

Bug Tussel & Waushara County Partnership

THE PARTNERSHIP

Bug Tussel Wireless is proud to be partnered with Waushara County through a bond that was issued in the winter of 2021. 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: Waushara County** is designed to equip Waushara County with a fiberoptic backbone network and wireless internet access through rural areas in the county. Bug Tussel will install 11 towers and 108.7 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!

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/>



Wednesday, August 3 | 1:00 p.m. - 2:00 p.m.

Wednesday, August 17 | 1:00 p.m. - 2:00 p.m.

Wednesday, August 31 | 1:00 p.m. - 2:00 p.m.

Coloma Public Library, 155 North Main Street, Coloma, WI 54930

SALES & MARKETING

Sponsorships

- Bug Tussel sponsored the Wautoma Brat Fry on July 29.

Ads

- Bug Tussel ran Facebook ads targeting the county during the month of July.
- Bug Tussel ran ads in Insight on Business Magazine (both print and online editions) during the month of July.
- Bug Tussel ran radio ads on Duke FM country radio during the months of May and July.

Classes

- Bug Tussel University offered Search Smarter: Improve Your Internet Searching Skills on July 6 and Intro to Fiber Internet on July 20 at the Coloma Public Library

Subscriptions

- The number of current total subscriptions is over 1,200.*

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

Check out our comic book!

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

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TOWER STATUS



On Air: 17

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



Under Construction: 2

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



Zoning: 3

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



Site Acquisition: 3

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


TOWER SITES IN PROGRESS

Willow Creek, Spring Lake, and Tustin are still in the site acquisition stage. At this stage, the site is selected and agreements are made with the landowner. Lease agreements for Spring Lake are currently in process.

Czech Lake, Pine River, and Cumberland Ave remain in zoning status while final regulatory steps are completed. Zoning status is the process of submitting permits and awaiting approval from various local and federal government agencies. The projected date when approval will be received to move forward with construction for these sites varies from mid August to late November.

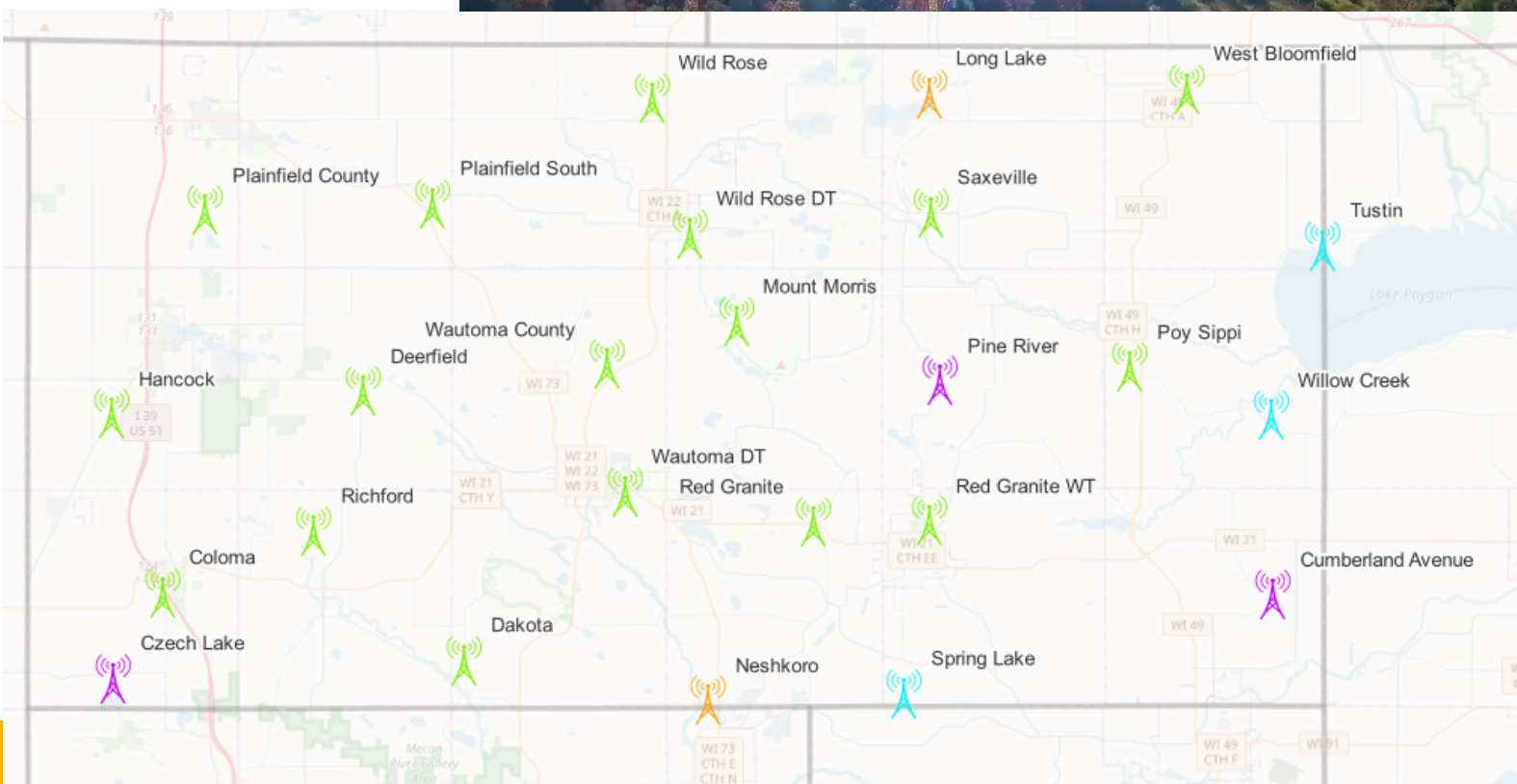
Long Lake and Neshkoro are at the beginning stages of construction. Crews are awaiting the delivery of equipment, which is expected to arrive this August.

