

# Bug Tussel & Calumet County Partnership

## THE PARTNERSHIP

Bug Tussel Wireless is proud to be partnered with Calumet County through a bond that was issued in December 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: Calumet County** is designed to equip Calumet County with a fiberoptic backbone network and wireless internet access through rural areas in Calumet County. Bug Tussel will install 3 towers and 77.4 miles of fiber within 1-3 years, with options for expansion available as agreed upon by Bug Tussel and the county.

## BUG TUSSEL UNIVERSITY

*Providing Core Education to Rural Communities*

Bug Tussel University is a free educational program for adults who want to improve their basic technology skills, learn about computers, and more! Regular attendee and class host, Coloma Public Library Director Deborah Sadowski says, "Thanks to Bug Tussel for offering these classes! It's such a big thing for our little community." Class attendees have learned how protect their privacy on Facebook, how to search better online, and more.

**Request a class in your area by calling us at [920-940-0158](tel:920-940-0158) or emailing us at [bugtusseluniversity@bugtusselwireless.com](mailto:bugtusseluniversity@bugtusselwireless.com).**

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

## Your sales representatives



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## SALES & MARKETING

### 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.
- Bug Tussel ran ads on country music radio station, WPKR, during the months of June and July.

### Subscriptions

- The number of current total subscriptions is nearly 650.\*

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

**GET IN TOUCH**

**Customer Service**  
Phone: (877) 227-0924  
Email: [customerservice@bugtusselwireless.com](mailto:customerservice@bugtusselwireless.com)  
Website: [bugtusselwireless.com](http://bugtusselwireless.com)

# TOWER STATUS



## On Air: 7

- 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: 2

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



## Site Acquisition: 1

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

## Get a Bug's Eye View!

Watch drone footage of Calumet's Stockbridge tower on our YouTube page! Scan the QR code with your smartphone to watch.



