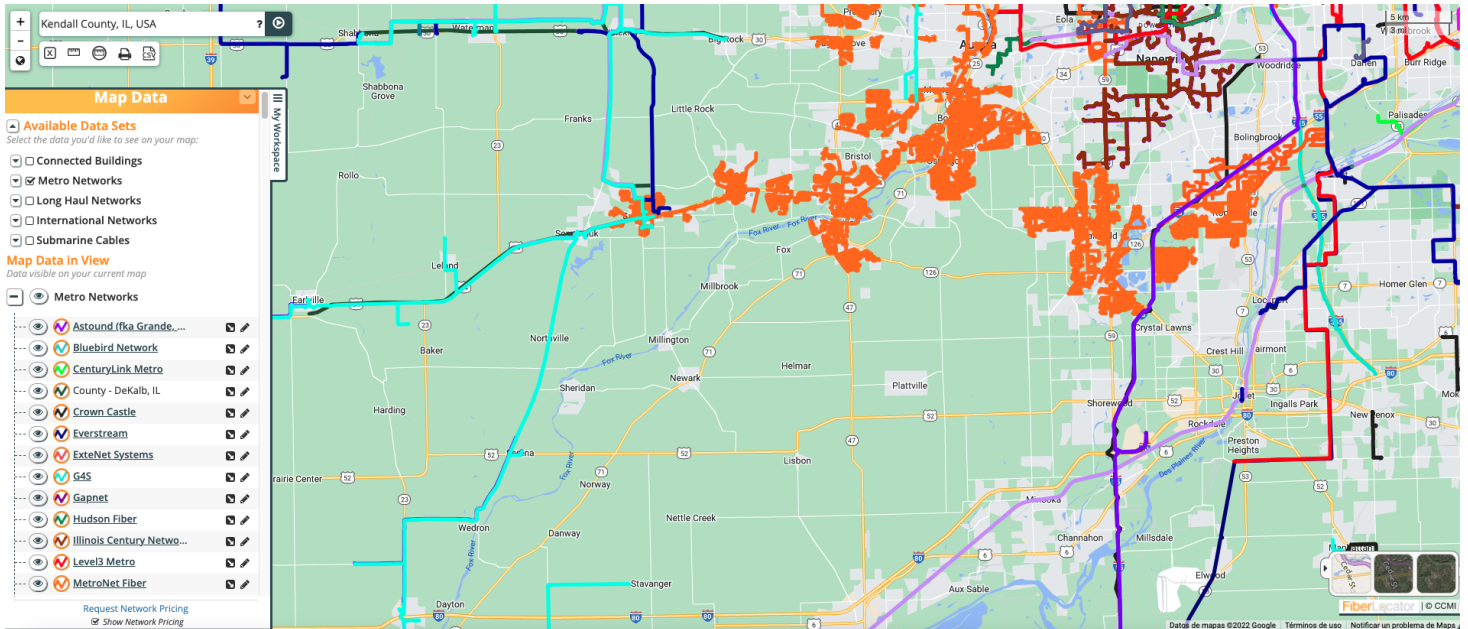
Comparing the results of these two metrics (Digital Divide Index and Digital Distress) against the data provided by the Federal Communications Commission (FCC Form 477 and RDOF Auction 904) and The Illinois Broadband Map, a considerable discrepancy can be observed in areas of the County that need broadband. Digital Divide Index and Digital Distress locate these areas in the Northern part of Kendall County meanwhile the FCC Form 477, the RDOF Auction 904, and The Illinois Broadband Map place unserved and underserved zones in the Southern region. Likewise, according to FiberLocator (see next epigraph), the Northern part of Kendall County is covered by fiber middle and last mile networks. It should be noted that fiber is the Internet technology that provides the highest speed. The Digital Divide Index and Digital Distress metrics for Kendall County are included in this report for informational purposes only as the data was not thought to accurately reflect current broadband access and services that exist within the County.

6. Existing fiber infrastructure in the County and surrounding areas

According to FiberLocator (see image below), there are a few long haul fiber networks that can be leveraged by Kendall County to build out a middle mile network. Among all of them, Arelion is the most adequate network for this based on its proximity to the County.



Additionally, MetroNet Fiber is the middle mile and last mile network present in the County. No redundancy is present within MetroNet's network which could be seen viewed as compromising critical services within the County.





Conclusions

There are several Internet Service Providers (ISPs) in the County, providing different types of Internet connections: Fixed Broadband (DSL, VDSL, Cable Modem, Fiber Optic, and other Copper Wireline), Wireless Broadband (Mobile 5G, Satellite, and Fixed Wireless). However, only a few of them (AT&T, Comcast, and MetroNet Fiber) provide Fiber Optic and this service is mostly focused on the business segments of the County.

According to FiberLocator, the fiber middle and last mile infrastructure present in the County belongs to only one ISP, MetroNet Fiber, and it is located in certain Northern zones, corresponding to the most dense areas, as well as in a few small and isolated East and South East geographical pockets of Kendall County. These served areas are also covered by the rest of fixed broadband technologies such as DSL and Cable Modem which achieve lower speeds than fiber optic. The observed geographic pattern is also manifested in the number of Internet Service Providers: These areas are the most dense in terms of competitors. Therefore, there is a need for broadband in the rest of the County (the less populated areas and rural zones covering an area of more than the 50% of Kendall County) with a special focus on the Southern part as there are multiple census blocks indicating unserved and underserved populations.

Providing equal broadband Internet opportunities all across Kendall County is crucial for the socioeconomic progress of the community taking into consideration that Internet is one of the most utilized communication channels, not only at a local or national level, but also worldwide. In this regard, the last pandemic COVID-19 has highlighted the importance of reliable and fast Internet connection to cover main services in United States communities such as education, tele-health, remote work, e-commerce, etcetera.

Additionally, the County currently depends on private Internet Service Providers in order to connect their anchor institutions that provide the community with vital services: hospitals, emergency centers, fire stations, police departments, schools, government buildings, etc.). These institutions transmit and receive sensitive data which is nowadays handled by a third party. This fact together with the lack of built in network redundancy compromises the County's broadband Internet connectivity and the secure transmission of data. Furthermore, anchor institutions located in Southern areas of the County are in need of fixed broadband.

Kendall County needs to build their own middle mile network in order to assure connectivity independence, security, and redundancy for all anchor institutions (especially for first responders such as emergency services, hospitals, fire stations, and police departments). Constructing a fiber network will provide reliability and high speed. The construction of this network is feasible since there is an available long haul fiber network (Arelion) that can be leveraged by the County in order to connect the middle mile. Similarly, the Kendall County Middle Mile can encourage current Internet Service Providers (ISPs) to expand their last mile infrastructures along Southern unserved and underserved areas of the County by lowering their network asset expenses and operational costs and attracting potential new ISPs focused on providing high speed Internet services in rural areas. Consequently, the market competition will be increased in terms of offers of higher Internet speeds at lower prices.

Finally, there are eligible census blocks in the South West part of the County (1,436 service locations) where eligible ISPs can participate in the pursuit of state and federal broadband grant funding to reduce the required investment needed by the County for the middle mile deployment.



3 Preliminary Network Design



Objective

One of the critical parts of the present broadband study is the creation of a high-level design of the County's broadband network, covering two main purposes: A) Determination of the network paths using street centerlines, and B) Obtention of the network length and number of connected points to estimate the costs and investment required to build the network.

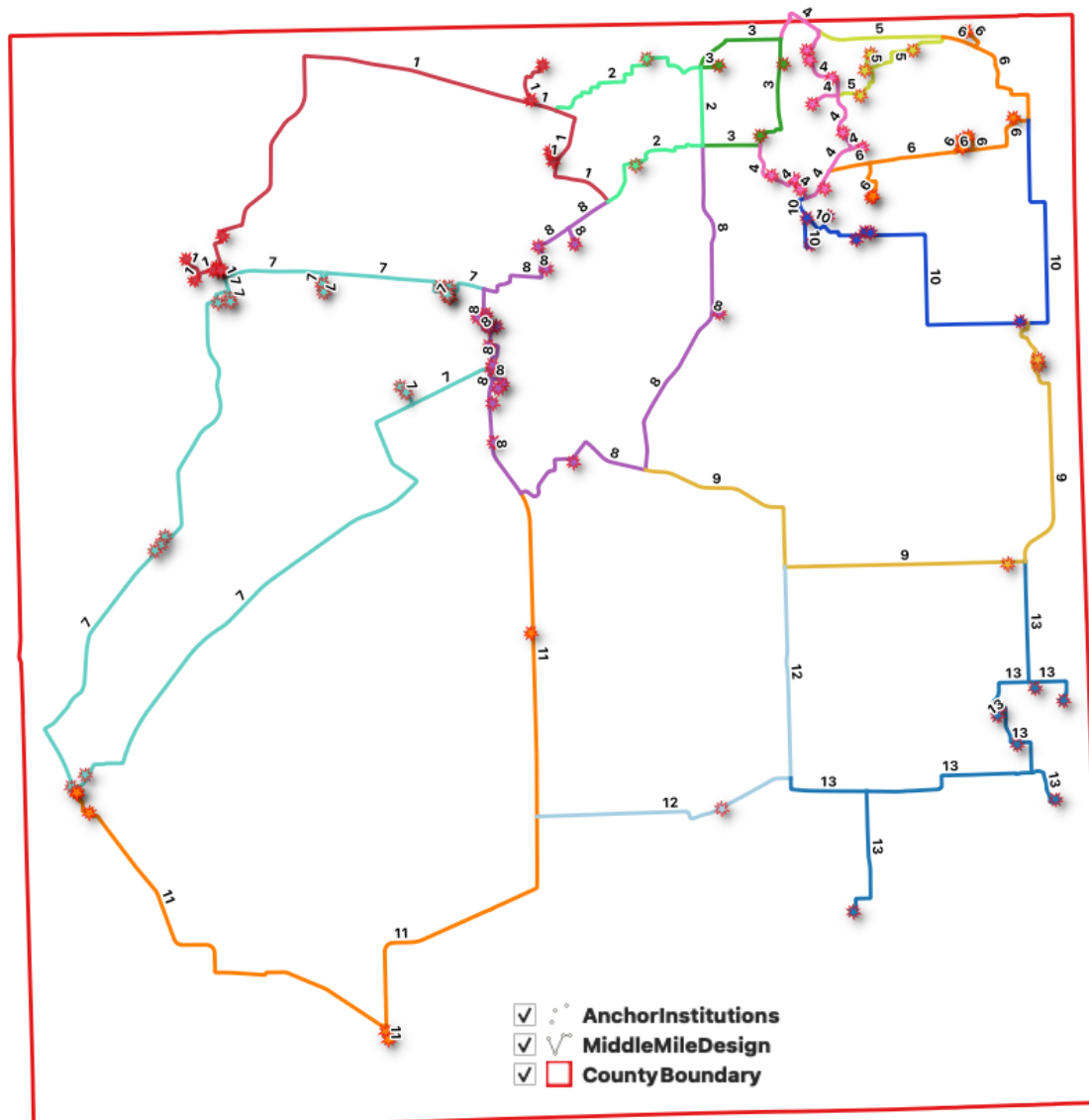
The levels of connectivity for this network are the two following: 1) Middle mile network as the County's core network connecting anchor institutions which represent Kendall County buildings and municipal services whose broadband Internet connectivity and accessibility are decisive for the community's economic and social development; 2) Last mile network attached to the middle mile network connecting residents and businesses.

According to the aforementioned, two preliminary designs have been generated for both middle mile and last mile networks based on the County GIS (Geographic Information System) data and other data collection efforts by the Project Team.



Middle Mile Design

In the case of the preliminary middle mile design (see image below), a total of 97 anchor institutions have been connected through 13 closed network rings to add connectivity redundancy in the infrastructure (risk minimization of connectivity interruption due to potential hazards). This ensures constant broadband connectivity for the institutions. It is recommended that this Middle Mile network be primarily underground rather than aerial in order to provide maximum protection from damage or interruption.

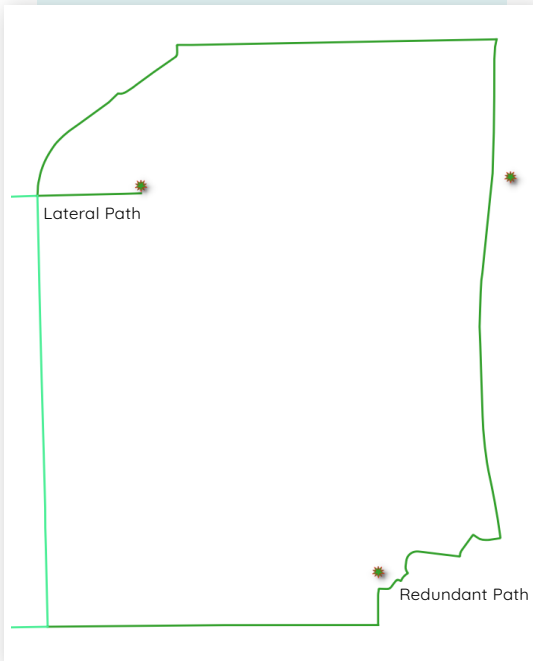


These rings cover the entire geographic extension of the County becoming the core broadband network for Kendall County. Having separate rings allows a community to manage its annual budget by selecting areas with the greatest need for broadband (Southern zones of the County: Rings 7, 9, 11, 12, and 13). Furthermore, the percentage breakdown of the anchor institutions types is as follows:

- | | | |
|----------------------------|---------------------------------|----------------------------|
| • Schools: 42.3% | • City Buildings: 7.2% | • Sanitary Buildings: 2.1% |
| • Fire Stations: 14.4% | • Park District Buildings: 7.2% | • Forest Preserve |
| • County Buildings: 8.2% | • Libraries: 5.2% | Buildings: 2.1% |
| • Township Buildings: 8.2% | • Police Departments: 3.1% | |



Depending on the anchor location in regards to the middle mile route, anchor institutions have been categorized into two types (see Appendix C):



Redundant path

The anchor institution is connected within the main middle mile route guaranteeing its permanent broadband Internet connectivity.

Lateral path

The anchor institution is connected with the main middle mile route through an additional lateral path. Constant broadband Internet connectivity cannot be ensured if connection is interrupted in the lateral path.

The middle mile design proposed for Kendall County has 56 anchor institutions connected to a redundant path versus 41 anchor institutions connected through a lateral path. This difference is due to optimal routing purposes based on the location of anchor institutions. However, it should be noted that less than 1% of anchor institutions belonging to a lateral path correspond to first responders (services such as police departments, fire stations, and sanitary buildings). Therefore, most of these latter institutions have permanent broadband Internet connectivity, guaranteeing the safety of the community.

- Schools: 22.7%
- Park District Buildings: 4.1%
- City Buildings: 4.1%
- Township Buildings: 3.1%
- Libraries: 3.1%
- County Buildings: 2.1%
- Forest Preserve Buildings: 2.1%
- Fire Stations: 1.0%
- Police Departments: 0%
- Sanitary Buildings: 0%

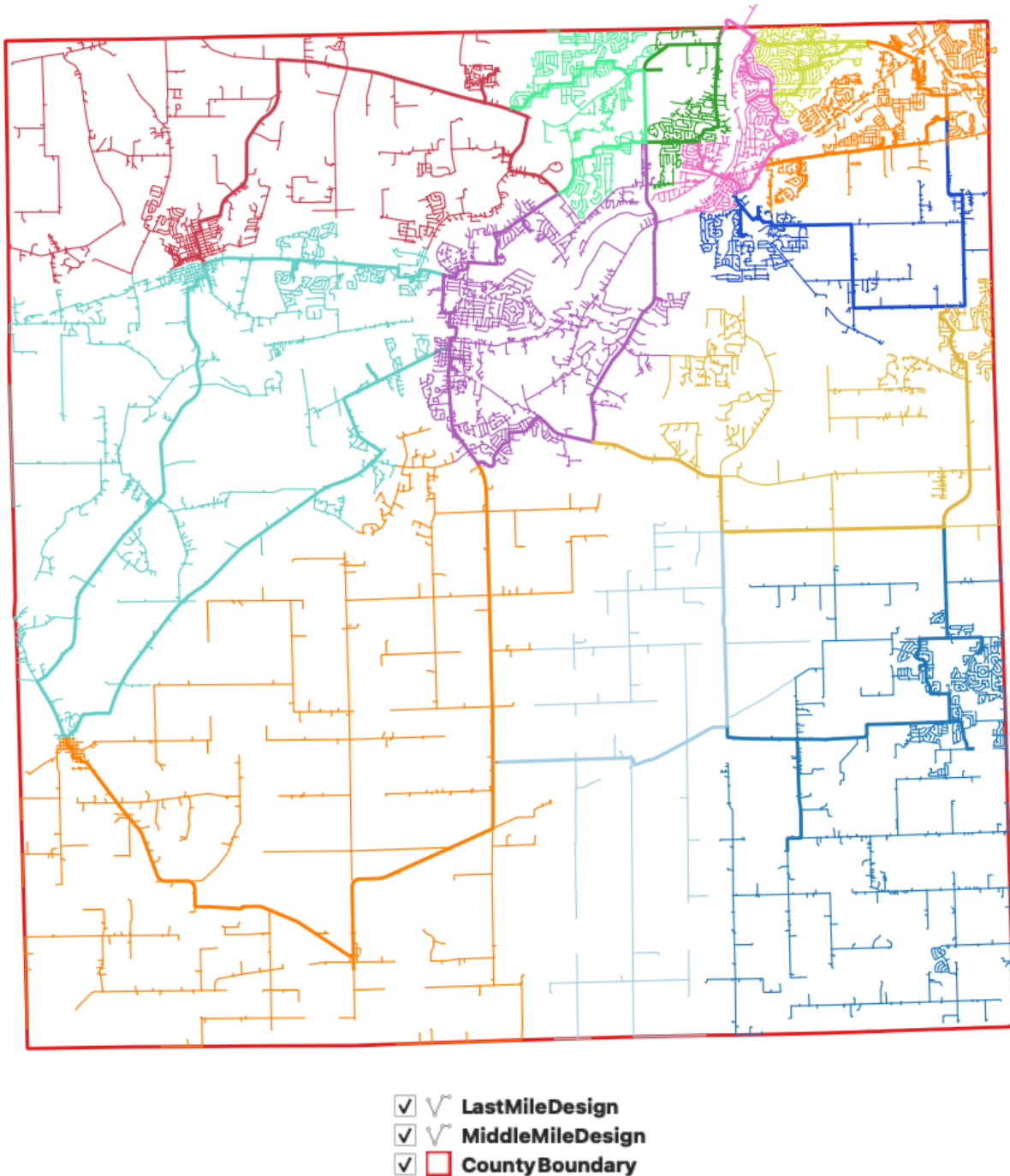
Finally, the following tables show the middle mile network length breakdown per ring with its corresponding number of anchor institutions.

RING	LENGTH (MILES)	LENGTH (FEET)	NUMBER OF ANCHOR INSTITUTIONS
1	13.33	70,406.78	11
2	6.96	36,741.04	2
3	4.92	25,976.10	3
4	6.93	36,593.91	10
5	5.03	26,561.86	4
6	7.83	41,325.13	7
7	27.53	145,357.30	18
8	16.76	88,478.39	18
9	12.02	63,476.31	3
10	10.55	55,679.03	7
11	18.37	96,996.44	6
12	7.98	42,152.67	1
13	13.15	69,451.84	7
Total	151.36	799,196.81	97



Last Mile Design

Kendall County residents and businesses can benefit from broadband Internet connectivity thanks to their connection through last-mile routes (secondary County broadband network) connected to the middle mile network (primary County broadband network). Therefore, every middle mile ring has a corresponding last-mile design (see image below).





Proceeding this way, Kendall County can identify areas in broadband need and target those zones for middle and last-mile network implementation. Hence, community budgetary interests can be controlled by dividing the broadband network construction into phases. It is noteworthy that the proposed last-mile designs include interconnectivity between rings to guarantee the construction continuity of future broadband rings.

Kendall County provided Lit Communities with a total number of 52,641 addresses (residential and commercial), widely spread throughout the entire County extension, to be connected via the last mile. This request has successfully been achieved with the broadband last mile design proposal connecting the totality of addresses.

The following table shows a summary of the number of addresses (residential and commercial) together with their corresponding last-mile network length per middle mile ring.

RING	LENGTH (MILES)	LENGTH (FEET)	NUMBER OF ADDRESSES
1	118.46	625,474.96	4,622
2	55.39	292,449.34	5,704
3	29.96	158,169.25	2,218
4	51.46	271,724.52	3,824
5	32.10	169,497.94	3,187
6	84.49	446,085.44	8,134
7	153.22	808,993.37	5,482
8	136.68	721,691.66	7,236
9	74.98	395,910.93	2,537
10	52.97	279,688.09	2,949
11	144.79	764,511.70	1,207
12	48.26	254,802.12	308
13	126.01	665,333.99	5,233
Total	1,108.77	5,854,333.31	52,641



4 CRO & MREA

Purpose and Acronyms

Once the preliminary network design is complete (from which the paths and footage of the network were determined), the next step is to classify this footage into aerial or underground based on a desktop technical site analysis.

This categorization allows an estimation of the network construction costs more accurately as there is a considerable difference in pricing related to aerial (cheapest option) and underground (most expensive option) routes. Notwithstanding, these construction costs are associated with advantages and/or disadvantages depending on the path type: Aerial routes are the cheapest option but they require more maintenance as they are exposed to external hazards versus underground routes which are the most expensive option but maintenance is low as cables are buried.

In order to catalogue the preliminary network routes, two desktop techniques have been used:

- CRO (Construction Ride Out): It determines the “constructability” of a network path.
- MREA (Make Ready Engineering Analysis): It captures any pole routes along the network path that will have costly make ready construction costs.

Methodology

Lit Communities has developed a process to utilize existing databases in order to classify the network path as aerial or underground based on constructability. The route is evaluated by desktop with notes created using field software on a laptop or mobile device. GIS (Geographic Information Systems) are also used. The objective is to have a better understanding of the costs associated with the environmental split. These findings factor into the financial model which further refine the costs of the network build out.

During the desktop construction ride out, a high-level visual check of poles for usability is performed. Some of the factors to analyze are the following:

- Number of attachers: More than four attachers in the communication space
- Overall quality of poles on the route
- Amount of make ready construction in the power space

The network routes that match these criteria are looked at closer to determine if an underground alternative is more feasible due to any of the above factors.





Results and Conclusions

The results of the desktop Construction Ride Out (CRO) and Make Ready Engineering (MREA) are incorporated in the following tables. The preliminary network design route is updated to show the designation of aerial route versus underground route. The preliminary design cost estimates are updated as well in the financial model.

