

Bug Tussel & Iowa County Partnership

THE PARTNERSHIP

Bug Tussel Wireless is proud to be partnered with Iowa County through a grant that was issued in the winter of 2020. The project will primarily take place during the fiscal year 2022, with Bug Tussel's goal to have towers completed and online by January of 2023 and fiber connections to follow.

THE PROJECT

The project, **ROAD to Digital Equality: Iowa County** is designed to equip Iowa County with a fiberoptic backbone network and wireless internet access through rural areas in the county. Bug Tussel will install 2 towers and 53 miles of fiber within 1-3 years, with options for expansion available as agreed upon by Bug Tussel and the county.

BUG TUSSEL UNIVERSITY

Get one-on-one Tech Help with Bug Tussel University!

Monday, August 15
10:00 a.m.-12:00 p.m.

Thursday, August 25
1:00-3:00 p.m.



Hollandale Lending Library
400 Main Street
Hollandale, WI 53544

Get one-on-one help with your questions about computers, internet, email, social media, your device, or other technology. Registration is recommended. Sign up by calling 920-940-0158, scanning the QR code with your smartphone, or visiting our website:

<https://www.bugtusselwireless.com/bug-tussel-university-3/>

Your sales representatives



Jason McCullick
Business Development Manager
Phone: (920) 562-6623
Email: jason.mccullick@bugtusselwireless.com



Tammy Wiedenback
Regional Business Development Manager
Phone: (608) 609-3665
Email: Tammy.Wiedenbeck@bugtusselwireless.com

GET IN TOUCH

Customer Service
Phone: (877) 227-0924
Email: customerservice@bugtusselwireless.com
Website: bugtusselwireless.com



The Boys & Girls Club of Greater Green Bay and Bug Tussel Wireless partnered to create a unique comic book that tells the story of Buford, a local hero to communities and Bug Tussel mascot, as he explains the importance of the internet and connecting rural Wisconsin. Read the comic book online by scanning the QR code or visiting this web address:



https://www.documentcloud.org/documents/22076279-bugtussel-comic1_output?responsive=1&title=1

SALES & MARKETING

Bug Tussel ran Facebook ads targeting the county during the month of July, and the number of current total subscriptions is 254.*

*The number of current subscriptions included in the June 2022 report included extra data due to an issue with Bug Tussel's tracking software.

TOWER STATUS



On Air: 21*

*Includes AT&T only towers

- Tower construction and installation complete.
- Internet is live and operational.



Under Construction: 1

- Establish tower foundation.
- Construct tower by stacking from bottom to top.
- Install antenna, lines, and integrate network.



Zoning: 0

- Submit permits and receive approval from local and federal agencies.



Site Acquisition: 2

- Search for and determine tower site.
- Obtain lease from landowner.

