

The Partnership



PROJECT

Bug Tussel is a proud partner of Kewaunee County through a grant originating in 2020. The project, **R.O.A.D. to Digital Equality**, will equip Kewaunee County with a fiberoptic backbone network and wireless internet access.

Bug Tussel awarded this July with a **broadband expansion grant to expand its fiber optic network in Kewaunee County, providing additional last-mile connections and creating additional capacity to support future projects.**



PRODUCT

Per the 2020-issued grant, Bug Tussel will install 7 fixed wireless sites. Per the 2021-issued grant agreement for **Phase I**, Bug Tussel will install 60 miles of fiberoptic backbone/middle mile network within 1-3 years. In **Phase II**, Bug Tussel will install 60 miles of fiber within 1-3 years, with options for expansion available as agreed upon by Bug Tussel and the county. Standard packages for fiber will range from 300 Mbps to 1 Gbps download and upload speed. Standard packages for wireless will be 25 Mbps download and 5 Mbps upload speed.



TIMELINE

Phase I will primarily take place during the fiscal year 2022. **Phase II** will primarily take place during the fiscal year 2023.

BUG TUSSEL UNIVERSITY

Attend a free class this September!

Registration Recommended. Call (920) 940-0158 or visit our webpage to sign up!

Scan with your camera phone!



Facebook for Beginners

Tuesday, September 6
2:00-3:00 p.m.
Algoma Public Library
406 Fremont St Algoma, WI 54201

SALES & MARKETING

Sponsorships

- Bug Tussel sponsored 4 races on August 7, 14, 21, and 28 at The Burg in Luxemburg for racecar drivers Crystal Zempel and Brandon Dhuey during the month of August.

Ads

- Bug Tussel ran Facebook ads targeting the county during the month of August.
- Bug Tussel ran ads in Insight on Business Magazine (both print and online editions) during the month of July.

Subscriptions

- 413 total subscriptions this month
- 17 total activations this month

Your sales representatives



Scott Nasgovitz
Business Development Manager
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Kristin Lambrecht
Regional Business Development Manager
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GET IN TOUCH

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



On Air: 9

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



Under Construction: 0

- 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: 1

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

Tower Highlight:

Bolt Tower

Latitude 44.348825, Longitude -87.735931

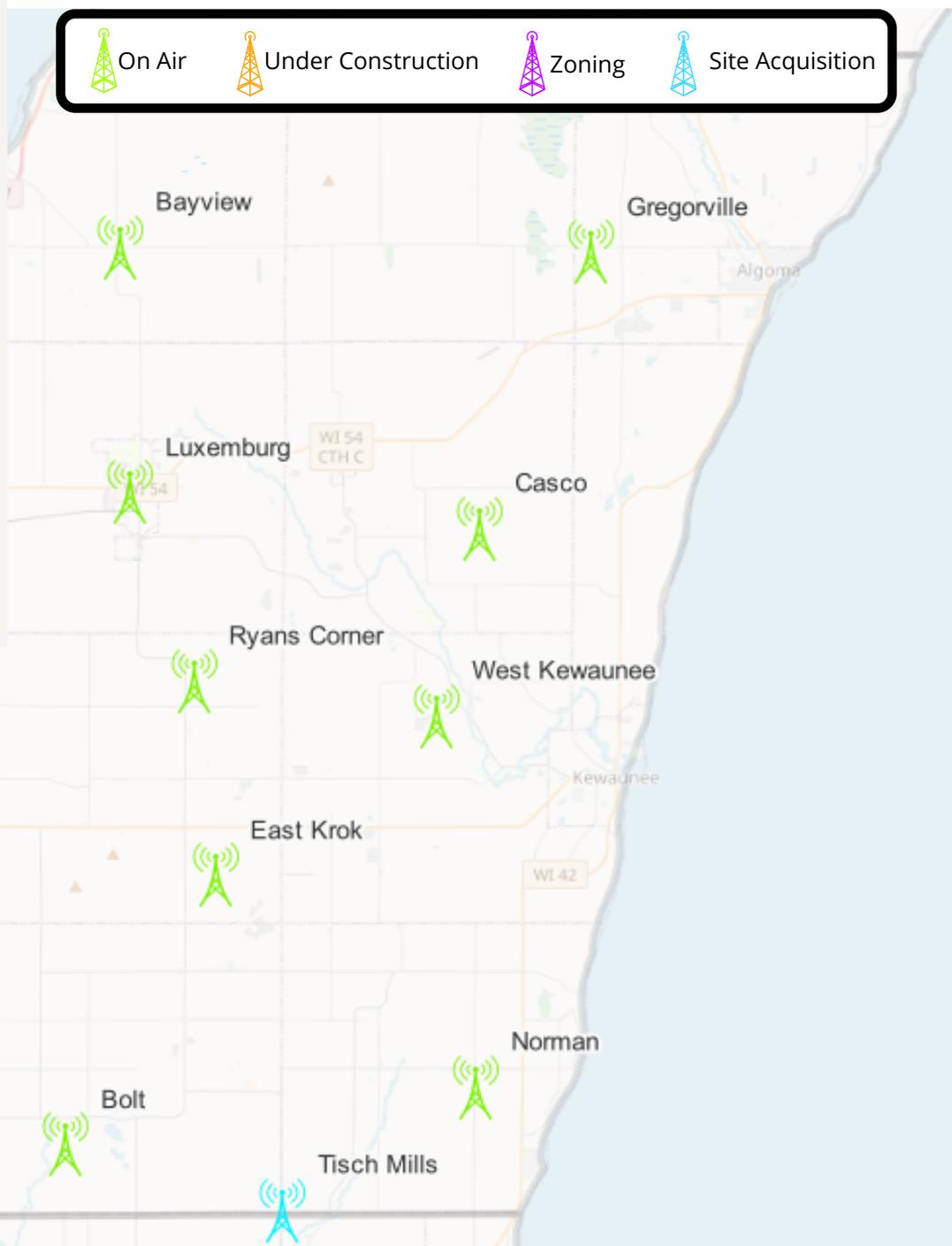


TOWER PROGRESS

Bug Tussel Hosts Ribbon Cutting in Kewaunee

Bug Tussel celebrated new tower site, Norman Tower, with a ribbon cutting on August 16, 2022. Norman Tower is located at N1165 Woodside Road, Kewaunee, WI 54216 (latitude 44.365983, longitude -87.56344).

The tower is equipped with Cambium fixed wireless service, which has an average speed of 12 MB (Megabytes) or 100 Mb (Megabits) per second. This speed generally allows for high definition video streaming, online play, working or learning from home, and the use of 3-5 devices simultaneously. While this wireless technology is well suited for rural areas, speeds may vary depending on location, line of site, equipment, and other factors.



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

FIBER STATUS

Phase I: 60(+) Miles

On Air: 0 miles

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

Construction: 50 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: 60 miles

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

Engineering: 0 miles

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

Phase II: 60 Miles

Phase II will be engineered in 2023.