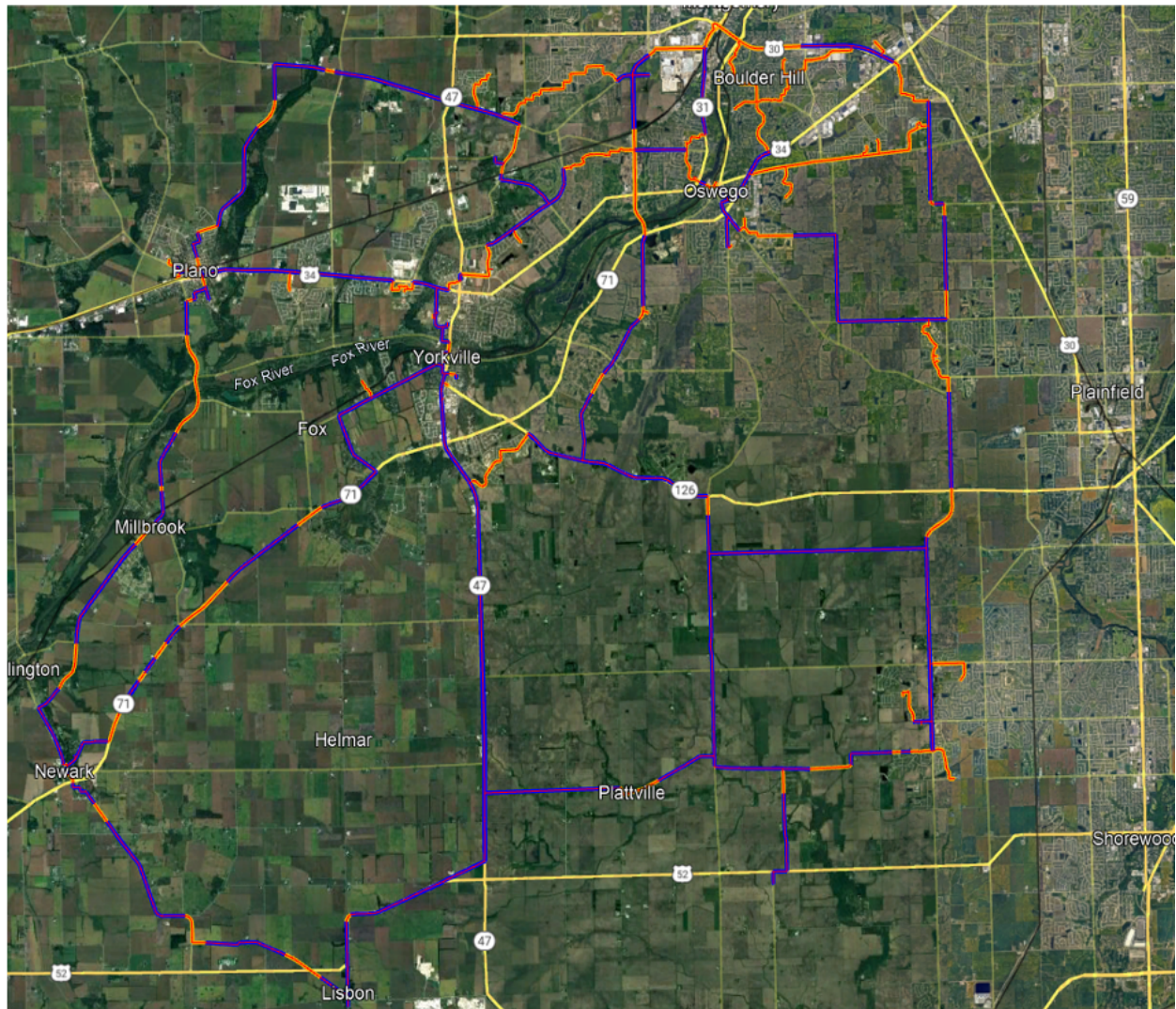
RING	MIDDLE MILE AERIAL LENGTH (FEET)	MIDDLE MILE BURIED LENGTH (FEET)
1	49,917	20,570
2	10,506	26,336
3	17,233	9,022
4	9,597	27,716
5	5,023	21,532
6	6,738	34,582
7	101,157	43,627
8	56,038	32,997
9	26,279	17,017
10	44,087	11,593
11	84,742	12,249
12	37,560	4,588
13	46,044	22,900

RING	LAST MILE AERIAL LENGTH (FEET)	LAST MILE BURIED LENGTH (FEET)
1	350,850	274,104
2	21,360	270,913
3	20,827	132,398
4	41,978	228,909
5	2,460	167,042
6	44,658	397,383
7	396,896	409,620
8	168,104	547,244
9	170,434	225,329
10	81,923	197,354
11	604,610	157,377
12	219,120	35,675
13	324,554	338,069



The visual representation is accompanied by a KMZ file that shows the entire network with aerial and underground sections and polygons for a rapid review that can be utilized quickly and efficiently.

These two techniques (CRO and MREA) offer a better understanding of costs associated with the network build out by providing a more accurate build environment split and, therefore, a better estimate of the required project budget for the construction of the network.



- Aerial Path
- Underground Path



5 Financial Model

Purpose

Lit Communities completed two 20-year cost estimates (financial models) for one middle and one last mile network based on the results of the middle and last mile preliminary designs updated with CRO/MREA analysis. These estimates serve as the backdrop for this plan and the recommendations as well as next steps the County can take to proceed with the project. We anticipate the estimates to continue to evolve and become more refined as the project progresses through its multiple phases.

Methodology

Key metrics used from the designs to inform both financial models are aerial and underground lengths and number of road miles. Other data points incorporated into the financial models include area demographics (population, income, and number of households). Estimates are based on industry standards for pole count, span factor, and time duration for engineering and construction. Debt and equity assumptions with debt amounts, terms, interest rates, payments and required equity investment are included with equity returns provided for the last mile models.

Take rate assumptions of 50%, 60%, and 70% are built into the last mile models as a variable with a toggle that allows for the County to select a different take rate to see how the model would change.

The take rate used for the middle mile financial model is 100% as it includes all 97 anchor institutions identified by the County during this project. The revenue estimates were built out using an Open Application Model where there is a single owner and operator of the infrastructure of the last mile network (fiber to the home/business). The middle mile network will provide connectivity to the last mile network as well as provide service to the anchor institutions throughout the County. Service offerings including internet, voice, TV, telehealth, and smart home applications offered over the last mile network are reflected as revenue opportunities for the County on a per subscriber basis.

The cost per household passed in the Kendall County Last Mile Financial Model is what most private Internet Service Providers ('ISP') use as a Key Performance Indicator ('KPI') to justify the capital investment to complete the network infrastructure built in a certain geography or service area. Some larger or national ISPs will only go to areas where the cost per household passed is between \$700-\$900. Other smaller or regional ISP's will go up to approximately \$1,300 or higher: This was used to evaluate the gap that must be bridged financially to complete a full public, private, partnership for a fiber network that passes every address point in the County.





Middle Mile Financial Model

a) This table shows the key demographic and design assumptions that informed this middle mile preliminary design:

Kendall County Assumptions			
<u>Demographics</u>			
Population		131,869	
Median HH Income		\$96,854	
Median Age		35	
<u>Demand Points</u>			
Residential Demand Points		0	
Business Demand Points		0	
Anchor Institutes/City Facilities		97	
Total Demand Points		97	
<u>Right of Way Preliminary Design Results</u>			
Aerial Length ROW		521,389	
Underground Length ROW		280,748	
Existing Aerial ROW		0	
Existing Underground ROW		0	
Total ROW Length (Feet)		802,138	
Total ROW Length (Miles)		152	
<u>Additional Network Assumptions</u>			
Span Factor		150	
Estimated Pole Count		3,476	
Cabinets or Shelters		0	
Engineering Duration (months)		12	
Make Ready Duration (months)		12	
Construction Duration (months)		24	
Financial Duration (months)		240	
Take Rate Duration (months)		30	
Instances (Each)		1	



b) This table provides a summary of all capital expenditures required for the middle mile network, recurring expenses, and it shows the revenue potential as well as the total investment required to build:

Capital Expenditures	
Assessment	\$0.00
Engineering	\$1,472,690.00
Construction	\$13,493,538.00
Operational capital during construction	\$788,500.00
Total Capital Expenditures	\$15,744,728.00
Recurring Expenses	
Operations and Maintenance - 20 Years	\$17,509,135.00
Technology Management - 20 Years	\$18,013,791.00
Subtotal	\$35,522,926.00
Potential Revenue	
FTTH Partner - 20 Years	\$31,902,170.00
Services - 20 Years	\$0
Dark Fiber Leases - 20 Years	\$1,574,573.00
Total Investment Required to Complete	\$15,636,756.00 (*) includes revenue
IRR over 20 Years	8%



Last Mile Financial Model

a) This table shows the key demographic and design assumptions that informed this fiber to the home last mile preliminary design:

Kendall County, IL Design Assumptions

Demographics

Population	131,869
Median HH Income	\$96,854
Median Age	35

Demand Points

Residential Demand Points	52,391
Business Demand Points	250
Total Demand Points	52,641

Right of Way Preliminary Design Results

Aerial Length ROW	2,923,694
Underground Length ROW	2,923,694
Existing Aerial ROW	0
Existing Underground ROW	0
Total ROW Length (Feet)	5,847,389
Total ROW Length (Miles)	1,107

Additional Network Assumptions

Span Factor	160
Estimated Pole Count	16,446
Cabinets or Shelters	26
Engineering Duration (months)	24
Make Ready Duration (months)	24
Construction Duration (months)	36
Financial Duration (months)	240
Take Rate Duration (months)	48
Instances (Each)	1



b) This table provides a summary of all capital expenditures required for the last mile network, recurring expenses, and it shows the revenue potential as well as the total investment required to build:

Capital Expenditures	
Assessment	\$0.00
Engineering	\$6,247,038.00
Construction	\$114,251,762.00
Operations Capital during construction	\$6,816,109.00
Total Capital Expenditures	\$127,314,909.00
Recurring Expenses	
Operations and Maintenance - Post Construction of Full Network	\$45,054,959.00
ISP Maintenance	\$28,666,045.00
Subtotal	\$73,721,004.00
Potential Revenue	
Internet and Phone - 20 Years	\$475,908.824.00
Additional Smart Home Services - 20 Years	\$2,173,146.00
Total Investment Required to Complete	\$151,086,046.00 (*) includes revenue
Cost Per Household Passed	\$2,210.32
Equity KPI	\$1,300.00
Gap Per Household Passed	\$910.32
Total Gap Funding Needed	\$4,792,015.00



6 Community Survey

Purpose

The Kendall County Broadband Survey collected data from the community, both residents and businesses, in order to analyze the current status of the County's broadband. This information helps identify and target areas in need of broadband to bridge the digital divide, enabling more accurate, effective and efficient broadband development decision-making.

The survey was launched in April 2022 and is still active and 260 responses have been collected so far. There are some patterns that can be detected based on the information compiled and accumulated as of September 12, 2022. It is highly recommended that the survey continue as well as the analysis as any additional responses received increase the statistical confidence in the data. The analyzed data also serves as a reference for marketing campaigns and encourage community participation in the survey.

Survey Proposed

Demand aggregation helps identify community needs, what is available to the community, and allows data to be compiled in one place. The following factors were utilized in the analysis (See Appendix B):

- Survey participation
- Customers' geographic location
- Digital adoption
- Level of interest in enhanced Internet services
- Customers' satisfaction with current broadband service offerings
- Community engagement with broadband development initiatives
- Identification of best marketing channels for the survey
- Analysis of current Internet Service Providers (ISPs): Incumbents, speed test, service offerings, and pricing
- Comments

Both quantitative and qualitative data was used to determine the results of the survey, and to assist with developing conclusions.





Survey Results

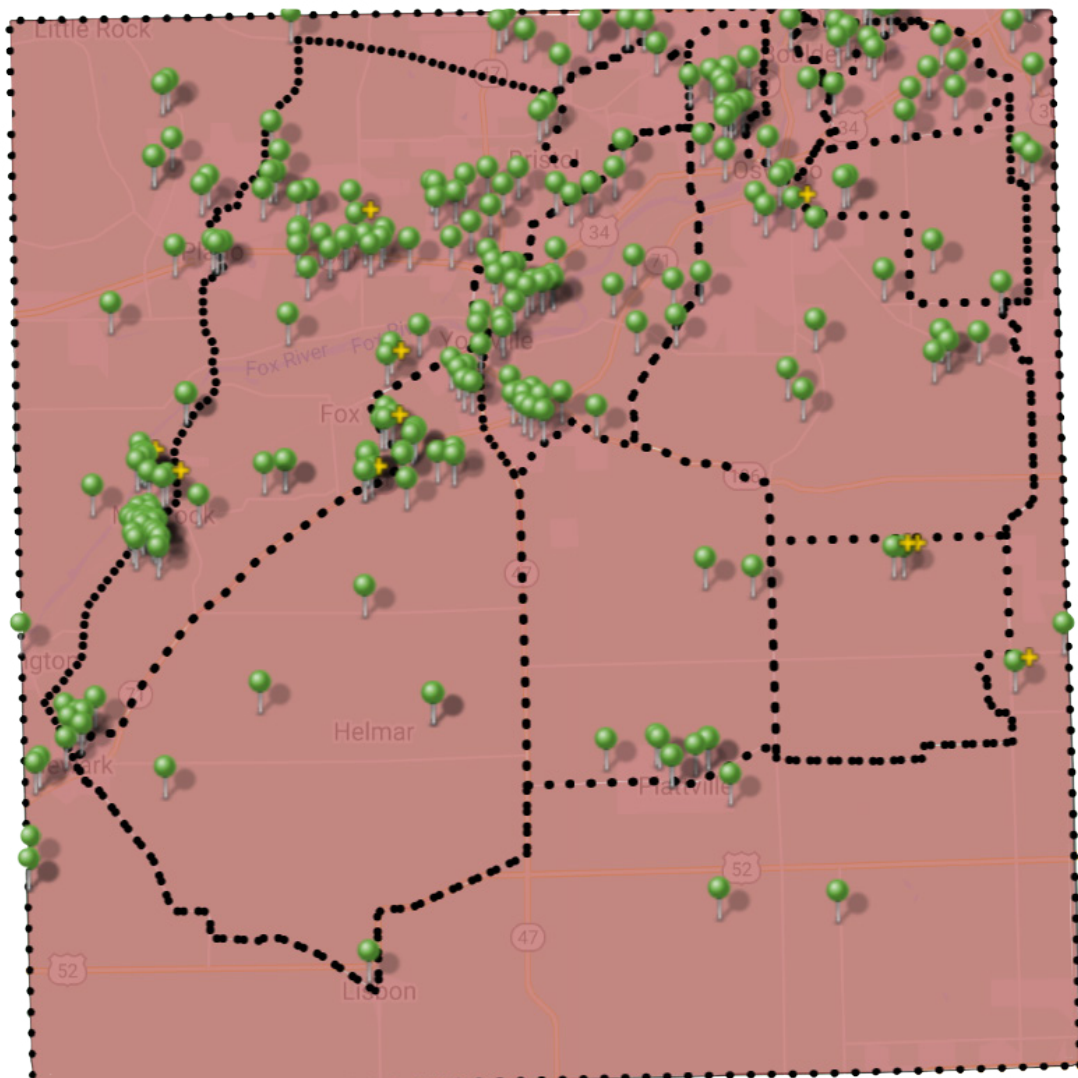
The data analysis of the key areas identified in the previous section is as follows:

1. Survey Participation

A total of 260 responses were collected as of September 12, 2022. It is recommended that the County continue to encourage more residents and businesses to take the survey in order to confirm the stability of detected patterns and trends. Furthermore, it provides crucial data in identifying the unserved and underserved areas. It should be noted that residential and business responses were combined for analysis purposes due to the low number of business responses received to date.

2. Respondents' Geographic Location

The following map shows the location of the survey responses. The table at right contains the number of surveys per the 2010 census tract. Based on this information, current Internet speed data should also be analyzed alongside this location data to more accurately identify underserved and underserved broadband areas and target zones for survey marketing campaigns.





3. Digital Adoption

The 88.5% of respondents have fixed Internet service. The rest of respondents (11.5%) do not have fixed Internet service.

4. Level of Interest in Enhanced Internet Services

The majority of respondents (90.3%) are interested in services for single family homes (1 Gbps download speed, 1 Gbps upload speed; 500 Mbps download speed, 500 Mbps upload speed; 250 Mbps download speed, 250 Mbps upload speed). Furthermore, 51.9% of respondents would buy the service and 32.7% would consider making a purchase.

5. Respondents' Satisfaction with Current Broadband Service Offerings

In general terms, customers are satisfied with speed (59.6%) and reliability (69.2%) of current Internet services. However, price is their main concern (46.2% are dissatisfied).

6. Community Engagement to Broadband Development

The majority of respondents (94.2%) express the importance of having a good broadband infrastructure within the County. Additionally, 21.2% of respondents want to be broadband ambassadors in order to help the County to develop better broadband connectivity.

7. Identification of Best Marketing Channels

Newspapers, online news, and social media are the most appropriate channels to target marketing campaigns with the objective to increase community participation in the survey. Marketing channels catalogued as 'Other' are also decisive. However, it would be helpful to know how respondents define these 'other' channels for marketing use.

8. Analysis of Current Internet Service Providers (ISPs)

Incumbents: There are multiple ISPs in the County providing Internet services as follows. Notwithstanding, the adoption rate of the majority of them is low with 4 dominant providers: Comcast-7922, AS-CMN, ATT, and NewarkNet.

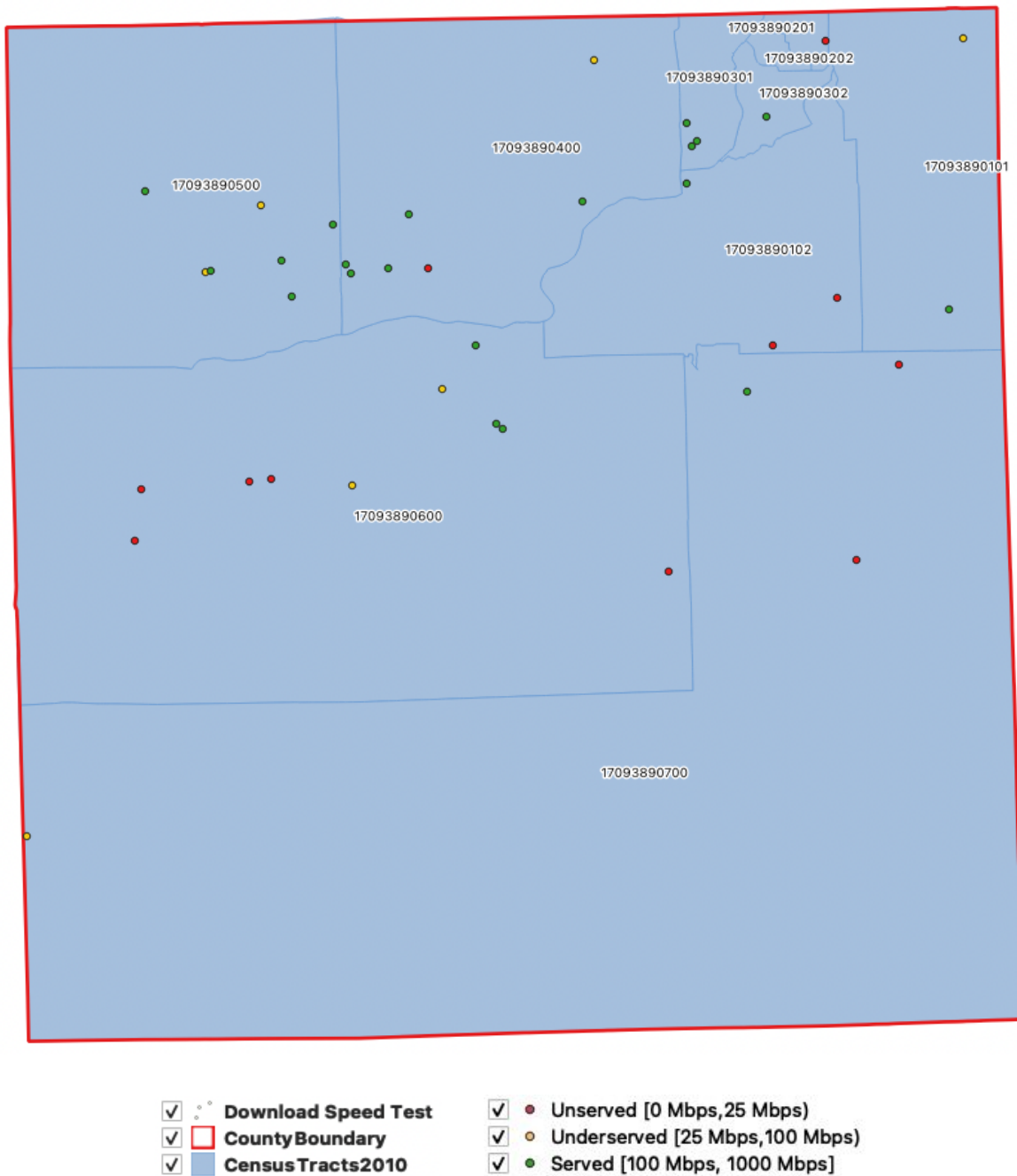
- Comcast - 7922 13 responses
- AS - CMN 11 responses
- ATT - Internet 4 6 responses
- NewarkNet 6 responses
- APDS 1 response
- Blastcomm 1 response
- Google Cloud Platform 1 response
- Net56 1 response
- T-Mobile - AS21928 1 response
- Incumbent not specified 11 responses

Speed test: Certain clusters (concentration of addresses) of served locations can be detected but it is more difficult to identify unserved and underserved clusters due to the low participation in the survey as well as the geographic spread of data. This applies both for download and upload speed test results.