Get a Bug's Eye View!

Watch the climb up Deerfield tower on our YouTube page!  Scan the QR code with your smartphone to watch.



<https://www.youtube.com/watch?v=B3g88YTopx8&list=PLMrRqBe1OnGsoyC8sRdxIJkanuNQDiiTe&index=1>



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

FIBER NETWORK

Construction on Southwestern Route Underway

Construction has been underway near Dakota and Richford since May. Contractor M.J. Electric is working on this section.

Total Miles Under Construction Updated

The June 2022 report mistakenly listed 28 miles under construction. This was a result of challenges with the reporting process. The number of miles under construction in this report has been corrected as a result of improved reporting procedures. Approximately 17 miles were constructed in June and 8 miles were constructed in July.

The total of currently deployed conduit is approximately 25 miles. This includes conduit along the route as well as handholes, which are underground utility boxes where fiber connections to homes will later be made when setting up customers for internet.

Looking Ahead to the Route

Changes to the Coloma area will be coming soon and, as a result, this area is being re-designed in the Engineering stage, which maps the route, determines equipment needs, and determines route decisions.

Route construction will move from the Richford area towards Hancock and then north towards Plainfield.

FIBER STATUS



On Air: 0 miles

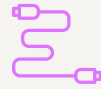
- Fiber is installed.
- Connections to towers are complete.
- Internet is live and operational.



Under Construction: 25 miles*

**Number updated since the June 2022 report as a result of updated reporting.*

- 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: 192 miles

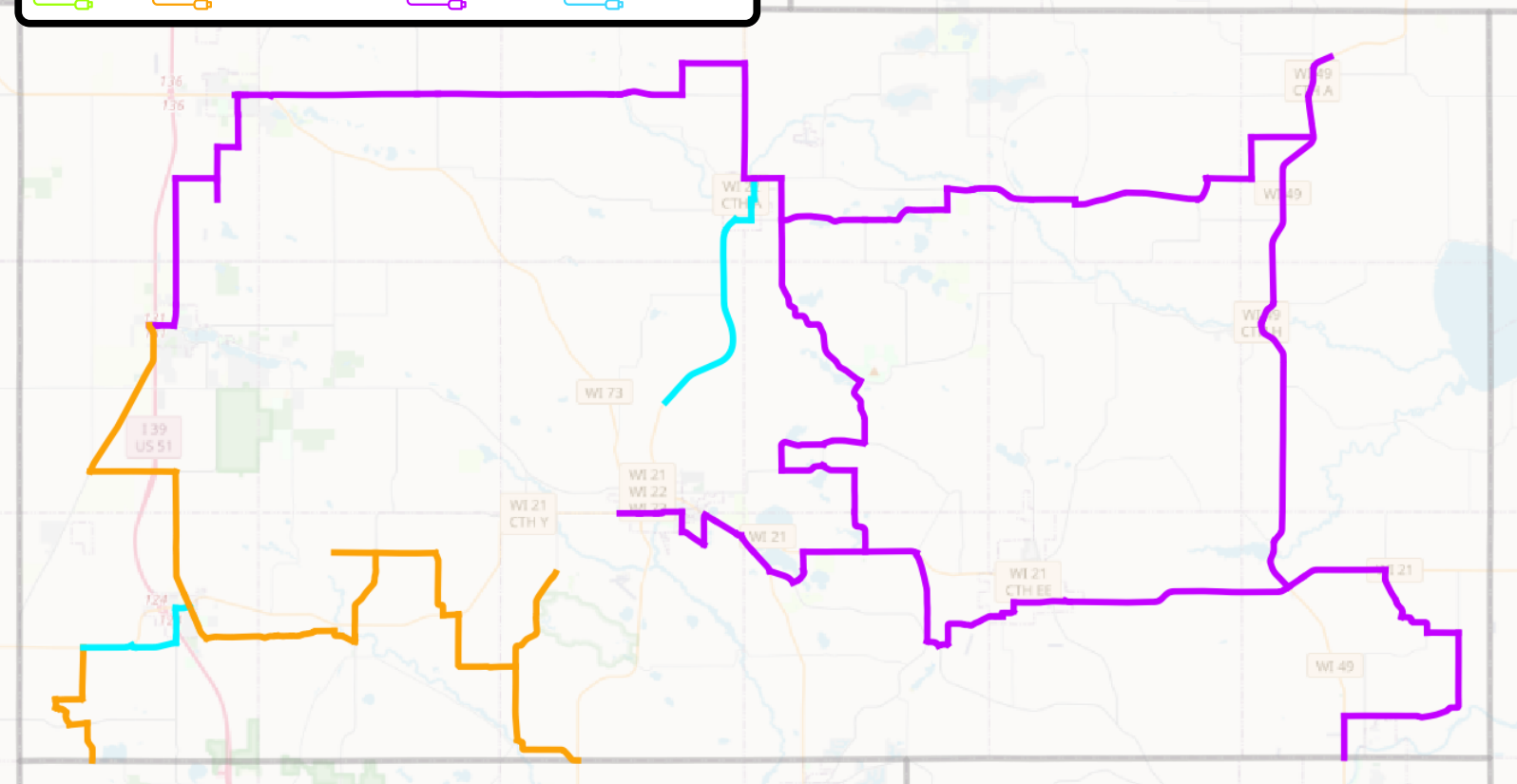
- Permits for work in areas along the route are submitted.
- Permits are approved by appropriate parties.



Engineering: 20 miles*

**Some sections are being re-designed.*

- 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.*

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.