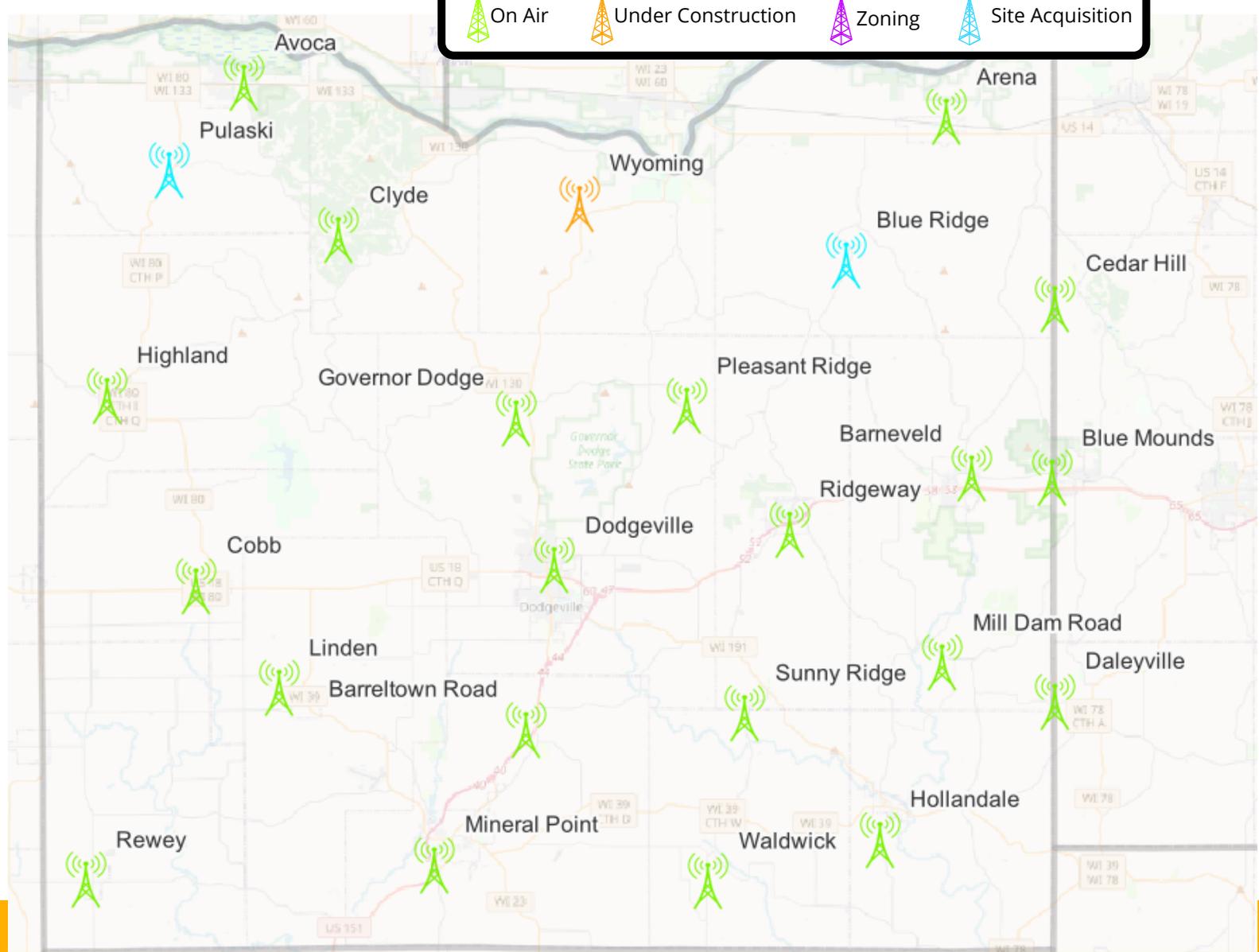
TOWER PROGRESS

Installation of the cabinet (an access hatch that houses utilities and internet connections) for our Wyoming tower (latitude 43.13204167, longitude -90.11409722) is complete. Crews are awaiting a connection to fiber before the tower is integrated and can go on air. During the integration stage, engineers will set up and test internet and power connections. Fiber connections are projected to be made to the tower mid-August.

The Pulaski and Blue Ridge sites are still in the process of locating a suitable candidate.

Legend for tower status icons:

- On Air
- Under Construction
- Zoning
- Site Acquisition



*This map includes a rough estimate of site locations and may not accurately reflect actual tower placement.

FIBER STATUS



On Air: 0 miles

- Fiber is installed.
- Connections to towers are complete.
- Internet is live and operational.



Under Construction: 53 miles

- Conduit, the protection cable that will house the fiber, is installed via Boring (with a drill) or Plowing.
- Handholes, Flowerpots, and Cabinets, access hatches that house utilities and connections, are installed.
- Fiber is sent through the conduit via Fiber Blowing, a technique using a machine on wheels that blows air to push the fiber through the cable.
- Sections of fiber are connected to each other via Splicing, the fusion of fiber pieces with an optical laser.



Zoning: 0 miles

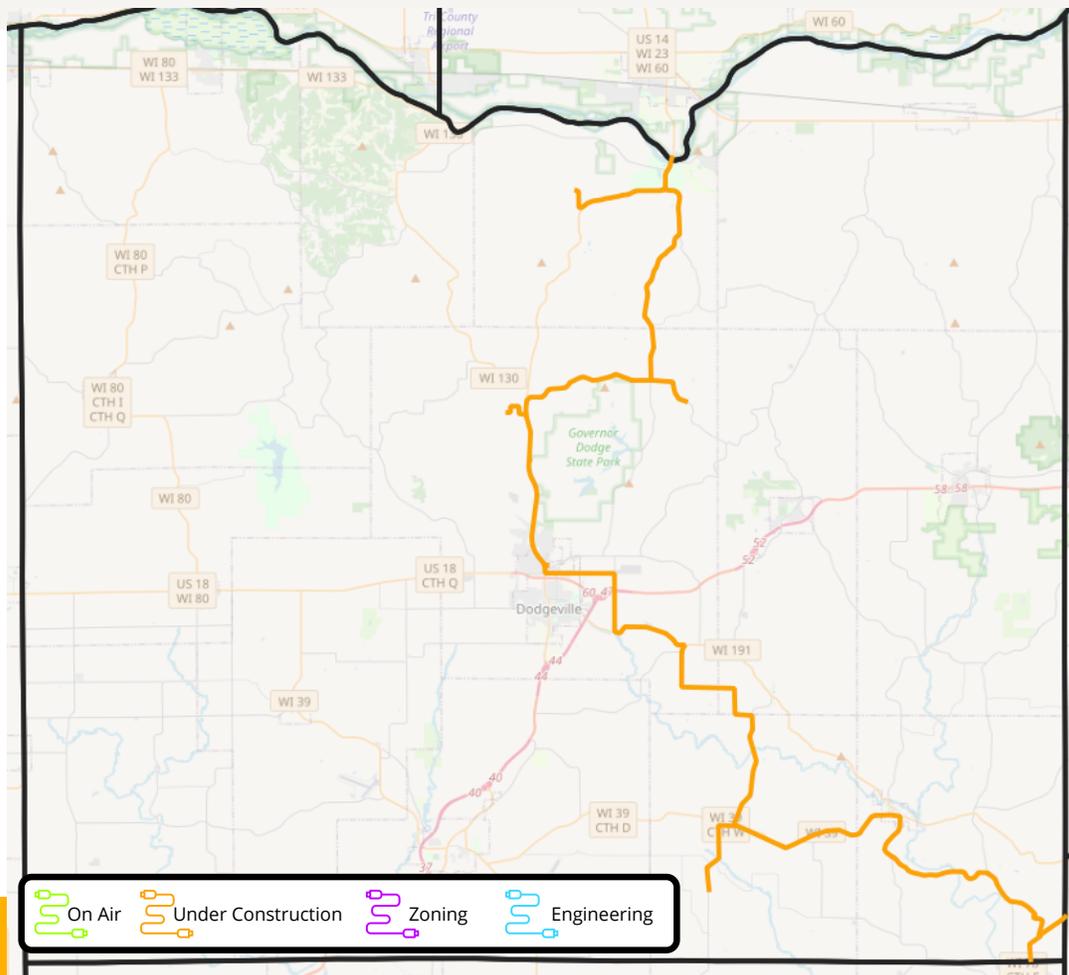
- Permits for work in areas along the route are submitted.
- Permits are approved by appropriate parties.