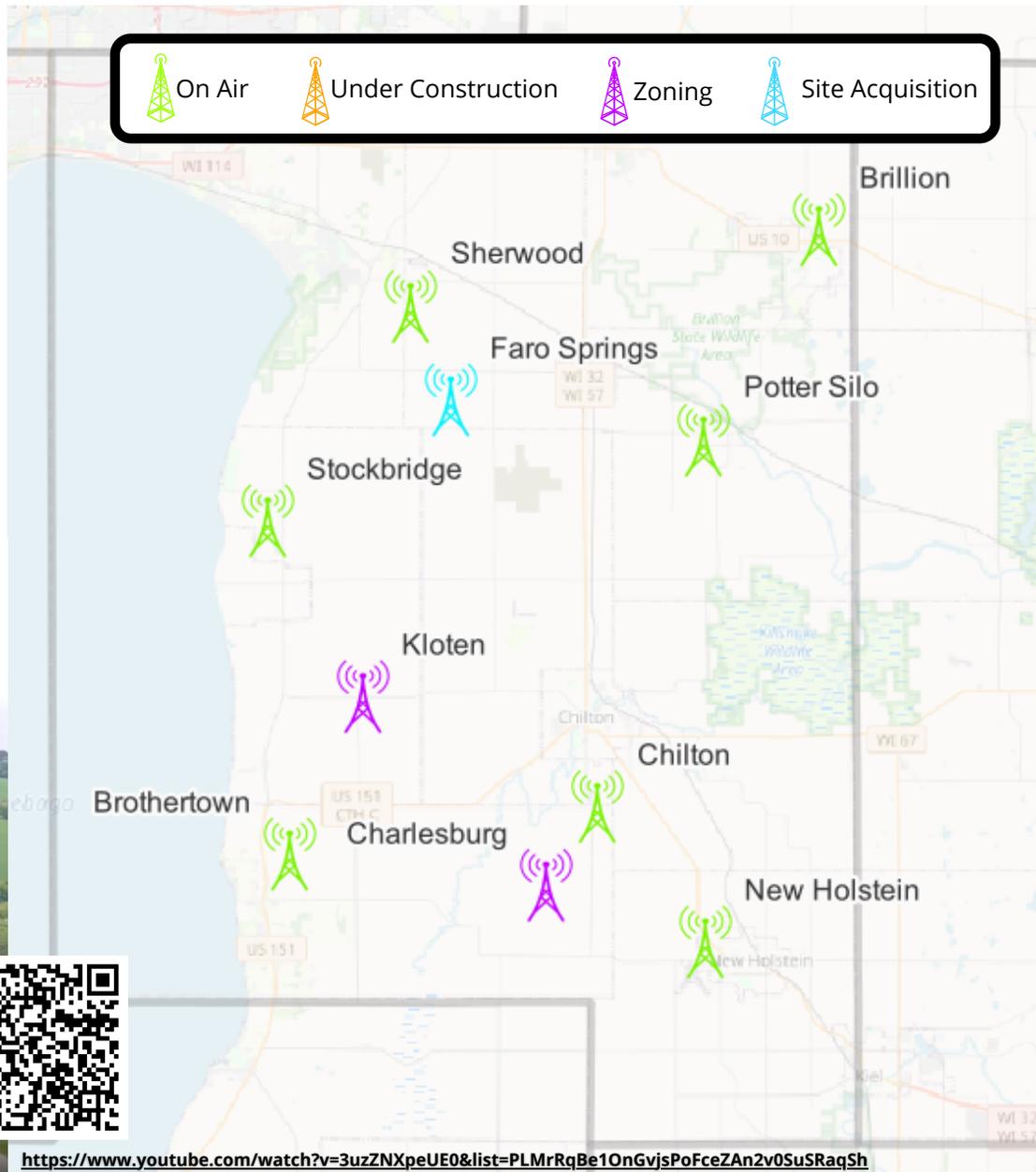
# TOWER SITES IN PROGRESS

Two tower sites, Charlesburg (latitude 43.975846 and longitude -88.182734) and Klotten (latitude 44.03659 and longitude -88.2653), 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 on these towers is early October.

Faro Springs (latitude 44.11406 and longitude -88.22602) remains in the site acquisition stage. In this stage, the site is selected and agreements are made with the landowner. Currently Faro Springs is still in the leasing process.

## Did you know?

Leasing, the process of getting a lease from a landowner, takes at least 30 days to complete. Zoning, the process of getting permits signed and approved, takes at least 90 days to complete.



<https://www.youtube.com/watch?v=3uzZNXpeUE0&list=PLMrRqBe1OnGvjsPoFceZAn2v0SuSRaqSh>

# FIBER NETWORK

## Differed Engineering in Process Again

The engineering stage, which maps the route, determines equipment needs, and determines route decisions, was temporarily suspended this month due to delays in the approval process. Those delays were resolved and engineering resumed by the end of the month.

## Push to Obtain Permits

The planning team will be contacting townships within the next few months to identify where permits are needed along the route. During the zoning stage, team members will submit permits to areas along the route and await approval.

## Update to Projected Construction Start Date

Due to the delay in engineering and a several-week delay in obtaining construction approvals, the projected construction start date has been moved to September 2022.

## Contractor

H & H Utility Excavating, Inc. is lined up as contractor for this project once construction starts.

## Total Mileage Increased

The total fiber route has increased from 77 miles to 162 miles. Additional mileage comes from the Last Mile, sometimes called the "distribution." Much like roads that branch off a highway, the distribution (or Last Mile) branches off of the main route (the Middle Mile) to neighborhoods, business areas, and residential areas.