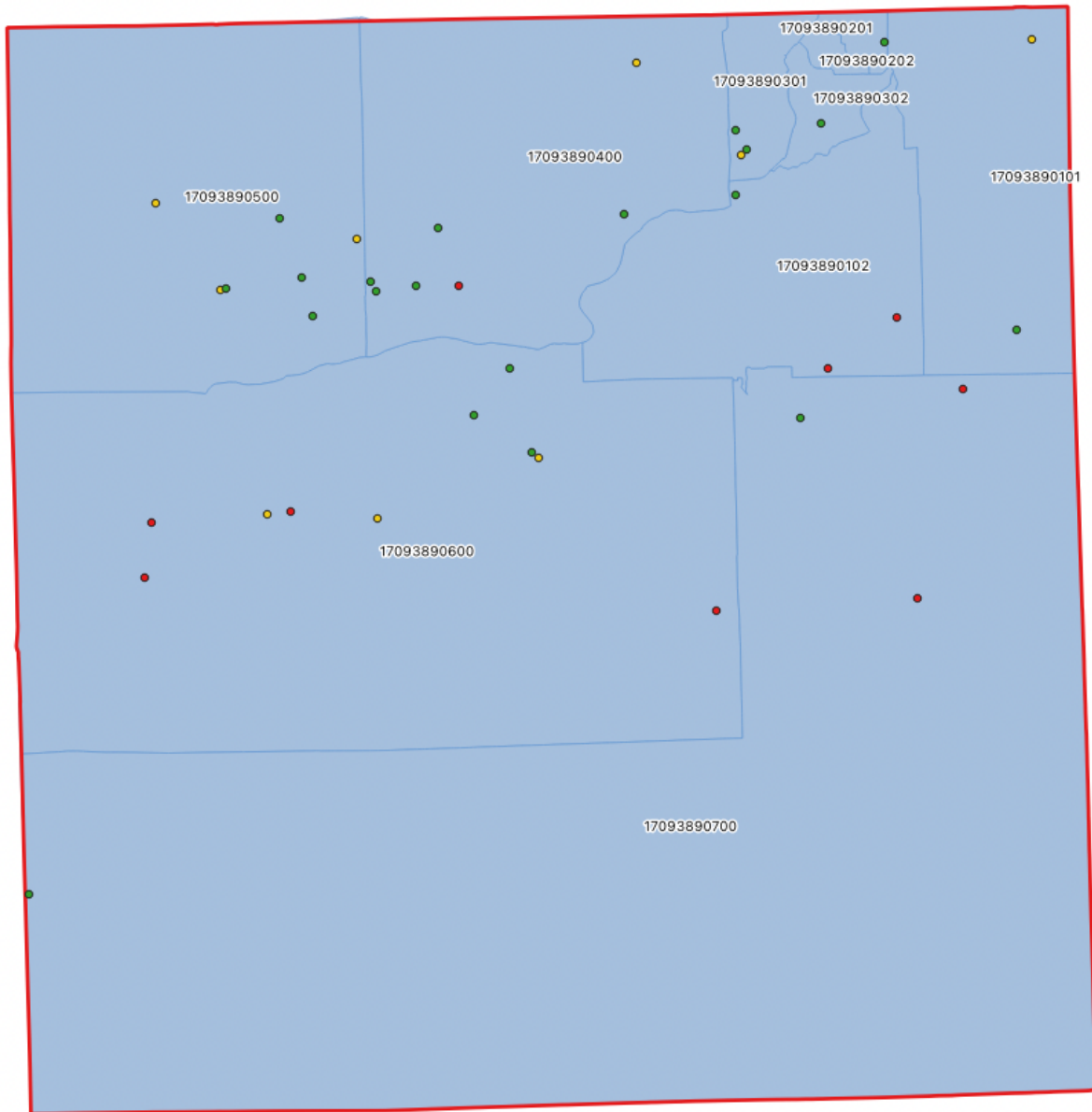


Download Speed Test





Upload Speed Test



- | | |
|--|---|
| <input checked="" type="checkbox"/> Upload Speed Test | <input checked="" type="checkbox"/> Unserved [0 Mbps, 3 Mbps) |
| <input checked="" type="checkbox"/> County Boundary | <input checked="" type="checkbox"/> Underserved [3 Mbps, 20 Mbps) |
| <input checked="" type="checkbox"/> Census Tracts 2010 | <input checked="" type="checkbox"/> Served [20 Mbps, 1000 Mbps] |



Service Offerings and Pricing

AREA TYPE	MAXIMUM DOWNLOAD SPEED (MBPS)	MAXIMUM UPLOAD SPEED (MBPS)	CURRENT MONTHLY COST (\$)
Unserved Download speed < 25 Mbps Upload Speed < 3 Mbps	11.2	2.84	0-19
Underserved 25 Mbps ≤ Download Speed < 100 Mbps 3 Mbps ≤ Upload Speed < 20 Mbps	45.02	12.02	20-39
Served Download Speed ≥ 100 Mbps Upload Speed ≥ 20 Mbps	116.92	20.37	40-59
	421.86	566.85	60-79
	711.14	879.19	80-100
	929.48	36.1	More than 100
	552.2	945.45	I don't know

9. Survey comments

Comments from respondents were analyzed and catalogued by the following:



COMMENT CATEGORY	PERCENTAGE OF RESPONSES
Interest in a lower Internet service price	29.4%
Need for high-speed broadband to all residents and businesses as equality and economic progress	23.5%
Concern about unreliable fixed, wireless, and fixed-wireless broadband options	17.6%
Interest in faster Internet services	17.6%
Concern about unreliable Internet service in a specific area	11.8%
No intention to switch of TV and phone company	11.8%
Interest in an open municipal broadband	5.9%
Need for different Internet Service Providers (ISPs) instead of monopolistic ISPs	5.9%




Conclusions

Despite low community participation in the Kendall County Broadband Survey, some compelling patterns have emerged based on consistency of respondents across several different survey questions and regardless of current Internet service offerings: Respondents show a strong interest in the development of broadband infrastructure to bridge the digital divide in their community and bring social and economic progress through faster, cheaper and more competitive Internet services.

The survey responses support the need to build a middle mile network as the County's core broadband infrastructure that can cover all areas of the County and attract more Internet Service Providers (ISPs). This network will allow ISPs to minimize their infrastructure costs by allowing them to focus only on the last mile network, thus enabling the enhancement of broadband speed services. A higher number of broadband incumbents is associated with more competitive service and price offerings. According to the law of supply and demand, high supply of broadband services a low demand should cause a decrease in prices. Therefore, building and owning a middle mile network is critical for the County to address the community's broadband concerns and serve their interests.

Finally, it should be noted that in order to assure the accuracy of all the above, more surveys should be received. Using the location and analysis of responses, the County could target marketing campaigns to increase survey engagement. Specifically, these marketing efforts should be focused on areas not belonging to current served location clusters identified in the Northern zone of the County. Together with geographic information, marketing channels such as newspapers, online news, and social media are the best methods to achieve statistical confidence (90% confidence with 5% Margin of Error (MOE) = 272 and 99% confidence with 3% MOE= 663).



Respondents show a strong interest in the development of broadband infrastructure to bridge the digital divide in their community and bring social and economic progress through faster, cheaper and more competitive Internet services.



Partner Engagement

As part of our partner engagement to better understand the perspective of Kendall County residents, businesses, and stakeholders and to gauge the community's support for the County's efforts to address broadband challenges, Lit Communities conducted three focus groups and one community broadband town hall. The focus groups and town hall were promoted primarily via the County's website, social media, press release, and by email. Two of the focus groups were conducted in person and included representatives from government agencies, business/industry entities, health care, education, emergency services, and community organizations. The third focus group was conducted virtually and was specifically for internet service providers operating in Kendall County. The town hall meeting was held in person and was open to the public for an opportunity to learn about the current results of the Community Assessment.

Key Findings:

- Focus group participants and broadband town hall attendees cited Insufficient broadband services in the rural and more remote areas
- Participants and attendees expressed a very high level of interest in higher speed broadband; particularly in areas of the County where the highest level of unserved and underserved exist
- Wide spread feedback was received from emergency services expressing need for robust broadband to support mobile operations, specifically in the southern part of the County
- The current broadband infrastructure is not sufficient to meet the digital demands of a growing population
- The lack of robust broadband is hindering the County's ability to attract commercial development and negatively impacting real estate values
- Participants and attendees expressed significant support for the County to lead efforts to expand broadband and develop a middle Mile network infrastructure
- Internet service providers are very interested in working with the County to help with solutions





Key Takeaways:

The three important takeaways from the partner engagement:

1. There is clear acknowledgement that the rural parts of the County, particularly to the south and west, experience the greatest difficulty in accessing broadband services,
2. There is widespread and enthusiastic support for the County to play an active role in finding solutions that will enable providers to deliver high speed internet to residents and businesses, and
3. Stakeholders expressed a willingness to work with County leadership to address digital gaps in broadband services throughout the entire County whereby “no one is left behind.”

The full notes of the focus groups and town hall can be found in Appendix ***

Recap

Focus Group 1

Emergency Services, Network Provider (Newark Net), Kendall County Roads, Health Dept Representative

- Insufficient broadband services in rural more remote areas
- Wide spread feedback from emergency services expressing need for robust broadband to support mobile operations
- Very high level of interest in higher speed broadband; particularly in areas where the highest level of unserved and underserved exist
- Greatest areas of concern are near the river, low-lying areas, heavy trees, rural areas southern and western portions of the County
- Mobility of services for real time data transmission is a major concern for emergency services since they are using tele-health and exchanging high volume data to best respond to and communicate with constituents
- Metronet and Comcast are the most prominent service providers
- NewarkNet is a local wireless provider offering services in the southwest area of the County; have a solid presence in the community

Focus Group 2

Kendall County Board Members (3), Candidate for Board, Libraries, Head of IT from Oswego,

- Lack of population in rural parts of the County have made it difficult to attract providers to offer services without passing the cost on to the customer
- Very high level of interest in higher speed broadband; focus on affordability
- Hot spots and cell phones are primary tools for internet access where broadband is unavailable
- Libraries having to be used for virtual interviews- residents having to interview in a hallway at the library
- Lack of broadband services is negatively impacting home values and making it difficult to attract commercial/industrial businesses
- Wider broadband access will enhance educational services being offered to students and families in the K-12 schools
- For the most part, outreach by ISP's regarding services/pricing is not clear; not much relationship building with local municipalities
- Desire to focus on rural/underserved parts of the County

Town Hall

- Most participants resided in un/underserved areas



- Examples of struggles with outage times and reliability expressed
- Interest in case studies of where this has been done in other markets
- Desire to have access to data mapping
- Strong comfort level with County owning the Middle Mile and allowing a private company to operate
- Overwhelming support for developing broadband in the County and addressing the portions that are least connected

Focus Group 3

Internet Service Providers only: Comcast, NewarkNet, Clearsky

- Multiple providers are offering services within Kendall County; from wireless services to fiber to the home
- There are efforts to increase bandwidth offerings by both wired and wireless providers; the rural areas remain a challenge for providers
- Factors preventing expanded broadband
 - Low density areas
 - Line of sight
 - Distance between homes
- No publicly available plans to expand services
- One on one meetings with the County are the best way to engage with ISP's
- ISP's believe County priorities to address broadband challenges should focus on the un/underserved areas, adoption and affordability, and rural areas; especially the southern portion of the County
- Wide support for programming to address digital equity
- Willingness to engage the community to promote broadband and its benefits to the community
- ISP's are eager to engage the County to help be part of the solution



Grant Services

Grant Research Scope

With the purpose of supporting the Kendall County Community Assessment findings and recommendations presented in this report, federal and state broadband funding opportunities have been identified and evaluated in order to finance aspects of the network including, Middle Mile, Last Mile and support initiatives related to economic development, telehealth, and emergency response/preparedness.

Work Methodology

Lit Communities maintains a database of active federal grants related to broadband and screened each program for applicability to the County. Eligibility for the County is the objective of the grant screen and programs deemed applicable are identified as Primary Matches. Therefore, data evaluated during this process includes: Location, per capita income, unemployment rate, low to moderate income data, broadband access, and rural designation status. Additionally, programs that partner entities can apply for are identified as Secondary Matches.

Analysis Purpose

Specific to Kendall County, there are 12 Primary Matches (see Primary Grant matrix on next page). We have great confidence in recommending the following key programs to consider:

- US Department of Agriculture - ReConnect Program
- Department of Commerce (NTIA) - Broadband Equity, Access and Deployment
- Department of Commerce (NTIA) - Middle Mile Program

Section I. Federal and State Broadband Grant Program Research

I.a) Federal Broadband Grant Program Eligibility

During the Grant research process, Lit Communities evaluated nearly 60 federal grant programs that fund aspects of broadband deployment across 15 federal agencies. Once we have compiled the program list, our team screens each of those programs for applicability to the County and identifies the Primary Matches as well as programs that partner entities can apply for which are identified as Secondary Matches.

I.b) Federal Broadband Grant Program Matrix (Primary)

Lit Communities' Grant Services team prepared a matrix with high-level details on each program including:

- Maximum funding amount
- Annual program capacity
- Eligible applicants
- Eligible activities
- Matching requirements



Federal Broadband Grant Programs: Primary Matches

FEDERAL AGENCY	GRANT PROGRAM	MAX. GRANT	PROGRAM CAPACITY	FUNDING TYPE	ELIGIBLE PROJECT ACTIVITIES	ELIGIBLE ENTITIES	MATCH REQUIRED
Department of Agriculture - Rural Development (USDA-RD)	Community Connect Grant Program	\$3,000,000	\$35,000,000	Grants	Infrastructure Development, Adoption & Digital Literacy and Public Computer Access	State and Local Government, Tribal Entities, Non-Profits, Private Corporations, LLCs	15%
	Distance Learning and Telemedicine Grants	\$1,000,000	\$60,000,000	Grants	Infrastructure Development, Adoption & Digital Literacy and Distance Learning & Telemedicine Equipment	State and Local Government, Tribal Entities, Non-Profits, Private Corporations, LLCs	15%
	ReConnect Program	\$25,000,000 (Grant) \$50,000,000 (Loan)	\$565,000,000	Grants, Combination Grant/Loan and Loans Only	Infrastructure Development, Acquisition of Facilities, Equipment and Professional Services	State and Local Government, Tribal Entities, Non-Profits, Private Corporations, LLCs	25%
	Rural Broadband Access Loans and Loan Guarantees	N/A	\$11,200,000	Loan and Loan Guarantees	Infrastructure Development	State and Local Government, Tribal Entities, Private Corporations, LLCs	N/A
Department of Commerce - National Telecommunications and Information Administration (NTIA)	Telecommunication Infrastructure Loans and Loan Guarantees	N/A	\$690,000,000	Loan and Loan Guarantees	Infrastructure Development	State and Local Government, Tribal Entities, Private Corporations, LLCs	N/A
	Broadband Equity, Access, and Deployment (BEAD) Program	Not Specified	\$42,450,000,000	Grants	Planning & Broadband Infrastructure	States (Formula Allocation), Subgrantees: Local Government, Utility Company, Non-Profits, Co-Ops, For-Profits, Regional Planning Commissions	25%
	Enabling Middle Mile Broadband Infrastructure Program	Not Specified	\$1,000,000,000 (over 5 years)	Grants	Middle Mile Broadband Infrastructure	States (Formula Allocation), Subgrantees: Local Government, Utility Company, Non-Profits, Co-Ops, For-Profits, Regional Planning Commissions	30%
	Community Development Block Grant (CDBG)	Amounts Vary (Typical Award is <\$500,000)	\$3,475,000,000	Grants & Loan Guarantees (Sec. 108)	Infrastructure Development, Adoption & Digital Literacy, Planning and Public Computer Access	Local Government	0% (Entitlement Communities)
Department of Housing and Urban Development (HUD)	Choice Neighborhoods - Planning	\$450,000	\$5,000,000	Grants	Planning	Local Government	0%
	Choice Neighborhoods - Implementation	\$35,000,000	\$195,000,000	Grants	Infrastructure Development, Adoption & Digital Literacy	Local Government	5%
Department of Transportation	Rebuilding American Infrastructure With Sustainability and Equity (RAISE) Grant Program	\$1,000,000 (Rural) \$5,000,000 (Urban)	\$1,500,000,000	Grants	Planning, Capital Projects (Surface transportation projects), Innovative Technologies	State and Local Government, Transit Agencies, Port Authorities, and MPOs	20%
Department of Homeland Security - Federal Emergency Management Agency	Building Resilient Infrastructure and Communities	\$600,000 (State) \$50,000,000 (Competitive)	\$500,000,000	Grants	Infrastructure Development and Planning	State and Local Government	25%



1.c) Federal Broadband Grant Program Synopses

For each Primary Match, Lit Communities Grant Services team prepared grant synopses with additional information including:

- Program purpose and overview
- Application deadlines
- Expanded list of eligible project activities
- Special requirements
- Agency contact information

Synopses

Synopses were prepared for the following federal and state agencies and programs:

1. United States Department of Agriculture - Rural Development [7.1]

- Community Connect Grant Program [7.2]
- Distance Learning and Telemedicine Grant Program [7.3]
- ReConnect Program [7.4]
- Rural Broadband Access Loans and Loan Guarantees [7.5]
- Telecommunication Infrastructure Loans and Loan Guarantees [7.6]

2. United States Department of Housing and Urban Development [7.7]

- Community Development Block Grant (CDBG): Non-Entitlement Communities [7.8]
- Choice Neighborhoods – Planning [7.9]
- Choice Neighborhoods – Implementation [7.9]

3. United States Department of Transportation [7.10]

- Rebuilding American Infrastructure With Sustainability and Equity (RAISE) Grant Program [7.11]

4. United States Department of Homeland Security - Federal Emergency Management Agency [7.12]

- Rebuilding American Infrastructure With Sustainability and Equity (RAISE) Grant Program [7.13]

REFERENCE

- [7.1] Rural Development, U.S. Department of Agriculture (2022). Available at: <https://www.rd.usda.gov/> [7.2] Rural Development, U.S. Department of Agriculture (2022). Community Connect Grants. Available at: <https://www.rd.usda.gov/programs-services/telecommunications-programs/community-connect-grants>
- [7.3] Rural Development, U.S. Department of Agriculture (2022). Distance Learning & Telemedicine Grants. Available at: <https://www.rd.usda.gov/programs-services/telecommunications-programs/distance-learning-telemedicine-grants>
- [7.4] U.S. Department of Agriculture (2022). ReConnect Loan and Grant Program. Available at: <https://www.usda.gov/reconnect>
- [7.5] Rural Development, U.S. Department of Agriculture (2022). Rural Broadband Loans, Loan/Grant Combinations, and Loan Guarantees. Available at: <https://www.rd.usda.gov/programs-services/telecommunications-programs/rural-broadband-loans-loangrant-combinations-and-loan-guarantees>
- [7.6] Rural Development, U.S. Department of Agriculture (2022). Telecommunications Infrastructure Loans & Loan Guarantees. Available at: <https://www.rd.usda.gov/programs-services/telecommunications-programs/telecommunications-infrastructure-loans-loan-guarantees>
- [7.7] U.S. Department of Housing and Urban Development (2022). Available at: <https://www.hud.gov/> [7.8] U.S. Department of Housing and Urban Development (2022). CDBG Entitlement Program. Available at: <https://www.hudexchange.info/programs/cdbg-entitlement/>
- [7.9] U.S. Department of Housing and Urban Development (2022). FY2020 Notice of Funding Availability (NOFA) Information. Available at: https://www.hud.gov/program_offices/public_indian_housing/programs/ph/cn/fy20funding
- [7.9] U.S. Department of Housing and Urban Development (2022). FY2020 Notice of Funding Availability (NOFA) Information. Available at: https://www.hud.gov/program_offices/public_indian_housing/programs/ph/cn/fy20funding [7.10] U.S. Department of Transportation (2022). Available at: <https://www.transportation.gov/>
- [7.11] U.S. Department of Transportation (2022). RAISE Discretionary Grants. Available at: <https://www.transportation.gov/RAISEgrants>
- [7.12] U.S. Department of Homeland Security (2022). Available at: <https://www.fema.gov/>
- [7.13] U.S. Department of Homeland Security (2022). Building Resilient Infrastructure and Communities. Available at: <https://www.fema.gov/grants/mitigation/building-resilient-infrastructure-communities>



1.d) Federal Broadband Grant Programs (Secondary)

In addition to the federal broadband grant programs listed as Primary Matches, Kendall County may consider seeking additional funding opportunities through the following agencies and programs with other eligible applicants:

United States Department of Education

- Governor's Emergency Education Relief Fund (GEER)
- Elementary and Secondary School Emergency Relief Fund (ESSER)
- Higher Education Emergency Relief Fund
- Impact Aid Programs
- Promise Neighborhoods Programs
- Rural, Low-Income School (RLIS) Program
- Small, Rural School Achievement (SRSA) Program
- Title I, Part A. Improving Basic Programs Operated by Local Education Agencies Program
- Title III, Part A. Strengthening Institutions Program
- Title IV, Part A. Student Support and Academic Enrichment Program

United States Department of Labor – Employment and Training Administration

- Workforce Development in Telecommunications Sector: Apprenticeship Investments in Support of Broadband and 5G

United States Department of Treasury – Office of the Comptroller of the Currency (OCC)

- Community Reinvestment Act (CRA) Program

Federal Communications Commission – Universal Service Administrative Company

- E-Rate (Schools and Libraries) Program
- High Cost Program (CAF, RDOF & 5G Fund)
- Rural Health Care Program

National Science Foundation (NSF)

- Campus Cyberinfrastructure (CC*) Program
- Smart and Connected Communities (S&CC) Program
- Spectrum and Wireless Innovation Enabled by Future Technologies (SWIFT) Program

State Broadband Grant Program Eligibility

- Illinois Department of Commerce & Economic Opportunity
- Connect Illinois Broadband Grant Program





Section II. Evaluation of Project Opportunities

Lastly, Lit Communities identified potential grant project opportunities ranging from the Middle Mile to Last Mile and related economic development, telehealth, and emergency response efforts and matched them with programs from the Primary Matches matrix. While we understand that the County is not pursuing grant opportunities at this time, the Lit Communities team is including the entire grant research deliverable in the Appendix D for reference should the need arise in the future and accompany this business plan as a separate attachment.

PROJECT	NEEDS	AGENCY	POTENTIAL FUNDING PROGRAM(S)
Middle Mile (Backbone)	Planning, Design, Construction & Equipment	<ul style="list-style-type: none"> DHS-FEMA USDA-RD USDOC-NTIA 	<ul style="list-style-type: none"> Building Resilient Infrastructure and Communities (BRIC) ReConnect Pilot Program Rural Broadband Access Loan and Loan Guarantees Broadband Equity, Access, and Deployment (BEAD) Program Enabling Middle Mile Broadband Infrastructure Program
Last Mile (FTTP)	Planning, Design, Construction & Equipment	<ul style="list-style-type: none"> USDOC-NTIA USDA-RD USDHUD 	<ul style="list-style-type: none"> Broadband Equity, Access, and Deployment (BEAD) Program ReConnect Pilot Program Rural Broadband Access Loan and Loan Guarantees Telecommunications Infrastructure Loans and Loan Guarantees Community Development Block Program Choice Neighborhoods - Implementation Choice Neighborhoods - Planning
Telehealth Economic Development Emergency Response Distance Learning	Planning, Design, Construction & Devices	<ul style="list-style-type: none"> FCC-USAC USDA-RD USDHUD DHS-FEMA 	<ul style="list-style-type: none"> Rural Health Care Program E-Rate (Schools and Libraries) Program Community Connect Grant Program Distance Learning and Telemedicine Grant ReConnect Pilot Program Rural Broadband Access Loan and Loan Guarantees Community Development Block Program Choice Neighborhoods - Implementation Choice Neighborhoods - Planning Building Resilient Infrastructure and Communities (BRIC)

ACRONYMS

DHS - FEMA: Department of Homeland Security - Federal Emergency Management Agency

FCC - USAC: Federal Communications Commission - Universal Service Administrative Company

USDA-RD: United States Department of Agriculture - Rural Development

USDOC-EDA: United States Department of Commerce - Economic Development Administration

USDOC-NTIA: National Telecommunications and Information Administration

USDHUD: United States Department of Housing and Urban Development

Section III. Preparing for Grant Funding Opportunities

Through our team's experience applying and obtaining financial assistance, we have consistently observed that communities who have the proper engineering and technical information required to apply completed ahead of time are most prepared, confident, and competitive when seeking grant funding. Often, federal agencies only provide between 45 - 60 days for application submission which leaves very little time to begin these studies and assessment while the application period is open. Therefore, if Kendall County is strongly interested in seeking grant funding to address its broadband infrastructure and accessibility gaps, we recommend that the County conduct these efforts as soon as possible so they are prepared and ready for future funding opportunities. Lastly, due to the varying amount of local matching funding required to pursue these opportunities, we suggest that the County identify sources and amounts of matching funding to determine the respective capacity to secure grant funding.



9 Next Steps

1. Launch a Committee of Committed Stakeholders to Implement the Business Plan

- To ensure that all of the following action items can be achieved, we first and foremost recommend that Kendall County create a committee of committed local stakeholders that will be charged with implementing this Business Plan.
- Members of the committee involved in the Community Assessment could be part of this committee, as well as new members from industry, government and the public safety and educational and health care community.