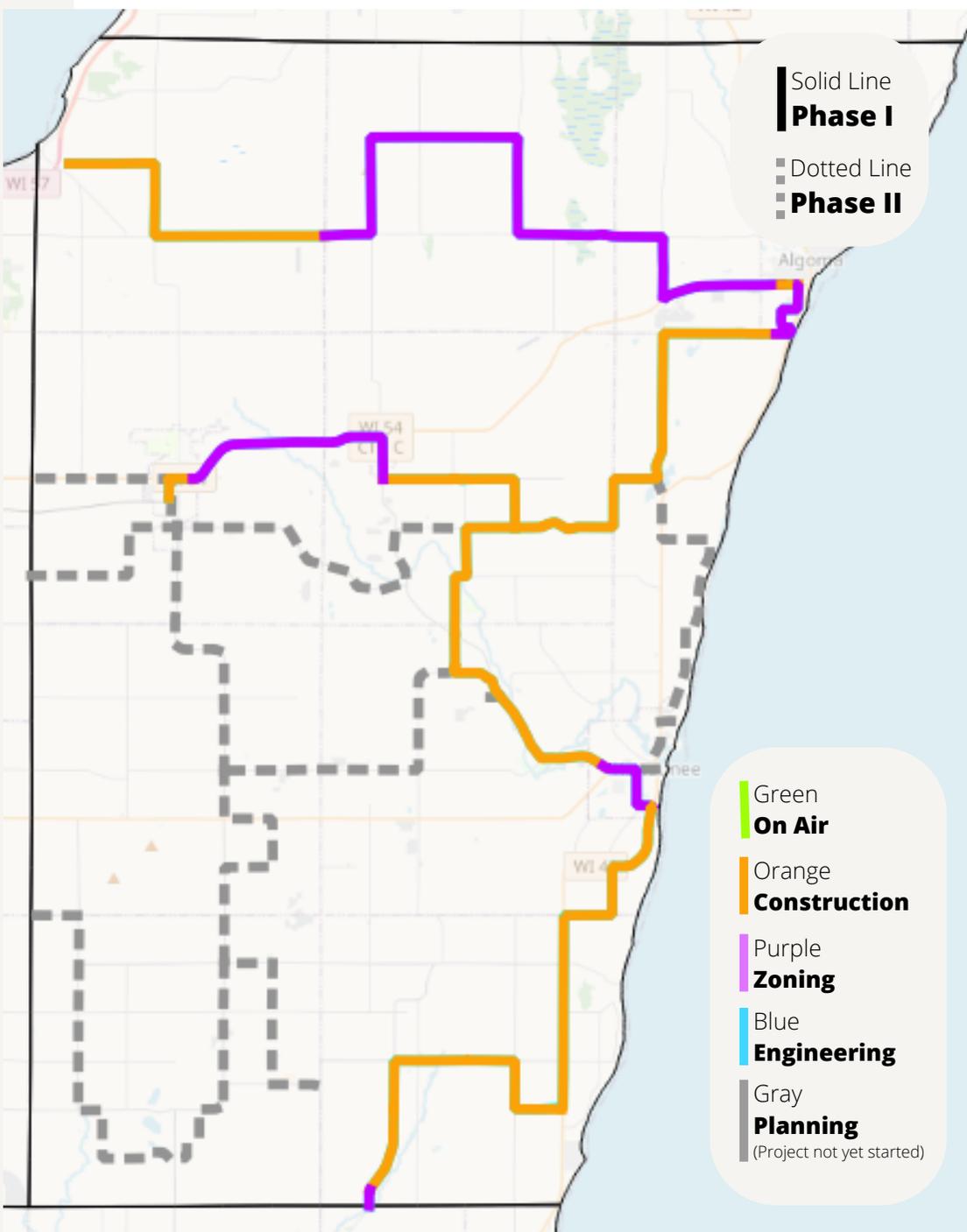
FIBER UPDATES - PHASE I

Conduit Installation Making Progress

Contractor, H&H Utility, has made significant progress installing conduit through the county. H&H Utility has also hired subcontractor Badgerland Construction for construction assistance.

Fiber is installed in some sections of the route, including near Dyckesville, Luxemburg, Slovan, Alaska, Norman, and Tisch Mills.

Completion of the Phase I Middle Mile (backbone) and Last Mile (distribution) in the county is anticipated in late winter 2022.



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

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 advanced 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.

Update Design

Route design is then updated 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 customer's ONT (optical network terminal, which converts light signals to electrical signals) in their home or business.

Set Up Internet

Customer sets up home network system through router and ONT connections.