# FIBER STATUS



## On Air: 0 miles

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



## Under Construction: 0 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

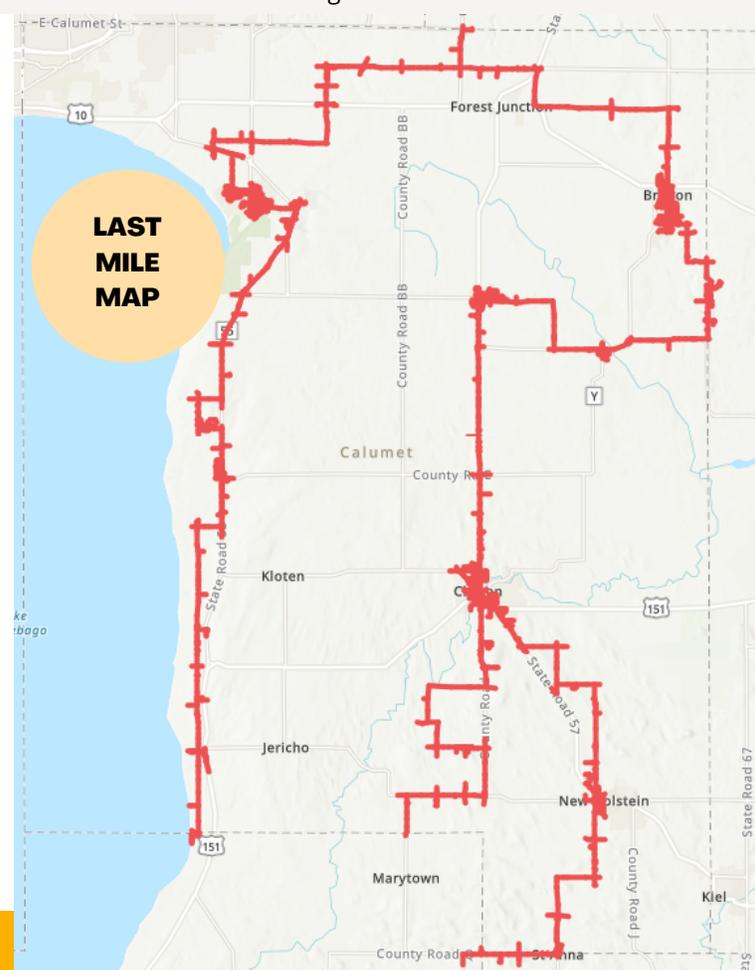
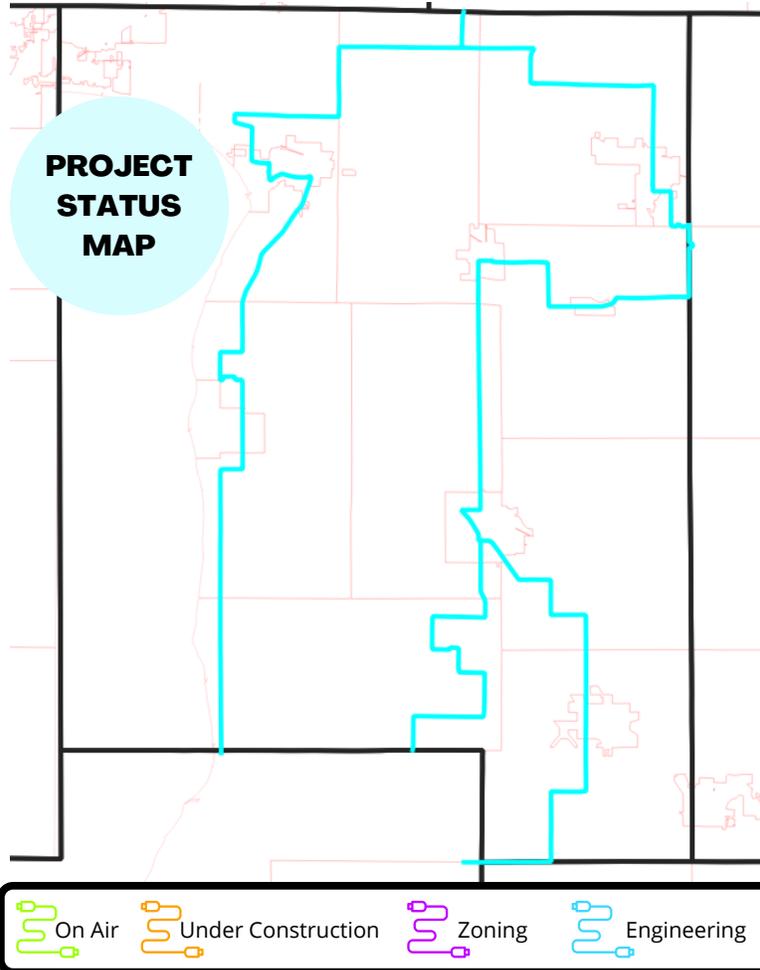
- Permits for work in areas along the route are submitted.
- Permits are approved by appropriate parties.



## Engineering: 162 miles\*

\*Total mileage has increased to include Last Mile areas.

- 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.