2. Middle Mile Build Out in Kendall County

- The middle mile preliminary design provided in this Business Plan consists of 13 proposed rings. Kendall County could consider a phased build of a community-owned middle mile network commencing in the southern part of Kendall County. This includes Millbrook, Newark, Lisbon, Helmar, Fox, Plattville, and part of Millington- in essence all of the municipalities and townships south of state highways 34 and 126.
- The rings that include the southern areas of the County are rings 7, 9, 11, 12 and 13. We are recommending that the County prioritize these rings as they contain the highest concentration of unserved and underserved residents and businesses within the County.
- A phased build-out allows Kendall County to secure additional funding, as discussed further below while different rings are designed and constructed. The high level design and cost estimates generated from the Community Assessment provide the documentation needed for most of the funding opportunities also identified in the Community Assessment.

3. Middle Mile Build-out in Kendall County & a Fiber to the Premise Pilot Project

- During the low level design and refinement of the middle mile network a fiber to the premise (FTTP) pilot project could be identified and launched within one of the southern rings to reach targeted residential areas, community institutions, and businesses.
- This pilot project would demonstrate how the network could then be scaled to serve the entirety of Kendall County, allowing the County to explore different approaches to connectivity and methodologies in bridging the digital divide.

4. Refine the Preliminary Middle Mile and Last-Mile Network Designs and Cost Models

- The County should enlist drive-test engineering experts to gauge connectivity at a more granular level and inspect pole lines and ground conditions along the selected paths, and then utilize this data to refine the cost models provided in the business plan.



- Kendall County can also facilitate future network deployments by coordinating with pole owners along the proposed last-mile aerial routes to ensure the poles can appropriately and cost-effectively be accessed and so as to: (1) allow new last-mile fiber to be the lowest attachment on the poles, (2) reduce usage fees, and (3) expedite approval times.

5. Identify Targeted Funding Sources and Develop Corresponding Strategies

- The Community Assessment and resulting Business Plan provide an overview of existing public funding sources for middle mile and last-mile broadband expansion. Once the County has prioritized the rings an analysis should be done to align the engineering and build out plan with these funding opportunities. The goal should be to identify which funding sources best align with different phases of the planned build out taking into consideration the following:
 - ReConnect, BEAD and NTIA's Middle Mile Program will be strong matches as well as the U.S. Treasury Capital Project funding and other forthcoming opportunities from the NTIA funded through the Infrastructure Investment and Jobs Act (IIJA).
 - The State of Illinois Office of Broadband is expected to be developing plans over the next 9 months for implementation of these federal funding opportunities at the State-level.
- Kendall County could leverage its existing ARPA funding and approach other cities and villages within the County to discuss a mutual project. The table shows the amounts awarded to each village and city within Kendall County.
- Kendall County could fill funding gaps between the cost models and broadband grant sources with private sources and more traditional public finance tools, such as revenue bonds and other bond instruments, including Private Activity Bonds for broadband as permitted under the IIJA. These too could be targeted to specific middle mile network rings and/ or build-out phases. It will be important to determine the exact ownership position for the County while assessing these private funding instruments.

Village/City	ARPA Award
Aurora, IL	\$35,221,280
Joliet, IL	\$22,207,675
Lisbon, IL	\$41,914
Millbrook Village, IL	\$44,635
Minooka Village, IL	\$1,550,956
Montgomery Village, IL	\$2,672,430
Newark Village, IL	\$139,895
Oswego, IL	\$4,933,340
Plainfield Village, IL	\$6,029,638
Plano City, IL	\$1,587,427
Sandwich City, IL	\$1,009,475
Yorkville, IL	\$2,805,112

6. Develop and Launch an Ongoing Community Engagement Strategy:

- Kendall County should develop and launch a comprehensive community engagement strategy to inform the community of its ongoing efforts and timelines to enhance county-wide broadband access. Such a strategy could be developed internally or with assistance from a third party consultant, and could further communicate the economic development and community gains derived from a community-owned middle mile network and resultant last-mile service.



Appendix A

Internet Service Providers' Offerings in Kendall County: Residential

ZIP CODES	INTERNET SERVICE PROVIDER	COVERAGE PERCENTAGE	MAX DOWNLOAD SPEED (Mbps) (Up To)	MAX UPLOAD SPEED (Mbps) (Up To)	PRICING	PLAN NAME	INFRASTRUCTURE TYPE	SERVICE TYPE (RESIDENTIAL/BUSINESS)
60512	Xfinity	97.10%	1,200 Mbps	Not Listed	Not Listed	Not Listed	Cable	Residential
	Metronet	100.00%	1,000 Mbps	Not Listed	\$90	Not Listed	Fiber	Residential
	AT&T Internet	97.80%	300 Mbps	20 Mbps	\$129.99-\$154.99	TV & Internet Bundle	IPBB and Fiber	Residential
	AT&T Internet	97.80%	5,000 Mbps	5,000 Mbps	\$55-\$154.99	Internet Only Plan	IPBB and Fiber	Residential
	Viasat Internet	100.00%	50 Mbps	Not Listed	\$49.99-\$149.99	Internet Only Plan	Satellite	Residential
	Rise Broadband	98.60%	25 Mbps	Not Listed	\$55	Internet Only Plan	Fixed Wireless	Residential
	Rise Broadband	98.60%	25 Mbps	Not Listed	\$35	Internet and Security	Fixed Wireless	Residential
	Rise Broadband	98.60%	25 Mbps	Not Listed	\$45	Internet and Phone	Fixed Wireless	Residential
	T-Mobile 5G Home Internet	43.00%	115 Mbps	23 Mbps	\$50	Internet Only Plan	5G Internet	Residential
	HughesNet	100.00%	25 Mbps	3 Mbps	\$64.99-\$159.99	Internet Only Plan	Satellite	Residential
	Blast	100.00%	6 Mbps	Not Listed	Not Listed	Not Listed	Fixed Wireless	Residential
	Intelligent Computing Solutions	100.00%	10 Mbps	2 Mbps	\$100	Internet Only Plan	Fixed Wireless	Residential
	IndianValley.com	59%	24 Mbps	Not Listed	\$121-\$212	Internet Only Plan	Fixed Wireless	Residential
	NewarkNet Wireless	22.10%	40 Mbps	Not Listed	\$70-\$85	Internet Only Plan	Fixed Wireless	Residential
60536	Next-Level Technology Partners	7.2	40 Mbps	8 Mbps	\$94.95-\$124.95	Internet Only Plan	Fixed Wireless	Residential
	Xfinity	13.50%	1,200 Mbps	Not Listed	Not Listed	Not Listed	Cable	Residential
	Metronet	100.00%	1,000 Mbps	Not Listed	\$90	Not Listed	Fiber	Residential
	Viasat Internet	100.00%	50 Mbps	Not Listed	\$49.99-\$149.99	Internet Only Plan	Satellite	Residential
	Rise Broadband	81.00%	25 Mbps	Not Listed	\$55	Internet Only Plan	Fixed Wireless	Residential
	HughesNet	100.00%	50 Mbps	3 Mbps	\$64.99-\$159.99	Internet Only Plan	Satellite	Residential
	Blast	100.00%	6 Mbps	Not Listed	Not Listed	Not Listed	Fixed Wireless	Residential
	Intelligent Computing Solutions	100.00%	10 Mbps	2 Mbps	\$100	Internet Only Plan	Fixed Wireless	Residential
	IndianValley.com	100.00%	24 Mbps	Not Listed	\$121-\$212	Internet Only Plan	Fixed Wireless	Residential
	NewarkNet Wireless	100.00%	40 Mbps	Not Listed	\$70-\$85	Internet Only Plan	Fixed Wireless	Residential
	MediaNet Wireless	100.00%	30 Mbps	Not Listed	Not Listed	Not Listed	Fixed Wireless	Residential
	Next-Level Technology Partners	100.00%	40 Mbps	8 Mbps	\$94.95-\$124.95	Internet Only Plan	Fixed Wireless	Residential

DATA SOURCES

Broadband Now: broadbandnow.com

Broadband Search: broadbandsearch.net



ZIP CODES	INTERNET SERVICE PROVIDER	COVERAGE PERCENTAGE	MAX DOWNLOAD SPEED (Mbps) (Up To)	MAX UPLOAD SPEED (Mbps) (Up To)	PRICING	PLAN NAME	INFRASTRUCTURE TYPE	SERVICE TYPE (RESIDENTAL/BUSINESS)
60537	Xfinity	86.30%	1,200 Mbps	Not Listed	Not Listed	Not Listed	Cable	Residential
	Metronet	36.80%	1,000 Mbps	Not Listed	\$90	Not Listed	Fiber	Residential
	AT&T Internet	86.20%	300 Mbps	20 Mbps	\$129.99-154.99	TV & Internet Bundle	IPBB and Fiber	Residential
	AT&T Internet	86.20%	5,000 Mbps	5,000 Mbps	\$55-154.99	Internet Only Plan	IPBB and Fiber	Residential
	Viasat Internet	100.00%	50 Mbps	Not Listed	\$49.99-149.99	Internet Only Plan	Satellite	Residential
	Rise Broadband	94.00%	25 Mbps	Not Listed	\$55	Internet Only Plan	Fixed Wireless	Residential
	Frontier Communications	12.60%	2000 Mbps	45 Mbps	\$49.99-149.99	Internet Only Plan	DSL and Fiber	Residential
	ClearSKY Systems	12.60%	1 Mbps	Not Listed	Not Listed	Internet Only Plan	Fixed Wireless	Residential
	HughesNet	100.00%	25 Mbps	3 Mbps	\$64.99-159.99	Internet Only Plan	Satellite	Residential
	IndianValley.com	100%	24 Mbps	Not Listed	\$121-\$212	Internet Only Plan	Fixed Wireless	Residential
	NewarkNet Wireless	98.70%	40 Mbps	Not Listed	\$70-\$85	Internet Only Plan	Fixed Wireless	Residential
	MediaNet Wireless	100.00%	30 MBPS	Not Listed	Not Listed	Not Listed	Fixed Wireless	Residential
	Next-Level Technology Partners	100.00%	40 Mbps	8 Mbps	\$94.95-\$124.95	Internet Only Plan	Fixed Wireless	Residential
	Xfinity	99.40%	1,200 Mbps	Not Listed	Not Listed	Not Listed	Cable	Residential
	Metronet	100.00%	1,000 Mbps	Not Listed	\$90	Not Listed	Fiber	Residential
60538	Verizon	100.00%	1,000 Mbps	15 Mbps	\$39.99-159.99	Not Listed	5G Internet	Residential
	T-Mobile 5G Home Internet	25.50%	115 Mbps	23 Mbps	\$50	Internet Only Plan	5G Internet	Residential
	AT&T Internet	85.50%	300 Mbps	20 Mbps	\$129.99-154.99	TV & Internet Bundle	IPBB and Fiber	Residential
	AT&T Internet	85.50%	5,000 Mbps	5,000 Mbps	\$55-154.99	Internet Only Plan	IPBB and Fiber	Residential
	Viasat Internet	100.00%	50 Mbps	Not Listed	\$49.99-149.99	Internet Only Plan	Satellite	Residential
	Rise Broadband	89.00%	25 Mbps	Not Listed	\$55	Internet Only Plan	Fixed Wireless	Residential
	Blast	100.00%	6 Mbps	Not Listed	Not Listed	Not Listed	Fixed Wireless	Residential
	Intelligent Computing Solutions	100.00%	10 Mbps	2 Mbps	\$100	Internet Only Plan	Fixed Wireless	Residential
	Frontier Communications	12.60%	2000 Mbps	45 Mbps	\$49.99-149.99	Internet Only Plan	DSL and Fiber	Residential
	Future Link IT	12.20%	6 Mbps	Not Listed	Not Listed	Internet Only Plan	Fixed Wireless	Residential
	HughesNet	100.00%	25 Mbps	3 Mbps	\$64.99-159.99	Internet Only Plan	Satellite	Residential
	IndianValley.com	100%	24 Mbps	Not Listed	\$121-\$212	Internet Only Plan	Fixed Wireless	Residential
	NewarkNet Wireless	98.70%	40 Mbps	Not Listed	\$70-\$85	Internet Only Plan	Fixed Wireless	Residential



ZIP CODES	INTERNET SERVICE PROVIDER	COVERAGE PERCENTAGE	MAX DOWNLOAD SPEED (Mbps) (Up To)	MAX UPLOAD SPEED (Mbps) (Up To)	PRICING	PLAN NAME	INFRASTRUCTURE TYPE	SERVICE TYPE (RESIDENTIAL/BUSINESS)
60541	Xfinity	41.70%	1,200 Mbps	Not Listed	Not Listed	Not Listed	Cable	Residential
	Metronet	94.10%	1,000 Mbps	Not Listed	\$90	Not Listed	Fiber	Residential
	AT&T Internet	68.00%	100 Mbps	20 Mbps	\$129.99-144.99	TV & Internet Bundle	DSL	Residential
	Viasat Internet	100.00%	50 Mbps	Not Listed	\$49.99-149.99	Internet Only Plan	Satellite	Residential
	Rise Broadband	96.90%	25 Mbps	Not Listed	\$55	Internet Only Plan	Fixed Wireless	Residential
	T-Mobile 5G Home Internet	25.50%	115 Mbps	23 Mbps	\$50	Internet Only Plan	5G Internet	Residential
	Frontier Communications	4.40%	2000 Mbps	45 Mbps	\$49.99-149.99	Internet Only Plan	DSL and Fiber	Residential
	Intelligent Computing Solutions	100.00%	10 Mbps	2 Mbps	\$100	Internet Only Plan	Fixed Wireless	Residential
	Blast	100.00%	6 Mbps	Not Listed	Not Listed	Not Listed	Fixed Wireless	Residential
	HiHart	9.70%	10 Mbps	Not Listed	Not Listed	Not Listed	Fixed Wireless	Residential
	ClearSKY Systems	6.30%	15 Mbps	Not Listed	Not Listed	Internet Only Plan	Fixed Wireless	Residential
	HughesNet	100.00%	25 Mbps	3 Mbps	\$64.99-159.99	Internet Only Plan	Satellite	Residential
	IndianValley.com	75%	24 Mbps	Not Listed	\$121-\$212	Internet Only Plan	Fixed Wireless	Residential
	NewarkNet Wireless	93.90%	40 Mbps	Not Listed	\$70-\$85	Internet Only Plan	Fixed Wireless	Residential
	MediaNet Wireless	85.10%	30 Mbps	Not Listed	Not Listed	Not Listed	Fixed Wireless	Residential
60543	Next-Level Technology Partners	99.20%	40 Mbps	8 Mbps	\$94.95-\$124.95	Internet Only Plan	Fixed Wireless	Residential
	Xfinity	98.00%	1,200 Mbps	Not Listed	Not Listed	Not Listed	Cable	Residential
	Verizon	100.00%	1,000 Mbps	15 Mbps	\$39.99-159.99	Not Listed	5G Internet	Residential
	Metronet	100.00%	1,000 Mbps	Not Listed	\$90	Not Listed	Fiber	Residential
	AT&T Internet	93.90%	100 Mbps	20 Mbps	\$129.99-144.99	TV & Internet Bundle	DSL	Residential
	Viasat Internet	100.00%	50 Mbps	Not Listed	\$49.99-149.99	Internet Only Plan	Satellite	Residential
	Rise Broadband	90.80%	25 Mbps	Not Listed	\$55	Internet Only Plan	Fixed Wireless	Residential
	T-Mobile 5G Home Internet	35.70%	115 Mbps	23 Mbps	\$50	Internet Only Plan	5G Internet	Residential
	Frontier Communications	4.40%	2000 Mbps	45 Mbps	\$49.99-149.99	Internet Only Plan	DSL and Fiber	Residential
	Intelligent Computing Solutions	100.00%	10 Mbps	2 Mbps	\$100	Internet Only Plan	Fixed Wireless	Residential
	Blast	100.00%	6 Mbps	Not Listed	Not Listed	Not Listed	Fixed Wireless	Residential
	HughesNet	100.00%	25 Mbps	3 Mbps	\$64.99-159.99	Internet Only Plan	Satellite	Residential
	IndianValley.com	7%	24 Mbps	Not Listed	\$121-\$212	Internet Only Plan	Fixed Wireless	Residential
	NewarkNet Wireless	36.70%	40 Mbps	Not Listed	\$70-\$85	Internet Only Plan	Fixed Wireless	Residential



ZIP CODES	INTERNET SERVICE PROVIDER	COVERAGE PERCENTAGE	MAX DOWNLOAD SPEED (Mbps) (Up To)	MAX UPLOAD SPEED (Mbps) (Up To)	PRICING	PLAN NAME	INFRASTRUCTURE TYPE	SERVICE TYPE (Residential/Business)
60541	Xfinity	41.70%	1,200 Mbps	Not Listed	Not Listed	Not Listed	Cable	Residential
	Metronet	94.10%	1,000 Mbps	Not Listed	\$90	Not Listed	Fiber	Residential
	AT&T Internet	68.00%	100 Mbps	20 Mbps	\$129.99-144.99	TV & Internet Bundle	DSL	Residential
	Viasat Internet	100.00%	50 Mbps	Not Listed	\$49.99-149.99	Internet Only Plan	Satellite	Residential
	Rise Broadband	96.90%	25 Mbps	Not Listed	\$55	Internet Only Plan	Fixed Wireless	Residential
	T-Mobile 5G Home Internet	25.50%	115 Mbps	23 Mbps	\$50	Internet Only Plan	5G Internet	Residential
	Frontier Communications	4.40%	2000 Mbps	45 Mbps	\$49.99-149.99	Internet Only Plan	DSL and Fiber	Residential
	Intelligent Computing Solutions	100.00%	10 Mbps	2 Mbps	\$100	Internet Only Plan	Fixed Wireless	Residential
	Blast	100.00%	6 Mbps	Not Listed	Not Listed	Not Listed	Fixed Wireless	Residential
	HiHart	9.70%	10 Mbps	Not Listed	Not Listed	Not Listed	Fixed Wireless	Residential
	ClearSKY Systems	6.30%	15 Mbps	Not Listed	Not Listed	Internet Only Plan	Fixed Wireless	Residential
	HughesNet	100.00%	25 Mbps	3 Mbps	\$64.99-159.99	Internet Only Plan	Satellite	Residential
	IndianValley.com	75%	24 Mbps	Not Listed	\$121-\$212	Internet Only Plan	Fixed Wireless	Residential
	NewarkNet Wireless	93.90%	40 Mbps	Not Listed	\$70-\$85	Internet Only Plan	Fixed Wireless	Residential
60543	MediaNet Wireless	85.10%	30 Mbps	Not Listed	Not Listed	Not Listed	Fixed Wireless	Residential
	Next-Level Technology Partners	99.20%	40 Mbps	8 Mbps	\$94.95-\$124.95	Internet Only Plan	Fixed Wireless	Residential
	Xfinity	98.00%	1,200 Mbps	Not Listed	Not Listed	Not Listed	Cable	Residential
	Verizon	100.00%	1,000 Mbps	15 Mbps	\$39.99-159.99	Not Listed	5G Internet	Residential
	Metronet	100.00%	1,000 Mbps	Not Listed	\$90	Not Listed	Fiber	Residential
	AT&T Internet	93.90%	100 Mbps	20 Mbps	\$129.99-144.99	TV & Internet Bundle	DSL	Residential
	Viasat Internet	100.00%	50 Mbps	Not Listed	\$49.99-149.99	Internet Only Plan	Satellite	Residential
	Rise Broadband	90.80%	25 Mbps	Not Listed	\$55	Internet Only Plan	Fixed Wireless	Residential
	T-Mobile 5G Home Internet	35.70%	115 Mbps	23 Mbps	\$50	Internet Only Plan	5G Internet	Residential
	Frontier Communications	4.40%	2000 Mbps	45 Mbps	\$49.99-149.99	Internet Only Plan	DSL and Fiber	Residential
	Intelligent Computing Solutions	100.00%	10 Mbps	2 Mbps	\$100	Internet Only Plan	Fixed Wireless	Residential
	Blast	100.00%	6 Mbps	Not Listed	Not Listed	Not Listed	Fixed Wireless	Residential
	HughesNet	100.00%	25 Mbps	3 Mbps	\$64.99-159.99	Internet Only Plan	Satellite	Residential
	IndianValley.com	7%	24 Mbps	Not Listed	\$121-\$212	Internet Only Plan	Fixed Wireless	Residential
	NewarkNet Wireless	36.70%	40 Mbps	Not Listed	\$70-\$85	Internet Only Plan	Fixed Wireless	Residential



ZIP CODES	INTERNET SERVICE PROVIDER	COVERAGE PERCENTAGE	MAX DOWNLOAD SPEED (Mbps) (Up To)	MAX UPLOAD SPEED (Mbps) (Up To)	PRICING	PLAN NAME	INFRASTRUCTURE TYPE	SERVICE TYPE (RESIDENTIAL/BUSINESS)
60545	Xfinity	95.30%	1,200 Mbps	Not Listed	Not Listed	Not Listed	Cable	Residential
	Metronet	100.00%	1,000 Mbps	Not Listed	\$90	Not Listed	Fiber	Residential
	AT&T Internet	89.40%	300 Mbps	20 Mbps	\$129.99-\$154.99	TV & Internet Bundle	IPBB and Fiber	Residential
	AT&T Internet	89.40%	5,000 Mbps	5,000 Mbps	\$55-\$154.99	Internet Only Plan	IPBB and Fiber	Residential
	Viasat Internet	100.00%	50 Mbps	Not Listed	\$49.99-\$149.99	Internet Only Plan	Satellite	Residential
	Rise Broadband	98.80%	25 Mbps	Not Listed	\$55	Internet Only Plan	Fixed Wireless	Residential
	T-Mobile 5G Home Internet	24.20%	115 Mbps	23 Mbps	\$50	Internet Only Plan	5G Internet	Residential
	Intelligent Computing Solutions	99.60%	10 Mbps	2 Mbps	\$100	Internet Only Plan	Fixed Wireless	Residential
	Blast	98.40%	6 Mbps	Not Listed	Not Listed	Not Listed	Fixed Wireless	Residential
	HughesNet	100.00%	25 Mbps	3 Mbps	\$64.99-\$159.99	Internet Only Plan	Satellite	Residential
	IndianValley.com	100%	24 Mbps	Not Listed	\$121-\$212	Internet Only Plan	Fixed Wireless	Residential
	NewarkNet Wireless	98.00%	40 Mbps	Not Listed	\$70-\$85	Internet Only Plan	Fixed Wireless	Residential
	MediaNet Wireless	31.80%	30 Mbps	Not Listed	Not Listed	Not Listed	Fixed Wireless	Residential
	Next-Level Technology Partners	99.90%	40 Mbps	8 Mbps	\$94.95-\$124.95	Internet Only Plan	Fixed Wireless	Residential
60560	Xfinity	95.10%	1,200 Mbps	Not Listed	Not Listed	Not Listed	Cable	Residential
	Metronet	100.00%	1,000 Mbps	Not Listed	\$90	Not Listed	Fiber	Residential
	AT&T Internet	88.20%	300 Mbps	20 Mbps	\$129.99-\$154.99	TV & Internet Bundle	IPBB and Fiber	Residential
	AT&T Internet	88.20%	5,000 Mbps	5,000 Mbps	\$55-\$154.99	Internet Only Plan	IPBB and Fiber	Residential
	Viasat Internet	100.00%	50 Mbps	Not Listed	\$49.99-\$149.99	Internet Only Plan	Satellite	Residential
	Rise Broadband	97.30%	25 Mbps	Not Listed	\$55	Internet Only Plan	Fixed Wireless	Residential
	T-Mobile 5G Home Internet	35.30%	115 Mbps	23 Mbps	\$50	Internet Only Plan	5G Internet	Residential
	Intelligent Computing Solutions	100.00%	10 Mbps	2 Mbps	\$100	Internet Only Plan	Fixed Wireless	Residential
	Blast	98.30%	6 Mbps	Not Listed	Not Listed	Not Listed	Fixed Wireless	Residential
	HughesNet	100.00%	25 Mbps	3 Mbps	\$64.99-\$159.99	Internet Only Plan	Satellite	Residential
	IndianValley.com	91%	24 Mbps	Not Listed	\$121-\$212	Internet Only Plan	Fixed Wireless	Residential
	NewarkNet Wireless	51.50%	40 Mbps	Not Listed	\$70-\$85	Internet Only Plan	Fixed Wireless	Residential
	MediaNet Wireless	8.20%	30 Mbps	Not Listed	Not Listed	Not Listed	Fixed Wireless	Residential
	Next-Level Technology Partners	17.00%	40 Mbps	8 Mbps	\$94.95-\$124.95	Internet Only Plan	Fixed Wireless	Residential
60447	Xfinity	84.10%	1,200 Mbps	Not Listed	Not Listed	Not Listed	Cable	Residential
	Metronet	31.90%	1,000 Mbps	Not Listed	\$89.95	Not Listed	Fiber	Residential
	AT&T Internet	87.40%	300 Mbps	20 Mbps	\$129.99-\$154.99	TV & Internet Bundle	IPBB and Fiber	Residential
	AT&T Internet	87.40%	5,000 Mbps	5,000 Mbps	\$55-\$154.99	Internet Only Plan	IPBB and Fiber	Residential
	Viasat Internet	100.00%	50 Mbps	Not Listed	\$49.99-\$149.99	Internet Only Plan	Satellite	Residential
	Apps Communications	6.60%	15 Mbps	Not Listed	\$99.95	Internet Only Plan	Fixed Wireless	Residential
	T-Mobile 5G Home Internet	45.20%	115 Mbps	23 Mbps	\$50.00	Internet Only Plan	5G Internet	Residential
	Air-Wans Wireless Broadband	7.40%	15 Mbps	Not Listed	\$99.95	Internet Only Plan	Fixed Wireless	Residential
	Surf Broadband Solutions	95.30%	25 Mbps	3 Mbps	\$104.95	Internet Only Plan	Fixed Wireless	Residential
	HughesNet	100.00%	25 Mbps	3 Mbps	\$64.99-\$159.99	Internet Only Plan	Satellite	Residential
	NewarkNet Wireless	32.10%	40 Mbps	Not Listed	\$70-\$85	Internet Only Plan	Fixed Wireless	Residential
	MediaNet Wireless	52.70%	30 Mbps	Not Listed	Not Listed	Not Listed	Fixed Wireless	Residential