Engineering: 0 miles*

*Phase II (an estimated 132 miles) will be engineered in 2023

- Fiber route is mapped.
- Route is traveled to determine equipment and landscape needs.
- Sections are Re-designed as needed.



*This map includes a rough estimate of the fiber network and may not accurately reflect final route.

FIBER NETWORK

Middle Mile Nearly Complete

The main fiber route (Middle Mile), much like a highway, is nearly complete.

Crews are 95% completed with splicing, the process of connecting pieces of fiber together with an optical laser. Splicing is required to connect separate sections of fiber together, to fuse sections that divert in a different direction, and to join sections that branch from the main route.

In addition, crews will need to hook up to the larger worldwide network via connection to a switch, a mobile tower, or another connecting point.

Looking Ahead to the Last Mile

Once the Middle Mile is complete, crews will work on the Last Mile, the distribution that branches off of the main route towards neighborhoods, business areas, and residential areas, much like roads that branch off of the highway into the neighborhood.

Bug Tussel staff have been working to obtain permits (zoning), for the Last Mile. Zoning for the Last Mile is about 90% complete.

Hollandale Home Installations

Construction on the Last Mile in Hollandale is complete. Crews will begin installing fiber-to-the-home (FTTH) in early August. This process involves connecting the fiber from the Last Mile to the customer's home, similar to a driveway that connects someone's home to the road.

The predicted on-air date for Hollandale is mid-August!

How is a Fiber Network Created?

Did you know? A fiber network is like a highway system.

The **First Mile** is like an *expressway* connecting main points across very large areas together. This is the *core* network that hooks up internet connections from state to state and, on a larger scale, country to country.

 The **Middle Mile** is like a *highway* connecting cities together. This is the *backbone* that connects cities, counties, and states and creates a national network.

The **Last Mile** is like a *road* that travels from the highway to individual neighborhoods. This is the *distribution* that connects the internet network to customer's homes, businesses, and government agencies. This is often the costliest and most challenging part of the network to create.

*Bug Tussel specializes in building Middle Mile and Last Mile networks.

Installing a fiber network requires 4 major steps:

DESIGN THE ROUTE, OBTAIN PERMITS, INSTALL FIBER, AND CONNECT TO CUSTOMERS.

DESIGN THE ROUTE *(Engineering)*

Map the Route

Determine the best route for the network and outline in mapping software.

Travel the Route

Travel the route to determine equipment and route needs based on the landscape. For example, areas with hard rock conditions will require specialized equipment such as a directional drill.

Re-Design

Re-design the route as needed based on landscape requirements, permit needs, etc.



OBTAIN PERMITS *(Zoning)*

Submit Permits

Submit permits to local and federal agencies in order to obtain authorization before beginning installation.

Await Approval

Await approval and re-submit or re-design if approval is denied.



INSTALL FIBER *(Construction)*

Deploy Conduit

Install conduit (a protective cable that will house the fiber) into the ground via plowing or boring (with a directional drill).

Install Access Hatches

Place access hatches in areas (often underground) where intersections will be made, the route changes direction, or fiber will be dispersed. These hatches (which include handholes, flowerpots, and cabinets) will act as utility boxes where fiber connections can be made.

Insert Fiber

Run fiber through the conduit. The most common way to insert fiber is through a process called fiber blowing, which uses a machine to move the fiber through the cable via bursts of air. This reduces friction and the risk of damage to the fiber.

Connect Fiber

Connect sections of fiber to one another by splicing, the process of fusing pieces of fiber together with an optical laser.

Connect to the Internet

Connect the fiber route to the internet, often by hooking up to the larger worldwide network via connection to a switch, a mobile tower, or another connecting point.



CONNECT TO CUSTOMERS *(On Air)*

Connect to Customer

Install fiber from the closest access point (a handhole) to the customer's home or business.

Set Up Internet

Customer connects router and modem to internet cables to establish home network.