Internet Service Providers' Offerings in Kendall County: Business

ZIP CODES	INTERNET SERVICE PROVIDER	COVERAGE PERCENTAGE	MAX DOWNLOAD SPEED (Mbps) (Up To)	MAX UPLOAD SPEED (Mbps) (Up To)	PRICING	PLAN NAME	INFRASTRUCTURE TYPE	SERVICE TYPE (RESIDENTIAL/BUSINESS)
60512	Intelligent Computing Solutions	100.00%	10 Mbps	2 Mbps	\$60-100	Not Listed	Fixed Wireless	Business
	Comcast Business	45.00%	1,000 Mbps	Not Listed	Not Listed	Not Listed	Cable	Business
	Metronet	100.00%	1,000 Mbps	1,000 Mbps	\$39.95	Metronet Business	Fiber	Business
	AT&T Internet	88.20%	5,000 Mbps	5,000 Mbps	\$180	Internet Only	IPBB and Fiber	Business
	Rise Broadband	97.30%	100 Mbps	Not Listed	\$25-55	Not Listed	Fixed Wireless	Business
60536	Next-Level Technology Partners	7.20%	40 Mbps	8 Mbps	\$124.95	Not Listed	Fixed Wireless	Business
	Intelligent Computing Solutions	100.00%	10 Mbps	2 Mbps	\$60-100	Not Listed	Fixed Wireless	Business
	Comcast Business	3.10%	1,000 Mbps	Not Listed	Not Listed	Not Listed	Cable	Business
	Metronet	100.00%	1,000 Mbps	1,000 Mbps	\$39.95	Metronet Business	Fiber	Business
	Rise Broadband	77.00%	100 Mbps	Not Listed	\$25-55	Not Listed	Fixed Wireless	Business
60537	Next-Level Technology Partners	100.00%	40 Mbps	8 Mbps	\$124.95	Not Listed	Fixed Wireless	Business
	Next-Level Technology Partners	100.00%	40 Mbps	8 Mbps	124.95	Not Listed	Fixed Wireless	Business
	Comcast Business	84.80%	1,000 Mbps	Not Listed	Not Listed	Not Listed	Cable	Business
	Metronet	61.00%	1,000 Mbps	1,000 Mbps	\$39.95	Metronet Business	Fiber	Business
	Rise Broadband	100.00%	100 Mbps	Not Listed	\$25-55	Not Listed	Fixed Wireless	Business
60538	Stratus Networks	3.70%	1,000 Mbps	1,000 Mbps	Not Listed	Not Listed	Fiber	Business
	Frontier Business	42.80%	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed	Business
	Comcast Business	90.70%	1,000 Mbps	Not Listed	Not Listed	Not Listed	Cable	Business
	Metronet	100.00%	1,000 Mbps	1,000 Mbps	\$39.95	Metronet Business	Fiber	Business
	AT&T Internet	13.70%	5,000 Mbps	5,000 Mbps	\$180	Internet Only	IPBB and Fiber	Business
60538	Rise Broadband	76.60%	100 Mbps	Not Listed	\$25-55	Not Listed	Fixed Wireless	Business
	Intelligent Computing Solutions	100.00%	10 Mbps	2 Mbps	\$60-100	Not Listed	Fixed Wireless	Business
	Windstream	1.30%	10 Mbps	Not Listed	Not Listed	Not Listed	DSL	Business
	GTT	5.30%	1.5 Mbps	Not Listed	Not Listed	Not Listed	Copper	Business
	Verizon Business	1.20%	Not Listed	Not Listed	Not Listed	Not Listed	Copper	Business

DATA SOURCES

Broadband Now: broadbandnow.com

Broadband Search: Broadbandsearch.net



ZIP CODES	INTERNET SERVICE PROVIDER	COVERAGE PERCENTAGE	MAX DOWNLOAD SPEED (Mbps) (Up To)	MAX UPLOAD SPEED (Mbps) (Up To)	PRICING	PLAN NAME	INFRASTRUCTURE TYPE	SERVICE TYPE (RESIDENTIAL/BUSINESS)
60541	Next-Level Technology Partners	100.00%	40 Mbps	8 Mbps	124.95	Not Listed	Fixed Wireless	Business
	Comcast Business	12.20%	1,000 Mbps	Not Listed	Not Listed	Not Listed	Cable	Business
	Metronet	100.00%	1,000 Mbps	1,000 Mbps	\$39.95	Metronet Business	Fiber	Business
	Rise Broadband	100.00%	100 Mbps	Not Listed	\$25.55	Not Listed	Fixed Wireless	Business
	Intelligent Computing Solutions	44.60%	10 Mbps	2 Mbps	\$60-100	Not Listed	Fixed Wireless	Business
	Frontier Business	7.90%	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed	Business
60543	Comcast Business	70.00%	1,000 Mbps	Not Listed	Not Listed	Not Listed	Cable	Business
	Metronet	100.00%	1,000 Mbps	1,000 Mbps	\$39.95	Metronet Business	Fiber	Business
	AT&T Internet	16.10%	5,000 Mbps	5,000 Mbps	\$180	Internet Only	IPBB and Fiber	Business
	Rise Broadband	90.30%	100 Mbps	Not Listed	\$25.55	Not Listed	Fixed Wireless	Business
	Intelligent Computing Solutions	100.00%	10 Mbps	2 Mbps	\$60-100	Not Listed	Fixed Wireless	Business
	Windstream	4.80%	10 Mbps	Not Listed	Not Listed	Not Listed	DSL	Business
	GTT	2.00%	1.5 Mbps	Not Listed	Not Listed	Not Listed	Copper	Business
	First Communications	2.90%	Not Listed	Not Listed	Not Listed	Not Listed	Copper	Business
	Verizon Business	1.20%	Not Listed	Not Listed	Not Listed	Not Listed	Copper	Business
	Next-Level Technology Partners	98.20%	40 Mbps	8 Mbps	124.95	Not Listed	Fixed Wireless	Business
60545	Comcast Business	51.90%	1,000 Mbps	Not Listed	Not Listed	Not Listed	Cable	Business
	Metronet	100.00%	1,000 Mbps	1,000 Mbps	\$39.95	Metronet Business	Fiber	Business
	AT&T Internet	3.50%	5,000 Mbps	5,000 Mbps	\$180	Internet Only	IPBB and Fiber	Business
	Rise Broadband	97.30%	100 Mbps	Not Listed	\$25.55	Not Listed	Fixed Wireless	Business
	Intelligent Computing Solutions	100.00%	10 Mbps	2 Mbps	\$60-100	Not Listed	Fixed Wireless	Business
	Frontier Business	7.90%	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed	Business
	CenturyLink Business	1.30%	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed	Business
	First Communications	0.70%	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed	Business
	Peerless Network	0.03%	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed	Business
	Next-Level Technology Partners	7.20%	40 Mbps	8 Mbps	124.95	Not Listed	Fixed Wireless	Business
60560	Comcast Business	45.00%	1,000 Mbps	Not Listed	Not Listed	Not Listed	Cable	Business
	Metronet	100.00%	1,000 Mbps	1,000 Mbps	\$39.95	Metronet Business	Fiber	Business
	AT&T Internet	88.20%	5,000 Mbps	5,000 Mbps	\$180	Internet Only	IPBB and Fiber	Business
	Rise Broadband	97.30%	100 Mbps	Not Listed	\$25.55	Not Listed	Fixed Wireless	Business
	Intelligent Computing Solutions	100.00%	10 Mbps	2 Mbps	\$60-100	Not Listed	Fixed Wireless	Business
60447	Comcast Business	17.80%	1,000 Mbps	Not Listed	Not Listed	Not Listed	Cable	Business
	Metronet	100.00%	1,000 Mbps	1,000 Mbps	\$39.95	Metronet Business	Fiber	Business
	AT&T Internet	1.50%	5,000 Mbps	5,000 Mbps	\$180	Internet Only	Fiber	Business



Digital Divide Index

CENSUS	INFA VARIABLES					SE VARIABLES				DIGITAL DIVIDE INDEX			
	Average Download Speed (Mbps)	Average Upload Speed (Mbps)	Population Without Access to 100/20 Mbps	No Internet Access	No Computer Device	Less than HS degree	Poverty Rate	Age 65+	Disability Rate	Internet Income Ratio (IRR)	INFA	SE	DDI
Tract													
17093890103	154.2	90.6	0.0%	0.0%	0.0%	1.6%	4.4%	8.8%	0.9%	0.00	3.20	4.51	3.67
17093890104	149.1	27.0	91.5%	5.9%	0.0%	12.6%	3.5%	8.1%	6.7%	0.00	20.43	9.52	17.01
17093890105	162.4	86.2	2.3%	0.1%	0.1%	9.5%	0.0%	6.4%	6.4%	23.85	3.48	10.99	8.82
17093890106	157.4	105.6	2.6%	10.3%	8.0%	2.5%	2.4%	12.4%	6.2%	51.99	11.64	15.98	17.15
17093890107	154.4	87.5	2.4%	0.0%	0.0%	3.4%	1.6%	15.3%	7.4%	0.00	3.50	9.080	7.36
17093890108	151.3	84.1	25.6%	6.9%	1.5%	4.5%	4.0%	14.8%	5.5%	0.00	9.48	9.030	10.61
17093890201	160.4	88.4	0.0%	5.3%	4.0%	7.6%	2.9%	13.9%	9.2%	40.54	7.50	17.31	15.90
17093890202	158.1	101.9	0.0%	6.8%	7.5%	14.0%	7.4%	14.1%	14.2%	1.99	9.75	16.22	16.30
17093890301	154.9	82.6	0.8%	9.9%	3.4%	9.9%	4.5%	11.5%	9.8%	15.84	9.30	13.94	14.29
17093890302	156.1	88.4	0.4%	3.3%	2.3%	5.2%	1.2%	16.7%	13.8%	16.79	5.85	15.35	13.48
17093890401	192.2	104.1	0.5%	16.2%	5.0%	4.60%	6.1%	6.5%	11.9%	11.49	11.73	11.60	13.83
17093890402	173.2	78.3	5.2%	5.6%	1.1%	3.5%	6.7%	12.2%	6.0%	0.00	6.55	8.82	8.84
17093890403	158.8	89.0	1.8%	5.8%	2.6%	15.5%	0.6%	6.3%	8.0%	56.29	7.14	18.56	16.66
17093890404	164.0	100.6	0.0%	0.0%	0.0%	10.3%	4.9%	3.1%	2.4%	0.00	2.85	5.88	4.54
17093890501	207.8	109.8	5.1%	13.9%	2.0%	11.5%	6.8%	8.7%	10.1%	15.38	9.25	14.11	14.40
17093890502	176.4	82.9	8.0%	16.3%	14.6%	11.1%	6.7%	18.5%	10.6%	63.29	18.34	24.83	27.66
17093890601	170.3	81.3	11.5%	6.6%	6.4%	6.3%	6.2%	14.3%	9.3%	3.84	10.43	12.13	13.52
17093890602	167.6	63.6	38.2%	5.5%	3.1%	4.6%	1.8%	10.2%	6.9%	6.60	11.18	8.77	11.35
17093890701	147.9	16.6	99.4%	1.4%	1.4%	18.4%	12.8%	10.6%	13.0%	6.14	15.75	17.70	20.74
17093890702	152.4	39.8	44.4%	6.3%	0.0%	2.4%	4.4%	11.1%	7.4%	0.00	11.11	8.22	10.88
17093890703	153.4	69.7	24.9%	3.9%	2.2%	3.5%	3.2%	7.7%	4.1%	13.02	8.84	7.87	9.37

DATA SOURCES

2020 Digital Divide Index (DDI) (Purdue Center for Regional Development); Available at: <http://pcrd.purdue.edu/ddi>



Digital Distress

TRACT	HOUSEHOLDS	CELLULAR DATA ONLY	NO INTERNET ACCESS	MOBILE ONLY	NO COMPUTER DEVICE	DIGITAL DISTRESS
17093890103	2186	0.0%	0.0%	7.6%	0.0%	Low
17093890104	2378	0.8%	5.9%	1.8%	8.5%	Low
17093890105	2474	4.8%	0.1%	1.5%	0.1%	Low
17093890106	1802	4.4%	10.3%	17.2%	8.0%	Low
17093890107	1297	1.5%	0.0%	6.2%	0.0%	Low
17093890108	1694	2.2%	6.9%	8.2%	1.5%	Low
17093890201	1478	5.3%	5.3%	14.1%	4.0%	Low
17093890202	1127	5.3%	6.8%	8.4%	7.5%	Low
17093890301	2294	7.4%	9.9%	14.4%	3.4%	Low
17093890302	2151	9.4%	3.3%	8.6%	2.3%	Low
17093890401	2010	9.1%	16.2%	18.6%	5.0%	Moderate
17093890402	2884	6.5%	5.6%	2.7%	1.1%	Low
17093890403	1563	0.0%	5.8%	11.3%	2.6%	Low
17093890404	2736	5.4%	0.0%	8.7%	0.0%	Low
17093890501	3172	9.2%	13.9%	17.4%	2.0%	Moderate
17093890502	1697	15.9%	16.3%	8.5%	14.6%	High
17093890601	1640	4.1%	6.6%	7.9%	6.4%	Low
17093890602	1776	7.8%	5.5%	7.4%	3.1%	Low
17093890701	1479	2.8%	1.4%	12.4%	1.4%	Low
17093890702	1274	8.3%	6.3%	0.5%	0.0%	Low
17093890703	2286	5.2%	3.9%	11.4%	2.2%	Low

DATA SOURCES

2020 Digital Distress (Purdue Center for Regional Development). Available at: <https://experience.arcgis.com/experience/6f4d0a107e8c4ea29a1ca5023bc8d68c>



Appendix B

Kendall County Community Survey: Questionnaire

1. Select Customer type

- a. Residential
- b. Business
- c. Government
- d. Non-Profit Organization

2. Select Building type

- a. Multi Dwelling Unit
- b. Single Family Home
- c. Commercial (Only available for Business and Government/Non-Profit Organization)

3. Service Interest

- a. 250/250 Mbps
- b. 500/500 Mbps
- c. 1000/1000 Mbps

4. Would you sign up for this package?

- a. Yes Definitely
- b. Likely yes
- c. I would consider it
- d. Probably not
- e. Definitely not

5. Contact information

- a. First Name
- b. Last name
- c. Email
- d. Phone Number (optional)

6. Additional Details

- a. Are you the property owner?
 - i. If Yes -> Continue
 - ii. If No -> Provide contact information to property owner.
- b. Referral Code
 - i. If you have received a referral code from a local champion, enter it here. If not, leave this field blank.

7. Do you have Internet Service today?

- a. Yes -> Proceed to next question
- b. No -> Proceed to question "Champion"

8. Are you using this Internet Service now when you are responding to this survey?

- a. Yes -> We collect their IP-address to see who their current provider is. We also give them the option to submit a speed test at the end of the survey.
- b. No -> They will not get the option to submit a speed test at the end of the survey.

9. What's your download speed?

- a. Less than 5 Mbps
- b. 5-14 Mbps
- c. 15-24 Mbps
- d. 25-50 Mbps
- e. 51-100 Mbps
- f. More than 100 Mbps
- g. I don't know

10. How much are you paying each month for your internet access service?

- a. \$0-19
- b. \$20-39
- c. \$40-59
- d. \$60-79
- e. \$80-100
- f. More than \$100
- g. I don't know

11. How satisfied are you with your current Internet Speed?

- a. Fully satisfied
- b. Mostly satisfied
- c. Somewhat satisfied
- d. Somewhat dissatisfied
- e. Mostly dissatisfied
- f. Very dissatisfied

12. How satisfied are you with your current Internet service's reliability?

- a. Fully satisfied
- b. Mostly satisfied
- c. Somewhat satisfied
- d. Somewhat dissatisfied
- e. Mostly dissatisfied
- f. Very dissatisfied

13. How satisfied are you with your current Internet service's price?

- a. Fully satisfied
- b. Mostly satisfied
- c. Somewhat satisfied
- d. Somewhat dissatisfied
- e. Mostly dissatisfied
- f. Very dissatisfied

14. How important is it to you that the County is working to bring better broadband to your community?

- a. Extremely important
- b. Important

- c. Somewhat important
- d. Not important
- e. The County should not be involved in a broadband project

15. Champions are people willing to help out in our efforts to build a community wide broadband infrastructure by talking to their neighbors about the survey and value of fiber to the community.

Would you be interested in learning more about being one of our champions? Simply reply yes, and share your ideas on how you could help spread the word!

- a. Yes
- b. No

16. What would make this broadband effort even better or more effective? All comments and ideas are welcomed!

- a. Free text answer

17. How did you hear about this survey?

- a. Postcard/Letter
- b. School
- c. Flyer/handout
- d. At work
- e. From a friend
- f. From a neighbor
- g. Newspaper or online news source
- h. From a champion
- i. Social media – Facebook, Twitter
- j. Newspaper or magazine ad
- k. Internet banner ad
- l. Radio ad
- m. Other

18. Are you currently using a wireless connection to take this survey?

- a. Yes
- b. No

19. How many members in your household or employees of your business?

20. Speed test

- a. Start speed test
- b. Complete without speed test



Appendix

Typology of Anchor Institutions

NAME	TYPE	ADDRESS	LATITUDE	LONGITUDE	RING	ANCHORTYPE
Oswego Public Works Department	City	100 Theodore Dr, Oswego	41.676269	-88.340016	10	Lateral Path
Lisbon Village Hall	City	104 N Canal St, Newark	41.479993	-88.482481	11	Lateral Path
Yorkville Public Works Department	City	610 Tower Ln, Yorkville	41.649874	-88.446736	8	Lateral Path
Animal Control	County	802 John St, Yorkville	41.656697	-88.461987	7	Lateral Path
Yorkville City Hall	City	651 Prairie Pointe Dr, Yorkville	41.663755	-88.430740	8	Lateral Path
Coroner's Office	County	804 John St, Yorkville	41.656728	-88.462423	7	Lateral Path
Oswego FPD Station 3	Fire	2200 Galena Rd, Montgomery	41.712395	-88.375181	3	Lateral Path
Hoover Forest Preserve - Meadowhawk Lodge	Forest Preserve	11285 W Fox Rd, Yorkville	41.633683	-88.475930	7	Lateral Path
Hoover Forest Preserve - Education Center	Forest Preserve	11285 W Fox Rd, Yorkville	41.635232	-88.477754	7	Lateral Path
Plano Library	Library	15 W North St, Plano	41.663122	-88.538138	1	Lateral Path
Oswego Library 1	Library	32 W Jefferson St, Oswego	41.685169	-88.350846	4	Lateral Path
Oswego Library 2	Library	1111 Reading Dr, Montgomery	41.720729	-88.295580	6	Lateral Path
Fox Bend Golf Course	Park District	3516 Route 34, Oswego	41.692753	-88.328851	4	Lateral Path
Civic Center	Park District	5 Ashlawn Av, Montgomery	41.703145	-88.345038	4	Lateral Path
Winrock Pool	Park District	21 Winrock Rd, Montgomery	41.715158	-88.326358	5	Lateral Path
South Point Center	Park District	810 Preston Ln, Oswego	41.680629	-88.326098	6	Lateral Path
Bristol Bay Elementary	School	427 Bristol Bay Drive, Yorkville	41.712602	-88.432063	1	Lateral Path
Autumn Creek	School	2377 Autumn Creek Blvd, Yorkville	41.695529	-88.421600	8	Lateral Path
Aux Sable Middle	School	2001 Wildspring Parkway, Joliet	41.557683	-88.284773	13	Lateral Path
Charles Reed Elementary	School	2110 Clublands Parkway, Plainfield	41.559622	-88.264244	13	Lateral Path
Bristol Grade	School	23 Hunt Street, Bristol	41.689515	-88.428664	1	Lateral Path
Brokaw ELC	School	1000 Fifth Street, Oswego	41.695469	-88.294815	6	Lateral Path
Emily G Johns Intermediate	School	430 Mitchell Dr, Plano	41.657921	-88.502470	7	Lateral Path
Churchill	School	520 Secretariat Lane, Oswego	41.694410	-88.297336	6	Lateral Path



NAME	TYPE	ADDRESS	LATITUDE	LONGITUDE	RING	ANCHORTYPE
Circle Center Grade	School	901 Mill Street, Yorkville	41.635777	-88.444831	8	Lateral Path
Hunt Club	School	4001 Hunt Club Drive, Oswego	41.652912	-88.374955	8	Lateral Path
Jones Elementary	School	800 Barberry Way, Joliet	41.535870	-88.266545	13	Lateral Path
Long Beach	School	67 Long Beach Road, Montgomery	41.711220	-88.328087	5	Lateral Path
Lisbon Grade School	School	127 S Canal St, Newark	41.478002	-88.481640	11	Lateral Path
Plainfield South High	School	7800 W Caton Farm Rd, Plainfield	41.562710	-88.273145	13	Lateral Path
Plank	School	510 Secretariat Lane, Oswego	41.692780	-88.296972	6	Lateral Path
Plano Middle	School	804 S Hale St, Plano	41.655578	-88.532600	7	Lateral Path
Prairie Point	School	3650 Grove Road, Oswego	41.669496	-88.345600	10	Lateral Path
Plano Area Special Education Cooperative	School	800 S Hale St, Plano	41.656492	-88.532943	7	Lateral Path
Plano High	School	704 W Abe St, Plano	41.665839	-88.546713	1	Lateral Path
Southbury	School	820 Preston Lane, Oswego	41.681069	-88.325652	6	Lateral Path
Thomas Jefferson Elementary	School	1900 Oxford Way, Joliet	41.556015	-88.285476	13	Lateral Path
Yorkville Intermediate	School	103 Schoolhouse Road, Yorkville	41.634791	-88.446127	8	Lateral Path
Bristol Township Building	Township	9075 Cornells Rd, Bristol	41.691770	-88.429542	1	Lateral Path
Little Rock Township Building	Township	611 W Main St, Plano	41.660905	-88.544247	1	Lateral Path
Seward Township Building	Township	14719 O'Brien Rd, Minooka	41.508893	-88.331914	13	Lateral Path
Oswego Village Hall	City	100 Parkers Mill, Oswego	41.685986	-88.358051	4	Redundant Path
Newark Village Hall	City	101 Lions Ave, Newark	41.538799	-88.583780	7	Redundant Path
Plano City Hall	City	17 E Main St, Plano	41.663045	-88.536588	1	Redundant Path
Courthouse Building	County	807 John St, Yorkville	41.659290	-88.462157	7	Redundant Path
Health Department	County	811 John St, Yorkville	41.659228	-88.464869	7	Redundant Path
County Office Building	County	111 W Fox Street, Yorkville	41.639421	-88.448386	8	Redundant Path
Sheriff's Office	County	1102 Cornell Ln, Yorkville	41.657346	-88.462468	7	Redundant Path



NAME	TYPE	ADDRESS	LATITUDE	LONGITUDE	RING	ANCHOR TYPE
Bristol Kendall FPD Station 1	Fire	103 E Beaver St, Yorkville	41.631308	-88.448149	8	Redundant Path
Highway Department	County	6780 Route 47, Yorkville	41.621805	-88.447647	8	Redundant Path
Historic Courthouse	County	110 W Madison St, Yorkville	41.640367	-88.448102	8	Redundant Path
Joliet Fire Department Station 10	Fire	1599 John D. Paige Dr, Joliet	41.549087	-88.278905	13	Redundant Path
Lisbon - Seward FPD Station 1	Fire	104 S Canal St, Newark	41.659792	-88.502963	7	Redundant Path
Bristol Kendall FPD Station 2	Fire	2101 McHugh Rd, Yorkville	41.668910	-88.433432	8	Redundant Path
Bristol Kendall FPD Station 3	Fire	4400 Rosenwinkel St, Yorkville	41.704187	-88.435882	1	Redundant Path
Little Rock-Fox FPD Station 2	Fire	31 Hudson St, Millbrook	41.599228	-88.553730	7	Redundant Path
Little Rock-Fox FPD Station 3	Fire	300 Mitchell Dr, Plano	41.659792	-88.502963	7	Redundant Path
Lisbon-Seward FPD Station 2	Fire	6410 Chicago Rd, Yorkville	41.533671	-88.374253	12	Redundant Path
Little Rock-Fox FPD Station 1	Fire	5 E North St, Plano	41.663946	-88.537016	1	Redundant Path
Oswego FPD Station 2	Fire	2200 Wiesbrook Dr, Oswego	41.716086	-88.312473	5	Redundant Path
Newark Fire Department	Fire	101 E Main St, Newark	41.537323	-88.581926	11	Redundant Path
Oswego FPD Station 1	Fire	3511 Wooley Rd, Oswego	41.672448	-88.328085	10	Redundant Path
CB Phillips Library	Library	6 N Jackson St, Newark	41.537585	-88.581979	11	Redundant Path
Oswego FPD Station 4	Fire	27100 W 127th St, Plainfield	41.650885	-88.278151	10	Redundant Path
Yorkville Public Library	Library	902 Game Farm Rd, Yorkville	41.652536	-88.450251	8	Redundant Path
Little White School Museum	Park District	72 Polk St, Oswego	41.682598	-88.348798	4	Redundant Path
Boulder Point	Park District	0 Boulder Hill Pass, Montgomery	41.716109	-88.346807	4	Redundant Path
Oswego Police Department	Police	3355 Woolley Rd, Oswego	41.672309	-88.326222	10	Redundant Path
Prairie Point Center	Park District	313 E Washington St, Oswego	41.675694	-88.346778	10	Redundant Path
Fox Metro Wastewater Reclamation District	Sanitary	682 Route 31, Oswego	41.712762	-88.354486	3	Redundant Path
Yorkville Bristol Sanitary	Sanitary	304 River St, Yorkville	41.645055	-88.449277	8	Redundant Path
Plano Police Department	Police	111 E Main St, Plano	41.663353	-88.535619	1	Redundant Path
Yorkville Police Department	Police	800 Game Farm Rd, Yorkville	41.651632	-88.450587	8	Redundant Path



NAME	TYPE	ADDRESS	LATITUDE	LONGITUDE	RING	ANCHOR TYPE
Boulder Hill	School	163 Boulder Hill Pass, Montgomery	41.709354	-88.338692	4	Redundant Path
Centennial Elementary	School	800 S West St, Plano	41.655379	-88.536695	7	Redundant Path
Fox Chase	School	260 Fox Chase Drive North, Oswego	41.695607	-88.361872	3	Redundant Path
Grande Park	School	26933 Grande Park Boulevard, Plainfield	41.640406	-88.272176	9	Redundant Path
Grande Reserve	School	3142 Grande Trail, Yorkville	41.688526	-88.401954	2	Redundant Path
Millbrook Junior High	School	8411 Fox River Dr, Newark	41.597264	-88.554932	7	Redundant Path
Lakewood Creek	School	2301 Lakewood Creek Drive, Montgomery	41.714129	-88.398389	2	Redundant Path
Old Post	School	100 Old Post Road, Oswego	41.705076	-88.329714	5	Redundant Path
Oswego East High	School	1525 Harvey Road, Oswego	41.699850	-88.280386	6	Redundant Path
Murphy	School	26923 West Grande Park Boulevard, Plainfield	41.641816	-88.272362	9	Redundant Path
Newark Elementary and High	School	413 Chicago Rd, Newark	41.541736	-88.579298	7	Redundant Path
Oswego High	School	4250 Route 71, Oswego	41.682824	-88.341163	4	Redundant Path
PH Miller Elementary	School	904 N Lew St, Plano	41.671483	-88.535122	1	Redundant Path
Thompson	School	440 Boulder Hill Pass, Oswego	41.696320	-88.335207	4	Redundant Path
Traugher	School	570 Colchester, Oswego	41.670690	-88.331038	10	Redundant Path
Yorkville High School Academy	School	702 Game Farm Road, Yorkville	41.650556	-88.450163	8	Redundant Path
Yorkville Grade	School	201 W. Somonauk Street, Yorkville	41.649390	-88.449324	8	Redundant Path
Yorkville High	School	797 Game Farm Road, Yorkville	41.651892	-88.453011	8	Redundant Path
Fox Township Building	Township	8495 Fox River Dr, Millbrook	41.595693	-88.556979	7	Redundant Path
Yorkville Middle	School	920 Prairie Crossing Drive, Yorkville	41.617120	-88.422008	8	Redundant Path
Big Grove Township Building	Township	406 E Franklin St, Newark	41.532687	-88.578091	11	Redundant Path
Na-Au-Say Township Building	Township	1312 Wheeler Rd, Plainfield	41.592556	-88.282132	9	Redundant Path
Oswego Township Building	Township	99 Boulder Hill Pass, Montgomery	41.713794	-88.345891	4	Redundant Path
Kendall Township Building	Township	9925 Route 47, Yorkville	41.575929	-88.435779	11	Redundant Path




Appendix

Federal Broadband Grant Program Eligibility

FEDERAL AGENCY	GRANT PROGRAM	ELIGIBILITY STATUS	NOTES
Appalachian Regional Commission (ARC)	Area Development & Distressed Counties Programs	No	Not located in ARC footprint
	Central Appalachia & North Central/North Appalachia Broadband	No	Not located in ARC footprint
	Partnerships for Opportunity and Workforce and Economic Revitalization (POWER) Program	No	Not located in ARC footprint
Delta Regional Authority (DRA)	States Economic Development Assistance Program & Community Infrastructure Fund Program	No	Not located in DRA footprint
	Community Connect Grant Program	Yes (Select Areas)	Rural and must have 90 to 100% unserved at 10 Mbps / 1 Mbps
	Distance Learning and Telemedicine Grants	Yes (Select Areas)	Rural and must have 90 to 100% unserved at 10 Mbps / 1 Mbps
Department of Agriculture - Rural Development (USDA-RD)	ReConnect Program	Yes (Select Areas)	Rural and must have 90 to 100% unserved at 100 Mbps / 20 Mbps
	Rural Broadband Access Loans and Loan Guarantees	Yes (Select Areas)	Rural and must have 90 to 100% unserved at 10 Mbps / 1 Mbps
	Rural Economic Development Loan and Grant (REDLG) Program	No	Not an eligible applicant
	Rural Housing Service (RHS) Community Facilities (CF) Direct Loan and Grant Program	No	Not an eligible applicant
	Telecommunication Infrastructure Loans and Loan Guarantees	Yes (Select Areas)	Population cap is 5,000
Department of Commerce - Economic Development Administration (EDA)	FY 2022 Public Works and Economic Adjustment Assistance Program	No	County is not eligible based on Per Capita Income and Unemployment Rate requirements.
Department of Commerce - National Telecommunications and Information Administration (NTIA)	Broadband Equity, Access, and Deployment (BEAD) Program	Yes	County is an eligible applicant under federal IJA requirements, however the State of IL is currently considering changes to restrict eligibility for public entities to apply for funding
	Enabling Middle Mile Broadband Infrastructure Program	Yes	County is an eligible applicant
	Tribal Broadband Connectivity Program	No	Not a Tribal Entity



FEDERAL AGENCY	GRANT PROGRAM	ELIGIBILITY STATUS	NOTES
Department of Education (DOEd)	Alaska Native and Native Hawaiian-Serving Institutions Program	No	Not an eligible applicant
	American Indian Tribally Controlled Colleges and Universities Program	No	Not an eligible applicant
	Asian American and Native American Pacific Islander-Serving Institutions Program	No	Not an eligible applicant
	Governor's Emergency Education Relief Fund (GEER)	Yes (Secondary)	Local education agencies who receive funding from the State of IL can utilize program for broadband infrastructure deployment
	Elementary and Secondary School Emergency Relief Fund (ESSER)	Yes (Secondary)	Local education agencies who receive funding from the Department of Education can utilize program for broadband infrastructure deployment
	Higher Education Emergency Relief Fund	Yes (Secondary)	Eligible IHEs can apply for assistance to support educational technology needs
	Impact Aid Programs	Yes (Secondary)	Eligible local education agencies can apply for assistance to support educational technology needs
	Native American-Serving Non-Tribal Institutions Program	No	Not an eligible applicant
	Promise Neighborhoods Program	Yes (Secondary)	Eligible local education agencies can apply for assistance to support educational technology needs
	Rural, Low-Income School (RLIS) Program	Yes (Secondary)	Eligible local education agencies can apply for assistance to support educational technology needs
	Small, Rural School Achievement (SRSA) Program	Yes (Secondary)	Eligible local education agencies can apply for assistance to support educational technology needs
	Title I, Part A, Improving Basic Programs Operated by Local Education Agencies Program	Yes (Secondary)	Eligible local education agencies can apply for assistance to support educational technology needs
	Title III, Part A, Strengthening Institutions Program	Yes (Secondary)	Eligible IHEs can apply for assistance to support educational technology needs
	Title III, Part B, Strengthening Historically Black Colleges and Universities Program	No	Not an eligible applicant
	Title IV, Part A, Student Support and Academic Enrichment Program	Yes (Secondary)	State education agencies can apply for funding to support the use of technology in order to improve the academic achievement and digital literacy for all students.



Federal Broadband Grant Program Matrix (Primary)

FEDERAL AGENCY	GRANT PROGRAM	MAX. GRANT	PROGRAM CAPACITY	FUNDING TYPE	ELIGIBLE PROJECT ACTIVITIES	ELIGIBLE ENTITIES	MATCH REQUIRED
Department of Agriculture - Rural Development (USDA-RD)	Community Connect Grant Program	\$3,000,000	\$35,000,000	Grants	Infrastructure Development, Adoption & Digital Literacy and Public Computer Access	State and Local Government, Tribal Entities, Non-Profits, Private Corporations, LLCs	15%
	Distance Learning and Telemedicine Grants	\$1,000,000	\$60,000,000	Grants	Infrastructure Development, Adoption & Digital Literacy and Distance Learning & Telemedicine Equipment	State and Local Government, Tribal Entities, Non-Profits, Private Corporations, LLCs	15%
	ReConnect Program	\$25,000,000 (Grant)/ \$50,000,000 (Loan)	\$565,000,000	Grants, Combination Grant/Loan and Loans Only	Infrastructure Development, Acquisition of Facilities, Equipment and Professional Services	State and Local Government, Tribal Entities, Non-Profits, Private Corporations, LLCs	25%
	Rural Broadband Access Loans and Loan Guarantees	N/A	\$11,200,000	Loan and Loan Guarantees	Infrastructure Development	State and Local Government, Tribal Entities, Private Corporations, LLCs	N/A
	Telecommunication Infrastructure Loans and Loan Guarantees	N/A	\$690,000,000	Loan and Loan Guarantees	Infrastructure Development	State and Local Government, Tribal Entities, Private Corporations, LLCs	N/A
Department of Commerce - National Telecommunications and Information Administration (NTIA)	Broadband Equity, Access, and Deployment (BEAD) Program	Not Specified	\$42,450,000,000	Grants	Planning & Broadband Infrastructure	States (Formula Allocation), Subgrantees: Local Government, Utility Company, Non-Profits, Co-Ops, For-Profits, Regional Planning Commissions	25%
	Enabling Middle Mile Broadband Infrastructure Program	Not Specified	\$1,000,000,000 (over 5 years)	Grants	Middle Mile Broadband Infrastructure	States (Formula Allocation), Subgrantees: Local Government, Utility Company, Non-Profits, Co-Ops, For-Profits, Regional Planning Commissions	30%
	Community Development Block Grant (CDBG)	Amounts Vary (Typical Award is <\$500,000)	\$3,475,000,000	Grants & Loan Guarantees (Sec. 108)	Infrastructure Development, Adoption & Digital Literacy, Planning and Public Computer Access	Local Government	0% (Entitlement Communities)
Department of Housing and Urban Development (HUD)	Choice Neighborhoods - Planning	\$450,000	\$5,000,000	Grants	Planning	Local Government	0%
	Choice Neighborhoods - Implementation	\$35,000,000	\$195,000,000	Grants	Infrastructure Development, Adoption & Digital Literacy	Local Government	5%
Department of Transportation	Rebuilding American Infrastructure With Sustainability and Equity (RAISE) Grant Program	\$1,000,000 (Rural) \$5,000,000 (Urban)	\$1,500,000,000	Grants	Planning, Capital Projects (Surface transportation projects), Innovative Technologies	State and Local Government, Transit Agencies, Port Authorities, and MPOs	20%
Department of Homeland Security - Federal Emergency Management Agency	Building Resilient Infrastructure and Communities	\$600,000 (State) \$50,000,000 (Competitive)	\$500,000,000	Grants	Infrastructure Development and Planning	State and Local Government	25%



United States Department of Agriculture Rural Development

1. Community Connect Grant Program

CFDA Number: 10.863

Application Deadline: Spring 2022 (Anticipated)

Overview: The Community Connect Grant Program is authorized by the Consolidated Appropriations Acts of 2004 (P.L. 108-199), 2017 (P.L. 115-31) and 2018 (P.L. 115-141) to finance broadband transmission infrastructure in rural areas.

Purpose: The purpose of this grant program is to provide funding for broadband service in rural, economically challenged communities where service does not currently exist.

Description: The program funds the following eligible project categories:

- Infrastructure Development
- Adoption and Digital Literacy and
- Public Computer Access

Eligible Project Activities:

- Construction, acquisition or leasing of facilities, including spectrum, land, towers or building used to deploy service to all residential and business customers in the proposed service area
- Improvement, expansion, construction or acquisition of a Community Center to provide free access to broadband for public access 7 days a week. Grant funds provided for the Community Center cannot exceed the lesser of 10% of the total grant amount requested or \$150,000
- Funding for at least two but no more than ten Computer Access Points to be used in the Community Center
- Cost of providing the necessary bandwidth to provide service free of charge to the Critical Community Facilities for two years

Eligible Applicants: Eligible applicants include:

- Incorporated organization,
- Indian Tribe or Tribal Organization, as defined in 25 U.S.C. 450b(e)
- State or Local unit of Government
- Cooperative, private corporation or limited liability company organized on a for-profit or non-profit basis

In addition to eligibility requirements listed above, applicants must also meet the following eligibility requirements:

- A project must also be located in rural areas with a population of 20,000 or less [D.1]
- Serve a Proposed Funded Service Area where broadband services (10 Mbps / 1 Mbps) do not currently exist [D.2]
- The applicant must agree to offer service at 25 Mbps / 3 Mbps to all residential and business customers within the service area
- Provide broadband service at no charge for at least two years for each Critical Community Facility located within the service area,
- Provide a Community Center in the service area with at least two Computer Access Points and wireless access at 25 Mbps / 3 Mbps at no charge for at least two years and
- Not overlap with the service areas of current USDA Rural Utilities Service borrowers and grantees.

Total Funding Available (Based on FY 2022 Appropriations):

- \$35 Million

Award Floor: \$100,000

Award Ceiling: \$3,000,000

Grant Match: Grant recipients are required to provide matching contributions in cash or in-kind equal to 15% of the grant amount requested.

Period of Performance: Not specified

Special Requirements: The program requires Grant recipients to comply with various federal statutes and regulations including,

- NEPA Environmental Requirements,
- Flood Hazard Area Precautions,
- Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970,
- Americans with Disabilities Act and
- Non-Duplication of Services

Program Point of Contact(s): A listing of USDA – RD State Offices [D.3]

2. Distance Learning and Telemedicine Grant Program

CFDA Number: 10.855

Application Deadline: Spring 2022 (Anticipated)

Overview: Since 1994, the Distance Learning and Telemedicine (DLT) Grant program has helped to establish hundreds of distance learning and telemedicine systems improving the quality of life for thousands of residents in rural communities across the United States.

Purpose: The purpose of this grant program is to assist rural communities in acquiring distance learning and telemedical technologies to provide the link between local teachers and medical service providers who serve rural residents and other professionals located at distances too far to access otherwise.

Description: The program funds the following eligible project categories:

- Acquiring, by lease or purchase, eligible equipment,
- Acquiring instructional programming, and

REFERENCE

[D.1] USDA Rural Development (2022). ReConnect Program Service Area Map. Available at: <https://ruraldevelopment.maps.arcgis.com/apps/webappviewer/index.html?id=51bbfce8e72549dcb5374d0aa32e1736&marker=-76.72645218999997%2C39.91993168400005%2C%2C%2C%2C&markertemplate=%7B%22title%22%3A%22%22%2C%22longitude%22%3A-76.72645218999997%2C%22latitude%22%3A39.91993168400005%2C%22isIncludeShareUrl%22%3Atrue%7D&level=10>

[D.2] Federal Communications Commission (2022). Fixed Broadband Deployment. Available at: https://broadbandmap.fcc.gov/#/area-summary?version=dec2019&type=county&geoid=42133&tech=acf&speed=10_1&vlat=39.973532745247525&vlon=-76.68805750000001&vzoom=9.063608462023724

[D.3] Rural Development, U.S. Department of Agriculture. State Offices. Available at: <https://www.rd.usda.gov/about-rd/state-offices>



- Providing technical assistance and instruction for using eligible equipment.

Eligible Project Activities:

- Computer hardware and software
- Site licenses and maintenance contracts
- Extended warranties (up to 3 years)
- Audio and video equipment
- Computer network components
- Telecommunications terminal equipment
- Data terminal equipment
- Interactive audio/visual equipment
- Inside wiring
- Broadband facilities, if owned by the applicant (20% of project budget limit)
- Instructional programming that is a capital asset, including the purchase or lease of instructional programming already on the market,
- Related software,
- Providing engineering and environmental studies relating to the establishment or expansion of the phase of the project to be financed with the grant (not to exceed 10% of the grant amount requested)

Eligible Applicants: Eligible applicants include:

- An Indian Tribe or Tribal Organization
- State or Local unit of Government
- Consortium
- Other legal entity, including a private corporation organized on a for-profit or non-profit basis A project must also be located in rural areas with a population of 20,000 or less [D.1].

Total Funding Available (Based on FY 2022 Appropriations):

- \$60 Million

Award Floor: \$50,000 **Award Ceiling:** \$1,000,000

Grant Match: Grant recipients are required to provide matching contributions in cash or in-kind equal to 15% of the grant amount requested.

Period of Performance: Not specified

Special Requirements: The program requires Grant recipients to comply with various federal statutes and regulations including,

- NEPA Environmental Requirements,
- Flood Hazard Area Precautions,
- Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970,
- Americans with Disabilities Act and
- Non-Duplication of Services

Program Point of Contact(s): A listing of USDA – RD State offices [D.3]

3. ReConnect Program

CFDA Number: 10.752

Application Deadline: November 2, 2022

Overview: The ReConnect Grant Program is authorized by the Consolidated Appropriations Acts of 2018 (P.L. 115141) and the Rural Electrification Act of 1936, 7 U.S.C. 901 et seq. to finance broadband transmission infrastructure in rural areas.

Purpose: The purpose of this grant program is to expand broadband service in rural areas without sufficient access to broadband, defined as 100 megabits per second (Mbps) downstream and 20 Mbps upstream.

Description: The ReConnect Program furnishes loans and grants to provide funds for the costs of construction, improvement, or acquisition of facilities and equipment needed to provide broadband service in eligible rural areas.

Eligible Project Activities:

- Construction, acquisition or leasing of facilities, including spectrum, land, towers or building used to deploy service to all residential and business customers in the proposed service area,
- Pre-application expenses (up to 5% of the award amount),
- Acquisition and improvement of an existing system that is currently providing insufficient broadband service (100% Loan option only) and
- Terrestrial based facilities that support the provision of satellite broadband service.

Eligible Applicants: Eligible applicants include:

- Cooperatives, non-profits or mutual associations,
- For-profit corporations or limited liability companies,
- States, local governments or any agency, subdivision, or political subdivision thereof,
- A territory or possession of the U.S. and
- An Indian Tribe or Tribal Organization, as defined in 25 U.S.C. 450b.

In addition to eligibility requirements listed above, applicants must also meet the following eligibility requirements:

REFERENCE

[D.1] USDA Rural Development (2022). ReConnect Program Service Area Map. Available at: <https://ruraldevelopment.maps.arcgis.com/apps/webappviewer/index.html?id=51bbf8e72549dcb5374d0aa32e1736&marker=-76.72645218999997%2C39.91993168400005%2C%2C%2C&markertemplate=%7B%22title%22%3A%22%22%2C%22longitude%22%3A-76.72645218999997%2C%22latitude%22%3A39.91993168400005%2C%22isIncludeShareUrl%22%3A-true%7D&level=10>

[D.3] Rural Development, U.S. Department of Agriculture. State Offices. Available at: <https://www.rd.usda.gov/about-rd/state-offices>



- A project must also be located in rural areas with a population of 20,000 or less [D.1].
- Serve a Proposed Funded Service Area where broadband services (100 Mbps / 20 Mbps) do not currently exist [D.2]:
 - 90% of the service area (50% Grant / 50% Loan Option and 100% Loan Option)
 - 100% of the service area (100% Grant Option)
- The applicant must agree to offer service at a minimum of 25 Mbps / 3 Mbps to all residential and business customers within the service area and
- Not overlap with the service areas of current USDA Rural Utilities Service borrowers and grantees.

Total Funding Available (Based on FY 2022 Appropriations):

- \$565 Million

Award Floor: \$100,000

Award Ceiling: \$25 Million (100% Grant Option); \$50 Million (50% Grant / 50% Loan Option); \$50 Million (100% Loan Option)

Grant Match: Recipients of the 100% Grant Option are required to provide matching contributions in cash or in-kind equal to 25% of the grant amount requested.

Period of Performance: 60 Months

Special Requirements: The program requires Grant recipients to comply with various federal statutes and regulations including,

- NEPA Environmental Requirements,
- Flood Hazard Area Precautions,
- Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970,
- Americans with Disabilities Act and
- Non-Duplication of Services

Program Point of Contact(s): A listing of USDA – RD State offices [D.3]

4. Rural Broadband Access Loans and Loan Guarantees

CFDA Number: 10.886

Application Deadline: Applications are accepted on a rolling basis through September 30, 2022.

Overview: The Rural Broadband Access Loan and Loan Guarantee Program is authorized by the Rural Electrification Act (7 U.S.C. 901 et seq.), as amended by the Agricultural Act of 2014 (Pub. L. 113–79), also referred to as the 2014 Farm Bill. The program was also reauthorized in the 2018 Farm Bill, through fiscal year 2023.

Purpose: The purpose of this grant program is to provide funding for projects that offer broadband service at or beyond specific broadband lending speeds, which are determined by the RUS in the respective publication in the Federal Register. RUS established the minimum rate-of-data transmission of 25 megabits downstream and 3 megabits upstream for both mobile and fixed service.

Description: The program funds the following eligible loan types:

- Cost-of-Money Loans in the form of direct loans from the USDA Rural Utilities Service,
- Direct 4-Percent Loans which bear interest at 4 percent on each advance made to the borrower and
- Other Loan Guarantees provided by third party lenders, of which the RUS will guarantee up to 80 percent of the principal amount of the loan.

Eligible Project Activities:

- Construction, improvement and acquisition of all facilities required to provide service at the minimum speed established by the USDA,
- Cost of leasing facilities required to provide service is the lease qualifies as a capital lease under Generally Acceptable Accounting Procedures (GAAP),
- Acquisition of facilities, portions of an existing system and/or another company (up to 50% of the requested loan amount),
- Refinancing of an outstanding obligation from another telecommunications loan made by the USDA (up to 40% of the requested amount) and
- Pre-loan expenses including market surveys, consultant costs and fees (up to 5% of the requested amount).

Eligible Applicants: Eligible applicants include:

- Corporation,
- Limited Liability Company,
- Cooperative or mutual organization,
- Indian Tribe or Tribal Organization, as defined in 25 U.S.C. 450b and
- State or Local unit of Government.

In addition to eligibility requirements listed above, applicants must also meet the following eligibility requirements:

- A project must also be located in rural areas with a population of 20,000 or less [D.1],
- At least 15% of the households in the Proposed Funded Service Area do not have access to broadband service [D.2],
- No part of the Proposed Funded Service Area has three or more incumbent service providers and
- Non-duplicative of other borrowers or service areas funded by the RUS Telecommunications Program.

Total Funding Available (Based on FY 2022 Appropriations):

- \$11.2 Million

Award Floor: \$100,000

Award Ceiling: \$25,000,000

REFERENCE

[D.1] USDA Rural Development (2022). ReConnect Program Service Area Map. Available at: <https://ruraldevelopment.maps.arcgis.com/apps/webappviewer/index.html?id=51bbf8e8e72549dcb5374d0aa32e1736&marker=-76.72645218999997%2C39.91993168400005%2C%2C%2C%2C&markertemplate=%7B%22title%22%3A%22%22%2C%22longitude%22%3A-76.72645218999997%2C%22latitude%22%3A39.91993168400005%2C%22isIncludeShareUrl%22%3Atrue%7D&level=10>

[D.2] Federal Communications Commission (2022). Fixed Broadband Deployment. Available at: https://broadbandmap.fcc.gov/#/area-summary?version=dec2019&type=county&geoid=42133&tech=acf&speed=10_1&vlat=39.973532745247525&vlon=-76.68805750000001&vzoom=9.063608462023724

[D.3] Rural Development, U.S. Department of Agriculture. State Offices. Available at: <https://www.rd.usda.gov/about-rd/state-offices>



Grant Match: As a condition to financing, an applicant must demonstrate an equity contribution in an amount that is at least 10% of the requested loan amount at the time of application submission.

Period of Performance: Loan terms are based upon the USDA's determination of the project's useful life plus three years.

Special Requirements: The program requires Grant recipients to comply with various federal statutes and regulations including,

- NEPA Environmental Requirements,
- Flood Hazard Area Precautions,
- Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970,
- Americans with Disabilities Act and
- Non-Duplication of Services

Program Point of Contact(s): A listing of USDA – RD State offices [D.3]

5. Telecommunication Infrastructure Loans and Loan Guarantees

CFDA Number: 10.851

Application Deadline: Applications are accepted on a rolling basis through September 30, 2022.

Overview: The Telecommunications Infrastructure Loan and Loan Guarantee Program is authorized by the Rural Electrification Act (7 U.S.C. 901 et seq.), Titles II and III, 7 U.S.C. 921, 922924, and 930-940.

Purpose: The purpose of this grant program is to provide financing for the construction, maintenance, improvement and expansion of telephone service and broadband in rural areas.

Description: The program funds the following eligible loan types:

- Cost-of-Money Loans in the form of direct loans from the USDA Rural Utilities Service,
- Loan Guarantees through the Federal Financing Bank (FFB), and
- Hardship Loans in the form of direct loans from the USDA Rural Utilities Service.

Eligible Project Activities:

- Construction, improvement and acquisition of all facilities required to provide service at the minimum speed established by the USDA,
- Acquisition of facilities, portions of an existing system and/or another company (up to 50% of the requested loan amount), and
- Refinancing an outstanding obligation from another telecommunications loan made by the USDA (up to 40% of the requested amount).

Eligible Applicants: Eligible applicants include:

- Corporation,
- Limited Liability Company,
- Cooperative or mutual organization,
- Indian Tribe or Tribal Organization, as defined in 25 U.S.C. 450b and
- State or Local unit of Government.

In addition to eligibility requirements listed above, applicants must also meet the following eligibility requirements:

- A project must also be located in rural areas with a population of 5,000 or less [D.1],
- Non-duplicative of other borrowers or service areas funded by the RUS Telecommunications Program.

Total Funding Available (Based on FY 2022 Appropriations):

- \$690 Million

Award Floor: \$50,000

Award Ceiling: No limit has been specified by the USDA for this program.

Grant Match: As a condition to financing, an applicant must demonstrate an equity contribution in an amount that is at least 10% of the requested loan amount at the time of application submission.

Period of Performance: Loan terms are based upon the USDA's determination of the project's useful life plus three years.

Special Requirements: The program requires Grant recipients to comply with various federal statutes and regulations including,

- NEPA Environmental Requirements,
- Flood Hazard Area Precautions,
- Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970,
- Americans with Disabilities Act and
- Non-Duplication of Services

Program Point of Contact(s): A listing of USDA – RD State offices [D.3].

United States Department of Housing and Urban Development

6. Community Development Block Grant (CDBG) – Non-Entitlement Communities

CFDA Number: 14.218

Application Deadline: Summer 2022 (Anticipated)

Overview: The Community Development Block Grant (CDBG) Program provides annual grants on a formula basis to states, cities, and counties to develop viable urban communities by providing decent housing and a suitable living environment, and by expanding economic opportunities, principally for low and moderate-income persons. The program is authorized under Title 1 of the Housing and Community Development Act of 1974, Public Law 93-383, as amended 42 U.S.C. 5301 et seq.

Purpose: The purpose of this grant program is to assist in the development of communities with respect the development of housing, suitable living environments and economic

REFERENCE

[D.1] USDA Rural Development (2022). ReConnect Program Service Area Map. Available at: <https://ruraldevelopment.maps.arcgis.com/apps/webappviewer/index.html?id=51bbf8e8e72549dcb5374d0aa32e1736&marker=-76.72645218999997%2C39.91993168400005%2C%2C%2C&markertemplate=%7B%22title%22%3A%22%22%2C%22longitude%22%3A-76.72645218999997%2C%22latitude%22%3A39.91993168400005%2C%22isIncludeShareUrl%22%3A-true%7D&level=10>

[D.3] Rural Development, U.S. Department of Agriculture. State Offices. Available at: <https://www.rd.usda.gov/about-rd/state-offices>



opportunities primarily for persons with low and moderate incomes.

Description: The program funds the following eligible project categories:

- Economic Development,
- Homeownership Assistance,
- House Rehabilitation,
- Housing Acquisition,
- Land Acquisition to Support New Housing
- Microenterprise Programs,
- New Housing Construction or
- Public Facilities and Improvements

Eligible Project Activities:

- Acquisition of real property,
- Disposition of real property,
- Acquisition, construction, reconstruction, rehabilitation or installation of public facilities and improvements,
- Clearance, demolition and removal of buildings and improvements,
- Provision of public services which are directed toward improving the community's public services and facilities,
- Privately owned utilities including the acquisition, construction, reconstruction, rehabilitation or installation of distribution lines and facilities of privately-owned utilities,
- Assistance to facilitate economic development,
- Technical assistance,
- Digital literacy classes as a public service under 24 CFR 570.201(e),
- Assistance to institutions of Higher Education and
- Homeownership assistance.

Eligible Applicants: Eligible Entitlement applicants include:

- Principal cities of Metropolitan Statistical Areas (MSAs)
- Other metropolitan cities with populations of at least 50,000
- Qualified urban counties with populations of at least 200,000 (excluding the population of entitled cities)

Eligibility for participation as an entitlement community is based on population data provided by the U.S. Census Bureau and metropolitan area delineations published by the Office of Management and Budget. HUD determines the amount of each entitlement grantee's annual funding allocation by a statutory dual formula which uses several objective measures of community needs, including the extent of poverty, population, housing overcrowding, age of housing and population growth lag in relationship to other metropolitan areas.

Total Funding Available (Based on FY 2022 Appropriations):

- \$3.475 Billion

Award Floor: Not specified

Award Ceiling: Limit determined by formula-based allocation

Grant Match: No match or cost share is required for this program, however applicants who leverage other funds.

Period of Performance: The length of the project period is generally based on the implementation schedule submitted by the applicant and approved by HUD.

Special Requirements: It is required that the applicant demonstrate that at least 70% of the grant funding will be utilized for activities that benefit Low-to-Moderate Income persons in accordance with 24 CFR 1003.208. Low-to-Moderate Income means a family, household or individual whose income does not exceed 80% of the median income for the area.

The program requires Grant recipients to comply with various federal statutes and regulations including,

- NEPA Environmental Requirements,
- Flood Hazard Area Precautions,
- Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970,
- Americans with Disabilities Act and
- Non-Duplication of Services

Program Point of Contact(s): A listing of U.S. Department of Housing and Urban Development offices [D.4]

7. Neighborhoods – Planning

CFDA Number: 14.892

Application Deadline: July 28, 2022

Overview: This program helps communities transform neighborhoods by redeveloping severely distressed public and/or HUD assisted housing and catalyzing improvements in the neighborhood, property, housing, businesses, services and schools.

Purpose: The purpose of this grant program is to leverage public and private investment to support locally driven strategies that address struggling neighborhoods through a comprehensive approach for transformation.

Description: The program funds the following eligible project categories:

- Planning
- Action Activities

Eligible Project Activities (Planning Category):

- Performing comprehensive needs assessments to inform the development of the Transformation Plan,
- Performing comprehensive and integrated planning that addresses the challenges and gaps in services and assets identified through the needs assessments,
- Conducting technical planning studies concerning local development issues, priorities or suggested approaches,

REFERENCE

[D.4] U.S. Department of Housing and Urban Development (2022). Community Planning and Development. Available at: https://www.hud.gov/program_offices/comm_planning



- Developing Transformation Plans, including governance strategy that will provide longterm accountability and secure commitments to collaborate long-term to ensure successful implementation,
- Conducting public hearings, meetings, websites, etc. for stakeholder involvement regarding the Transformation Plan,
- Data collection and analysis to track impacts and
- Conducting site visits, research or participating in community of practice.

Eligible Project Activities (Action Activities Category):

- Reclaiming and recycling vacant property into community gardens, pocket parks, farmers markets or land banking (with maintenance),
- Beautification, placemaking and community arts projects, such as creative signage to enhance neighborhood branding, murals and sculptures, specialty streetscaping or garden tool loan programs,
- Owner-occupied home or business façade improvement programs,
- Neighborhood broadband/WiFi infrastructure and installation (service not eligible through the grant),
- Fresh food initiatives, such as farmers markets and mobile fresh food vendors and
- Gap financing for economic development projects that are ready for implementation.

Eligible Applicants: Eligible applicants include:

- Public Housing Authorities,
- Local governments,
- Tribal entities and
- Non-profits who hold a 501(c) status.

Regarding Public Housing Authorities in Troubled Status, HUD will determine whether the entity is eligible to apply for the grant.

Total Funding Available (Based on FY 2022 Appropriations):

- \$5 Million

Award Floor: Not specified Award Ceiling: \$450,000 Grant Match: 5%

Period of Performance: 24 Months (Planning Grant)

42 Months (Planning and Action Grant)

Special Requirements: The program requires Grant recipients to comply with the following special statutes and regulations including:

- Resolution of Civil Rights Matters,
- Outstanding Delinquent Federal Debts,
- Debarments and/or Suspensions,
- Pre-selection Review of Performance,
- Sufficient of Financial Management System,
- False Statements,
- Mandatory Disclosure Requirement,
- Prohibition Against Lobbying Activities and
- Equal Participation of Faith-Based Organizations in HUD Programs and Activities

The program also requires Grant recipients to comply with the following additional requirements:

- NEPA Environmental Requirements,
- Flood Hazard Area Precautions,
- Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970,
- Americans with Disabilities Act and
- Non-Duplication of Services.

Program Point of Contact(s): The Choice Neighborhoods Program Office can be contacted by Email.

8. Choice Neighborhoods – Implementation

CFDA Number: 14.889

Application Deadline: Spring 2023 (Anticipated)

Overview: This program helps communities transform neighborhoods by redeveloping severely distressed public and/or HUD assisted housing and catalyzing improvements in the neighborhood, property, housing, businesses, services and schools.

Purpose: The purpose of this grant program is to leverage public and private investment to support locally driven strategies that address struggling neighborhoods through a comprehensive approach for transformation.

Description: The Choice Neighborhoods is focused on three core goals:

1. Housing: Replace severely distressed public and assisted housing with high-quality mixed-income housing that is well-managed and responsive to the needs of the surrounding neighborhood;
2. People: Improve outcomes of households living in the target housing related to employment and income, health, and children's education; and
3. Neighborhood: Create the conditions necessary for public and private reinvestment in distressed neighborhoods to offer the kinds of amenities and assets, including safety, good schools, and commercial activity, that are important to families' choices about their community.

Eligible Project Activities:

- Construction, acquisition or rehabilitation of public, assisted, and affordable housing (available to households earning 80 -120 percent of AMI) that incorporates sustainable design principles, including energy efficiency,
- Acquisition, demolition or disposition of properties, including Federal Housing Administration-Real Estate Owned properties,
- Providing supportive supports for residents,
- Partnering with employers and for-profit and non-profit organizations to create jobs and job training opportunities,
- Relocation assistance under Section 8 of the United States Housing Act of 1937,
- Activities that promote sustainable neighborhoods and incorporate principles of sustainable design and development,



- Critical community improvements as define further below,
- Endowments,
- Conversion of vacant or foreclosed properties,
- Architectural and engineering work,
- Administrative costs and
- Legal fees.

The program also allows for up to 15% of funding to be utilized for Critical Community Improvements for the following activities:

- Financing for commercial and economic development projects,
- Neighborhood business façade improvement programs,
- Place-making projects,
- Neighborhood broadband,
- Revolving loan funds for business attraction and retention,
- Streetscape improvements above and beyond the locality's norm,
- Programs to improve housing in the neighborhood surrounding the target housing subject of this application and
- Acquisition of underutilized land for new parks, community gardens, community facilities or other uses approved by HUD.

Eligible Applicants: Eligible applicants include:

- Public Housing Authorities,
- Local governments,
- Tribal entities and
- Non-profits who hold a 501(c) status.

Total Funding Available (Based on FY 2022 Appropriations):

- \$195 Million

Award Floor: Not specified

Award Ceiling: \$35 Million

Grant Match: 5%

Period of Performance: 72 Months

Special Requirements: The program requires Grant recipients to comply with the following special statutes and regulations including:

- Resolution of Civil Rights Matters,
- Outstanding Delinquent Federal Debts,
- Debarments and/or Suspensions,
- Pre-selection Review of Performance,
- Sufficient of Financial Management System,
- False Statements,
- Mandatory Disclosure Requirement,
- Prohibition Against Lobbying Activities and
- Equal Participation of Faith-Based Organizations in HUD Programs and Activities

The program also requires Grant recipients to comply with the following additional requirements:

- NEPA Environmental Requirements,
- Flood Hazard Area Precautions,
- Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970,
- Americans with Disabilities Act and
- Non-Duplication of Services.

Program Point of Contact(s): The Choice Neighborhoods Program Office can be contacted by Email.

United States Department of Transportation

9. Rebuilding American Infrastructure With Sustainability and Equity (RAISE) Grant Program

CFDA Number: 20.933

Application Deadline: April 14, 2022

Overview: The Consolidated Appropriations Act, 2021 (Pub. L. 116-260) appropriated \$1 billion to be awarded by the U.S. Department of Transportation ("DOT") for National Infrastructure Investments (now known as Rebuilding American Infrastructure with Sustainability and Equity (RAISE) Grants.) RAISE Grants (formerly known as the BUILD grant) are for capital investments in surface transportation that will have a significant local or regional impact.

Purpose: The focus of this program is to fund critical improvements to local, state, and federal transportation infrastructure that result in good-paying jobs, improve safety, apply transformative technology, and explicitly address climate change and racial equity.

Description: The program funds the following eligible broadband related project aspects. Innovative Technologies including:

- Conflict detection and mitigation technologies (e.g., intersection alerts and signal prioritization);
- Dynamic signaling, smart traffic signals, or pricing systems to reduce congestion;
- Traveler information systems, to include work zone data exchanges;
- Signage and design features that facilitate autonomous or semi-autonomous vehicle technologies;
- Applications to automatically capture and report safety-related issues (e.g., identifying and documenting nearmiss incidents);
- Vehicle-to-Everything V2X Technologies (e.g. technology that facilitates passing of information between a vehicle and any entity that may affect the vehicle);
- Vehicle-Infrastructure (V2I) Technologies (e.g., digital, physical, coordination, and other infrastructure technologies and systems that allow vehicles to interact with transportation infrastructure in ways that improve their mutual performance);



- Vehicle-to-Grid Technologies (e.g., technologies and infrastructure that encourage electric vehicle charging, and broader sustainability of the power grid);
- Cybersecurity elements to protect safety-critical systems;
- Broadband deployment and the installation of high-speed networks concurrent with the transportation project construction;
- Technology at land and sea ports of entry that reduces congestion, wait times, and delays, while maintaining or enhancing the integrity of our border;
- Work Zone data exchanges or related data exchanges; or
- Other Intelligent Transportation Systems (ITS) that directly benefit the project's users.

Eligible Project Activities:

- Planning: Activities eligible for funding under RAISE planning grants are related to the planning, feasibility, preparation, or design of eligible surface transportation capital projects.
- Capital Projects: Eligible projects for RAISE grants are surface transportation capital projects within the United States or any territory or possession of the United States that include, but are not limited to:
 - highway, bridge, or other road projects eligible under title 23, United States Code;
 - public transportation projects eligible under chapter 53 of title 49, United States Code;
 - passenger and freight rail transportation projects;
 - port infrastructure investments (including inland port infrastructure and land ports of intermodal projects);
 - projects investing in surface transportation facilities that are located on Tribal land and for which title or maintenance responsibility is vested in the Federal Government.

Eligible Applicants: Eligible applicants include:

- State, local, Tribal and U.S. territories' governments
- Transit agencies
- Port Authorities
- Metropolitan Planning Organizations (MPOs)
- Other political subdivisions of State or local governments

Total Funding Available (Based on FY 2022 Appropriations):

- \$1.5 Billion
- Award Floor:
- Capital Projects: \$5 Million/\$1 Million (Rural Areas)
- Planning: There is no minimum award size for RAISE planning grants, regardless of location.

Award Ceiling: \$25 Million

Grant Match: 20%

Period of Performance: All FY 2022 RAISE funds must be expended by September 30, 2030.

Special Requirements: The primary selection criteria are:

- Safety,
- Environmental sustainability,
- Quality of life,
- Economic competitiveness, and
- State of good repair.

The secondary selection criteria are:

- Partnership and
- Innovation

If an applicant is proposing to adopt innovative technology, the application should demonstrate the applicant's capacity to implement those innovations and understanding of applicable Federal requirements, including permitting, approvals, exemptions, waivers, or other procedural actions, and the effects of those innovations on the project delivery timeline. Additionally, each applicant selected for RAISE grant funding must demonstrate effort to consider climate change and environmental justice impacts and improve racial equity and reduce barriers to opportunity.

The program also requires Grant recipients to comply with the following additional requirements:

- NEPA Environmental Requirements,
- Flood Hazard Area Precautions,
- Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970,
- Americans with Disabilities Act and
- Non-Duplication of Services.

Program Point of Contact(s): The RAISE Grant Program Office can be contacted by E-mail

United States Department of Homeland Security Federal Emergency Management Agency

10. Building Resilient Infrastructure and Communities

CFDA Number: 97.047

Application Deadline: January 27, 2023

Overview: The Building Resilient Infrastructure and Communities (BRIC) program makes federal funds available to states, U.S territories, Indian tribal governments, and local communities for pre-disaster mitigation activities.

Purpose: The guiding principles of the program are to:

1. support state and local governments, tribes, and territories through capability and capacity-building to enable them to identify mitigation actions and implement projects that reduce risks posed by natural hazards;
2. encourage and enable innovation while allowing flexibility, consistency, and effectiveness;
3. promote partnerships and enable high-impact investments to reduce risk from natural hazards with a focus on critical services and facilities, public infrastructure, public safety, public health, and communities;
4. provide a significant opportunity to reduce future losses and minimize impacts on the Disaster Relief Fund; and



5. support the adoption and enforcement of building codes, standards, and policies that will protect the health, safety, and general welfare of the public, take into account future conditions, and have long-lasting impacts on community risk reduction, including for critical services and facilities and for future disaster costs.

Description: The program funds the following eligible project categories:

- Capacity and Capacity-Building (C&CB): Activities which enhance the knowledge, skills, expertise, etc., of the current workforce to expand or improve the administration of mitigation assistance. This includes activities in the following sub-categories:
 - building codes activities,
 - partnerships,
 - project scoping,
 - mitigation planning and planning-related activities,
 - and other activities
- Mitigation Projects: Cost-effective projects designed to increase resilience and public safety; reduce injuries and loss of life; and reduce damage and destruction to property, critical services, facilities, and infrastructure.
- Management Costs: Financial assistance to reimburse the Recipient and subrecipient for eligible and reasonable indirect costs, direct administrative costs, and other administrative expenses associated with a specific mitigation measure or project.
- Direct Technical Assistance: Assistance to build a community's capacity and capability to improve its resiliency to natural hazards and to ensure stakeholders are capable of building and sustaining successful mitigation programs, submitting high-quality applications, and implementing new and innovative projects that reduce risk from a wide range of natural hazards.

Eligible Applicants: Eligible applicants include:

- States,
- District of Columbia,
- U.S. Territories and
- Indian Tribal Governments, as defined in 25 U.S.C. 450b

According to the Notice of Funding Opportunity, local governments, including cities, townships, counties, special district governments, and Indian tribal governments (including federally recognized tribes who choose to apply as subapplicants) are considered subapplicants and must submit subapplications for financial assistance or letters of interest for non-financial Direct Technical Assistance to their state/territory/tribal Applicant agency.

In addition to eligibility requirements listed above, applicants must also meet the following eligibility requirements:

- Subapplicants are required to have a FEMA-approved Local or Tribal Hazard Mitigation Plan in accordance with 44 CFR Part 201 by the Application deadline and at the time of obligation of grant funds for mitigation projects and C&CB activities (with the exception of mitigation planning).
- States and territories that have had a major disaster declaration under the Stafford Act in the 7 years prior to the annual Application period start date are eligible to apply to FEMA for federal assistance under BRIC (Applicants). As a result of numerous major disaster declarations, all states, territories, and the District of Columbia are eligible to apply in FY2020.

Total Funding Available (Based on FY 2022 Appropriations):

- \$500 Million

Award Floor: Not specified

Award Ceiling: \$600,000 (State Allocation) \$50,000,000 (National Competition)

Grant Match: 25%

Period of Performance: 36 Months

Special Requirements: The program requires Grant recipients to comply with the following special statutes and regulations including:

- Resolution of Civil Rights Matters,
- Outstanding Delinquent Federal Debts,
- Debarments and/or Suspensions,
- Pre-selection Review of Performance,
- Sufficient of Financial Management System,
- False Statements,
- Mandatory Disclosure Requirement,
- Prohibition Against Lobbying Activities and

The program also requires Grant recipients to comply with the following additional requirements:

- NEPA Environmental Requirements,
- Flood Hazard Area Precautions,
- Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970,
- Buy American
- Americans with Disabilities Act and
- Non-Duplication of Services.

Mitigation projects must be cost-effective and designed to increase resilience and reduce risk of injuries, loss of life, and damage and destruction of property, including critical services and facilities. This means the project, as documented by the Applicant, achieves the following goals:

- Addresses a problem that has been repetitive or that poses a risk to public health and safety and improved property if left unresolved;
- Satisfies applicable cost-effectiveness requirements through completion of a Benefits-to-Cost Analysis (BCA) conducted in compliance with OMB Circular A-94 as discussed in Section A.10, Performance Metrics;
- Contributes, to the extent practicable, to a long-term solution to the problem it is intended to address; and
- Accounts for long-term changes to the areas and entities it protects and has manageable future maintenance and modification requirements.

Program Point of Contact(s): A listing of State Hazard Mitigation Officers (SHMOs) can be found in the following link: <https://www.fema.gov/grants/mitigation/state-contacts>



Federal Broadband Grant Programs (Secondary)

In addition to the federal broadband grant programs listed as primary matches, Kendall County may consider seeking additional funding opportunities through the following agencies and programs with other eligible applicants:

United States Department of Education

- Governor's Emergency Education Relief Fund (GEER)
- Elementary and Secondary School Emergency Relief Fund (ESSER)
- Higher Education Emergency Relief Fund
- Impact Aid Programs
- Promise Neighborhoods Programs
- Rural, Low-Income School (RLIS) Program
- Email, Rural School Achievement (SRSA) Program
- Title I, Part A. Improving Basic Programs Operated by Local Education Agencies Program
- Title III, Part A. Strengthening Institutions Program
- Title IV, Part A. Student Support and Academic Enrichment Program

United States Department of Labor Employment and Training Administration

- Workforce Development in Telecommunications Sector: Apprenticeship Investments in Support of Broadband and 5G

United States Department of Treasury

Office of the Comptroller of the Currency (OCC)

- Community Reinvestment Act (CRA) Program

Federal Communications Commission Universal Service Administrative Company

- E-Rate (Schools and Libraries) Program
- High Cost Program (CAF, RDOF & 5G Fund)
- Rural Health Care Program

National Science Foundation (NSF)

- Campus Cyberinfrastructure (CC*) Program
- Smart and Connected Communities (S&CC) Program
- Spectrum and Wireless Innovation Enabled by Future Technologies (SWIFT) Program

State Broadband Grant Program Eligibility

Illinois Department of Commerce & Economic Opportunity

Connect Illinois Broadband Grant Program

Purpose: The Connect Illinois Broadband Grant Program was created through a combination of state funding from the Build Illinois Bond Fund and federal funds received by the U.S. Department of Treasury's American Rescue Plan Act (ARPA) and is administered by the Department of Commerce and Economic Opportunity (DECO). As of today, \$400 million in funding has been appropriated for the program to support Middle and Last Mile proposals in three key areas:

- Broadband Access for Illinois homes, businesses, and community anchor institutions in unserved and underserved areas
- Broadband Innovation for economic development and related applications
- Urban Broadband for expanded access and/or innovation in qualified Illinois cities or metropolitan areas of 75,000 residents or more.

The program defines unserved as locations with download speeds less than 25 Mbps and uploads speeds less than 3 Mbps and underserved as locations with download speeds lower than 100 Mbps and upload speeds less than 20 Mbps as designated on the State of Illinois' broadband mapping data. Consistent with federal ARPA requirements, all projects must include infrastructure expansion scalable to speeds of at least 100 Mbps download and 100 Mbps upload upon network deployment.

Eligible Applicants: Eligible applicants for this program include an incorporated business or partnership; a political subdivision; a nonprofit organization; a cooperative association; or a limited liability corporation organized for the purpose of expanding broadband access. Illinois public school districts are eligible to apply but may be encouraged to leverage available federal or education-specific funding prior to an award.

Total Funding Available:

- \$400 Million (\$350 Million available in Round 3)

Grant Match: 50% non-state match is encouraged, but not required.

The first round of Connect Illinois grant applications were requested by the DECO on January 26, 2022 and is expected to finalize and announce awards by late March/early April. As per the NOFO, applications that score above 150 points may be awarded immediately, while applications that score between 101 and 149 points may be selected on a quarterly basis based on relative geographic balance, project focus, and non-state match. For additional information, including the Application Packet and broadband mapping, is available at: www2.illinois.gov/dceo/ConnectIllinois or on the DCEO Grant Opportunities homepage.



Evaluation of Project Opportunities

Funding Needs Matrix

OPPORTUNITY	PLANNING	DESIGN	CONSTRUCTION	EQUIPMENT/DEVICES
Middle Mile (Backbone)	X	X	X	X
Last Mile (FTTP)	X	X	X	X
Wireless	X	X	X	X
Telehealth	X	X	X	X
Economic Development	X	X	X	X
Emergency Response	X	X	X	X
Distance Learning	X	X	X	X

Eligible Project Activities

PROJECT	NEEDS	AGENCY	POTENTIAL FUNDING PROGRAM(S)
Middle Mile (Backbone)	Planning, Design, Construction & Equipment	DHS-FEMA USDA-RD USDOC-NTIA	<ul style="list-style-type: none"> Building Resilient Infrastructure and Communities (BRIC) ReConnect Pilot Program Rural Broadband Access Loan and Loan Guarantees Broadband Equity, Access, and Deployment (BEAD) Program Enabling Middle Mile Broadband Infrastructure Program
Last Mile (FTTP)	Planning, Design, Construction & Equipment	USDOC-NTIA USDA-RD USDHUD	<ul style="list-style-type: none"> Broadband Equity, Access, and Deployment (BEAD) Program ReConnect Pilot Program Rural Broadband Access Loan and Loan Guarantees Telecommunications Infrastructure Loans and Loan Guarantees Community Development Block Program Choice Neighborhoods - Implementation Choice Neighborhoods - Planning



Eligible Project Activities (continued)

PROJECT	NEEDS	AGENCY	POTENTIAL FUNDING PROGRAM(S)
Telehealth Economic Development Emergency Response Distance Learning	Planning, Design, Construction & Devices	FCC-USAC USDA-RD USDHUD DHS-FEMA	<ul style="list-style-type: none"> Rural Health Care Program E-Rate (Schools and Libraries) Program Community Connect Grant Program Distance Learning and Telemedicine Grant ReConnect Pilot Program Rural Broadband Access Loan and Loan Guarantees Community Development Block Program Choice Neighborhoods - Implementation Choice Neighborhoods - Planning Building Resilient Infrastructure and Communities (BRIC)

ACRONYMS

DHS - FEMA: Department of Homeland Security - Federal Emergency Management Agency

FCC - USAC: Federal Communications Commission - Universal Service Administrative Company

USDA-RD: United States Department of Agriculture - Rural Development

USDOC-EDA: United States Department of Commerce - Economic Development Administration

USDOC-NTIA: National Telecommunications and Information Administration

USDHUD: United States Department of Housing and Urban Development

Project Opportunities

Middle Mile (Backbone)

Description of Project: In order to establish a foundation for last mile connectivity for the County, a backbone network will need to be constructed first. Backbone networks typically consist of a ring (or rings) of fiber optic cable connecting different areas of a municipality or region. The ring topology has the advantage to be resilient (redundancy network) against single fiber cuts or other faults. One business opportunity for the County with the backbone ring is connecting local large and mid- sized businesses with internet connectivity. Lit analyzed GIS data to create an initial design for the County's backbone network. From this data, Lit created a financial model to quantify the cost of building the Middle Mile network and the potential revenue opportunities for the County. Lit is proposing the development of 152 miles of middle mile backbone infrastructure throughout Kendall County and connecting 97 community anchor institutions.

Scope of Work: The backbone network deployment is broken up into four major phases including Assessment, Engineering, Construction, and Operations as shown on the 'Expenses' tab of the Financial Model.

1. Assessment

The total costs for the Assessment Phase are assumed to be \$0 since the County will have already paid for the cost of the Broadband Community Assessment.

2. Engineering

The total costs for the Engineering Phase are \$1,472,690 and includes the Tasks, Unit of Measure, Volume, Unit Cost, and Total Cost shown below. These tasks will all be completed during months 1-12.

3. Construction

The total costs for the Construction Phase are \$13,184,001 (less material waste) and includes the Tasks, Unit of Measure, Volume, Unit Cost, and Total Cost. The final pricing for this phase will be established during the Engineering Phase, and the Financial Model will be reflected accordingly.

4. Operations & Maintenance

The total costs for the Operations Phase during the construction period is \$783,461 and includes the Tasks, Unit of Measure, Volume, Unit Cost, and Total Cost. The recurring monthly costs for O&M are estimated to be \$11,750 for the majority of the 20-year period.

Potential Grant Funding Sources:

Department of Homeland Security - Federal Emergency Management Agency

- Building Resilient Infrastructure and Communities



United States Department of Agriculture - Rural Development ReConnect Program

- Rural Broadband Access Loan and Loan Guarantees

United States Department of Commerce – National Telecommunications and Information Administration

- Broadband Equity, Access, and Deployment (BEAD) Program
- Enabling Middle Mile Broadband Infrastructure Program

Last Mile (FTTP)

Description of Project: The County contracted Lit to perform a preliminary design for a defined preliminary service area - deriving 52,391 potential residential customers and 250 potential small business customers, for a grand total of 52,641 total customers or demand points. Using the Preliminary Design and pole digitization, we've assumed 50% aerial and 50% underground build in the Right of Way ("ROW") for the County's FTTH Partner network. Aerial deployment typically is one of the most cost-effective methods of deploying fiber to customers, because of the ability to leverage existing pole lines and avoiding additional costs of digging up roads or burying cables.

Scope of Work: The last mile network deployment for 52,641 demand points are broken up into four major phases including Assessment, Engineering, Construction, and Operations as shown on the 'Expenses' tab of the Financial Model.

1. Assessment

The total costs for the Assessment Phase are assumed to be \$0 since the County will have already paid for the cost of the Broadband Community Assessment.

2. Engineering

The total costs for the Engineering Phase are \$6,247,308 and includes the Tasks, Unit of Measure, Volume, Unit Cost, and Total Cost. These tasks will all be completed during months 1-6.

3. Construction

The total costs for the Construction Phase are \$114,251,762 (less material waste) and includes the Tasks, Unit of Measure, Volume, Unit Cost, and Total Cost. The final pricing for this phase will be established during the Engineering Phase, and the Financial Model will be reflected accordingly.

4. Operations & Maintenance

The total costs for the Operations Phase during the construction period is \$28,666,045 and includes the Tasks, Unit of Measure, Volume, Unit Cost, and Total Cost shown below. The recurring monthly costs for O&M are estimated to between \$125,000 - \$130,000 for the majority of the 20-year period as shown on the financial model.

Potential Grant Funding Sources:

United States Department of Commerce – National Telecommunications and Information Administration

- Broadband Equity, Access, and Deployment (BEAD) Program

United States Department of Agriculture - Rural Development

- ReConnect Program
- Rural Broadband Access Loan and Loan Guarantees
- Telecommunications Infrastructure Loans and Loan Guarantees

United States Department of Housing and Urban Development

- Community Development Block Program
- Choice Neighborhoods – Planning
- Choice Neighborhoods - Implementation

Telehealth

Description of Need: If Kendall County is interested in seeking grant funding opportunities outside of the Rural Healthcare Program, there are no federal broadband grants that provide funding for Operational Expenses. However, there are opportunities to pursue funding for infrastructure development, connectivity and equipment.

Example Projects: The programs listed below can be utilized to fund various aspects of healthcare, telemedicine and connectivity for commercial, residential and institutional users. Outside of the FCC & USAC's Rural Health Care Program which subsidizes the cost of broadband connectivity for Rural Healthcare providers and the USDA-RD's Distance Learning and Telemedicine Grant which provides funding for telemedicine equipment and broadband connectivity to eligible rural sites, the remaining programs can be utilized to fund broadband infrastructure and connectivity to enable enhanced healthcare and telemedicine capabilities. For example, funding from the federal grant programs below can be utilized to:

- Plan, design and construct fixed wireless and broadband middle mile, backhaul and FTTP infrastructure for:
 - Local hospitals, healthcare facilities and clinics,
 - Private healthcare corporations that manufacture and produce healthcare and telemedicine equipment
 - Eligible public housing areas where residents can participate in telemedicine and enhanced connectivity to healthcare providers,
- Provide and enhance broadband connectivity to local Institutions of Higher Education and Workforce Development agencies for remote learning, job training, apprenticeships and technical support careers within the healthcare industry
- Provide and enhance broadband connectivity to libraries to provide devices and connectivity to foster wellness and health literacy

Potential Grant Funding Sources:

United States Department of Agriculture - Rural Development

- Distance Learning and Telemedicine Program
- Community Connect Grant Program
- ReConnect Program
- Rural Broadband Access Loan and Loan Guarantees

United States Department of Housing and Urban Development

- Community Development Block Program
- Choice Neighborhoods - Planning
- Choice Neighborhoods - Implementation

Economic Development

Description of Need: If Kendall County is interested in seeking grant funding opportunities that support broadband infrastructure development for economic development projects that are strategically aligned within their existing network funding is available to support those initiatives.

Example Projects: The programs listed below can be utilized to fund various aspects of economic development in existing and future broadband and fixed wireless service areas to enable job creation, private investment and economic resiliency. While Kendall County is not eligible for EDA Public Works and Economic Adjustment Assistance funding, efforts to fund broadband and fixed wireless infrastructure is likely to be supported due to it serving as a catalyst to attract investment from private corporations that require the greatest speeds available for data centers, software development, manufacturing, etc. Through the addition of economic development aspects in the County's projects, these areas will have the great-



est potential to stimulate local entrepreneurship, job creation, skills training and workforce opportunities.

For example, funding from the federal grant programs below can be utilized to:

- Plan, design and construct fixed wireless and broadband middle mile, backhaul and FTTP infrastructure for:
 - Innovation districts,
 - Private industry in area downtown and business districts,
 - Industrial parks, data centers and major ports of entry that require broadband fiber infrastructure for operations.
 - Provide and enhance broadband connectivity to local Institutions of Higher Education and Workforce
- Development agencies for remote learning, job training, apprenticeships and technical support careers.

Potential Grant Funding Sources:

- United States Department of Agriculture - Rural Development
- Community Connect Grant Program
- ReConnect Program
- Rural Broadband Access Loan and Loan Guarantees

Emergency Response

Description of Need: If Kendall County is interested in seeking grant funding to harden its telecommunications and emergency response infrastructure, opportunities are available to assist with meeting those needs.

Example Projects: The program listed below can be utilized to fund various aspects of broadband and wireless network infrastructure with regards to enhancing local, state and federal emergency response capabilities and preparedness. The County has the potential to coordinate with respective first responder, law enforcement authorities and public safety entities to evaluate opportunities to upgrade the quality and capabilities of existing communications and network infrastructure to accommodate the next generation of equipment, software and tools being utilized to reduce response time, detect gun fire weapon use and location and save lives during emergencies and natural disaster situations. By working closely with these agencies, Kendall County can play a significant role in the communities they serve, increase safety and resiliency during and after emergencies. For example, funding from the federal grant programs below can be utilized to:

- Plan, design and construct fixed wireless and broadband middle mile, backhaul and FTTP infrastructure for:
 - First responders,
 - Emergency operations centers,
 - Local law enforcement authorities,
 - State emergency management agencies,
 - Federal law enforcement and disaster response agencies,
 - Shelters and
 - Community-wide capabilities to disseminate emergency notifications, announcements, etc.

Potential Grant Funding Sources:

Department of Homeland Security - Federal Emergency Management Agency

- Building Resilient Infrastructure and Communities

Distance Learning

Description of Need: If Kendall County is interested in seeking grant funding to expand capacity of existing and planned broadband and wireless infrastructure, opportunities are available to support distance learning and provide a high-end mobile device that will acquire cellular networks and provide limited broadband services on school buses and bookmobiles.

Example Projects: The programs listed below can be utilized to fund various aspects of enhanced broadband and wireless infrastructure for School Bus / Bookmobiles to allow students to connect to the internet while commuting to and from school. While the E-Rate Schools and Libraries Program currently does not allow for wireless connectivity to School Bus / Bookmobiles, there are proponents of this technology advocating to the Federal Communications Commission and the Universal Service Administrative Company to modify the current eligible uses of E-Rate funding to allow for wireless connectivity to buses. Enhancing broadband and wireless connectivity for students who commute on school buses will be instrumental in closing the digital divide for families who cannot afford to subscribe to internet service for their residences. Until the E-Rate program can be utilized for this connectivity, there are a variety of other programs that can support the wireless and broadband fiber network infrastructure along bus routes leading to and from school facilities. For example, funding from the federal grant programs below can be utilized to:

- Plan, design and construct fixed wireless and broadband middle mile, backhaul and FTTP infrastructure along bus routes leading to Elementary, Intermediate and High Schools and priority areas of interest where distance learning gaps are prevalent.

Potential Grant Funding Sources:

United States Department of Agriculture - Rural Development

- Community Connect Grant Program
- Distance Learning and Telemedicine Grant
- ReConnect Program
- Rural Broadband Access Loan and Loan Guarantees

United States Department of Housing and Urban Development

- Community Development Block Program
- Choice Neighborhoods - Planning
- Choice Neighborhoods - Implementation



Preparing for Grant Funding Opportunities

Based on our previous experience working with other communities regarding the development of funding applications, we would like to propose several studies that we recommend completing prior to applying for federal grant funding opportunities. Each of these documents are required by the funding agencies in order to satisfy various programmatic and federal requirements and their completion ahead of time provides greater flexibility for the County when considering multiple avenues of funding the proposed network solution.

Below are several studies that are uniform requirements for seeking federal funding:

- Preliminary and Final Engineering Feasibility Report (EFR):
 - The Preliminary and Final EFR is the document that is utilized by the funding agencies to understand the needs and existing conditions of the community and the proposed solution to address those needs. The EFR includes an overview of the project's scope, size, cost and alignment with the communities' priorities (i.e. closing the Digital Divide, economic development, workforce development, etc.). Typically, funders will accept a Preliminary EFR during the grant application phase and once funding is awarded, the agency will provide comments based on their review to finalize the document. Prior to the release of funding for construction, most funding agencies will require the EFR to be approved to ensure project feasibility.
- General Application Information
 - Depending on the nature of the grant, applicants are required to provide some general application information including a project description, stakeholders involved, documenting public and business support, anticipated economic impact, alignment with the agency and grant programs goals and objectives, project schedule, and proposed equipment.
- Proforma
 - Federal agencies typically request a proforma that projects fiscal expenditures (planning/design, construction, and operations) and revenue over a long-term period, 10 - 20 years, etc., to understand the financial sustainability of the project.
- Environmental Narrative
 - To satisfy National Environmental Policy Act requirements, applicants seeking federal funding must provide information to the funding agency regarding the project's potential impact on the environment. Since a variety of federal regulations exist, Clean Water Act, Clean Air Act, Endangered Species Act, etc. it is important for the applicant to document how the proposed project impacts the environment. For projects that are located in environmentally sensitive areas such as wetlands, brownfields, preservation areas, etc. it is critical that the applicant document how the project will not negatively impact the environment. Typically, the federal funding agency will review the Environmental Narrative/Questionnaire to determine if any additional studies are required prior to issuing a Finding of No Significant Impact (FONSI). If additional studies are required such as Archeological, Air Quality, or Geotechnical surveys, the federal funding agency will require that these be completed prior to issuing a FONSI and beginning construction activities. Additionally, the federal funding agency may require coordination with other federal agencies (i.e. United States Army Corps of Engineers, Fish and Wildlife, Department of Interior, etc.) for their respective reviews prior to issuing a FONSI. Through our team's past experience applying and obtaining financial assistance, we have consistently observed that communities who have the proper engineering and technical information required to apply completed ahead of time are most prepared, confident, and competitive when seeking grant funding. Often, federal agencies only provide between 45 - 60 days for application submission which leaves very little time to begin these studies and assessment while the application period is open. Therefore, if Kendall County is strongly interested in seeking grant funding to address its broadband infrastructure and accessibility gaps, we recommend that the County conduct these efforts as soon as possible so they are prepared and ready for future funding opportunities. Lastly, due to the varying amount of local matching funding required to pursue these opportunities, we suggest that the County identify sources and amounts of matching funding to determine the respective capacity to secure grant funding.