August 2022 Waushara County

bugtussel

The Partnership

PROJECT
Bug Tussel is a proud partner of Waushara County through a bond originating in December 2021. The project, **R.O.A.D. to Digital Equality**, will equip Waushara County with a fiberoptic backbone network and wireless internet access.

PRODUCT
Per the agreement, Bug Tussel will install 11 towers and 100 miles of fiberoptic backbone/middle mile network 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
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.

BUG TUSSEL UNIVERSITY

Waushara Residents Get One-on-One Tech Help

Bug Tussel University hosted Tech Help sessions at the Coloma Public Library on August 3, 17, and 31. Attendees (who regularly attend Bug Tussel University courses offered at the library) received help with their individual questions about smartphones and other technology. Teacher Tori assisted each attendee with their questions and shared her contact information to answer any future questions that may come up.

Attend a free class this September

Learn more and sign up on our webpage or by calling (920) 940-0158!

Tech Help
9/14 at 1:00 p.m.
Coloma Public Library

Smartphone Basics
9/21 at 12:00 p.m.
Wautoma Public Library

Internet Safety
9/15 at 12:00 p.m.
Wautoma Public Library

Search Smarter
9/22 at 2:00 p.m.
Leon Saxeville Library

How to Video Chat
9/28 at 1:00 p.m.
Coloma Public Library

Scan with your camera phone!

SALES & MARKETING

Sponsorships

- Bug Tussel sponsored the Waushara County Fair at the Waushara County Fairgrounds in Wautoma August 18-21.

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 August.

Subscriptions

- 1279 total subscriptions this month
- 10 total activations this month

Your sales representatives

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TOWER STATUS

On Air: 16

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

Under Construction: 3

- 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: 2

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

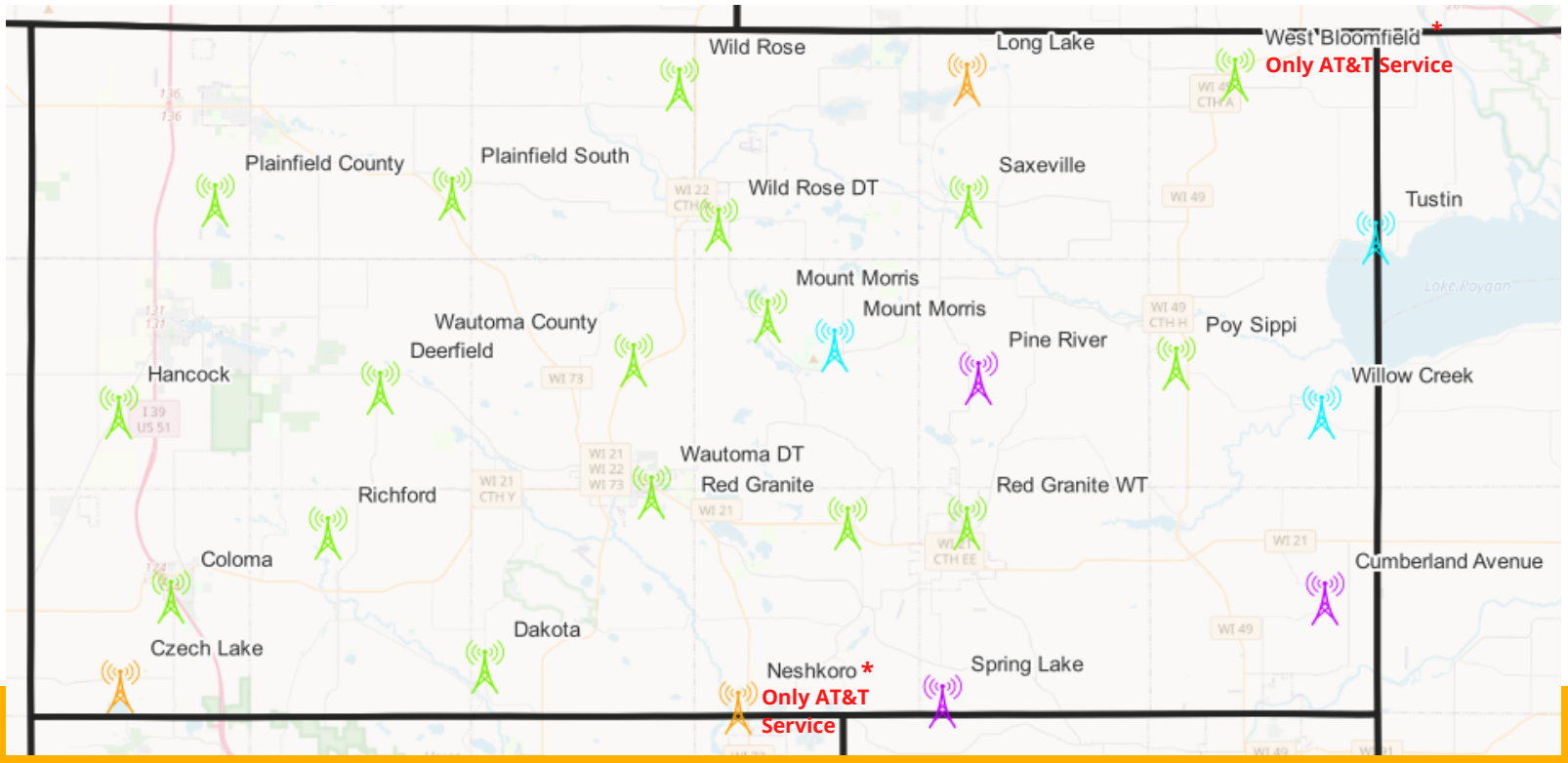
TOWER PROGRESS

Czech Lake Construction to Begin Soon

Approvals for the Czech Lake (latitude 43.99435, longitude -89.551703) site are finalized. Construction is expected to begin soon.

Spring Lake Lease Agreements Finalized

Lease agreements for the Spring Lake site (latitude 43.99933, longitude -89.14777) have been finalized. Permits will now be submitted.



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

FIBER NETWORK

60 Miles Conduit Installed

Contractor, M.J. Electric, is making progress installing conduit along the western part of the route ranging from the Dakota to Plainfield areas.

Progress Slowed Due to Utility Locators

While moving steadily, progress is slowed due to delays from USIC: Underground Utility Location and Damage Prevention, who scan the ground to locate underground utilities in order to prevent damage. USIC is currently overwhelmed with work and staff scheduling difficulties. This causes a challenge for USIC locators to cover areas early enough before the construction crew catches up.

Completion of the Middle Mile (backbone) and Last Mile (distribution) in the county is anticipated in late summer 2023.

FIBER STATUS

On Air: 0 miles

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

Under Construction: 60 miles

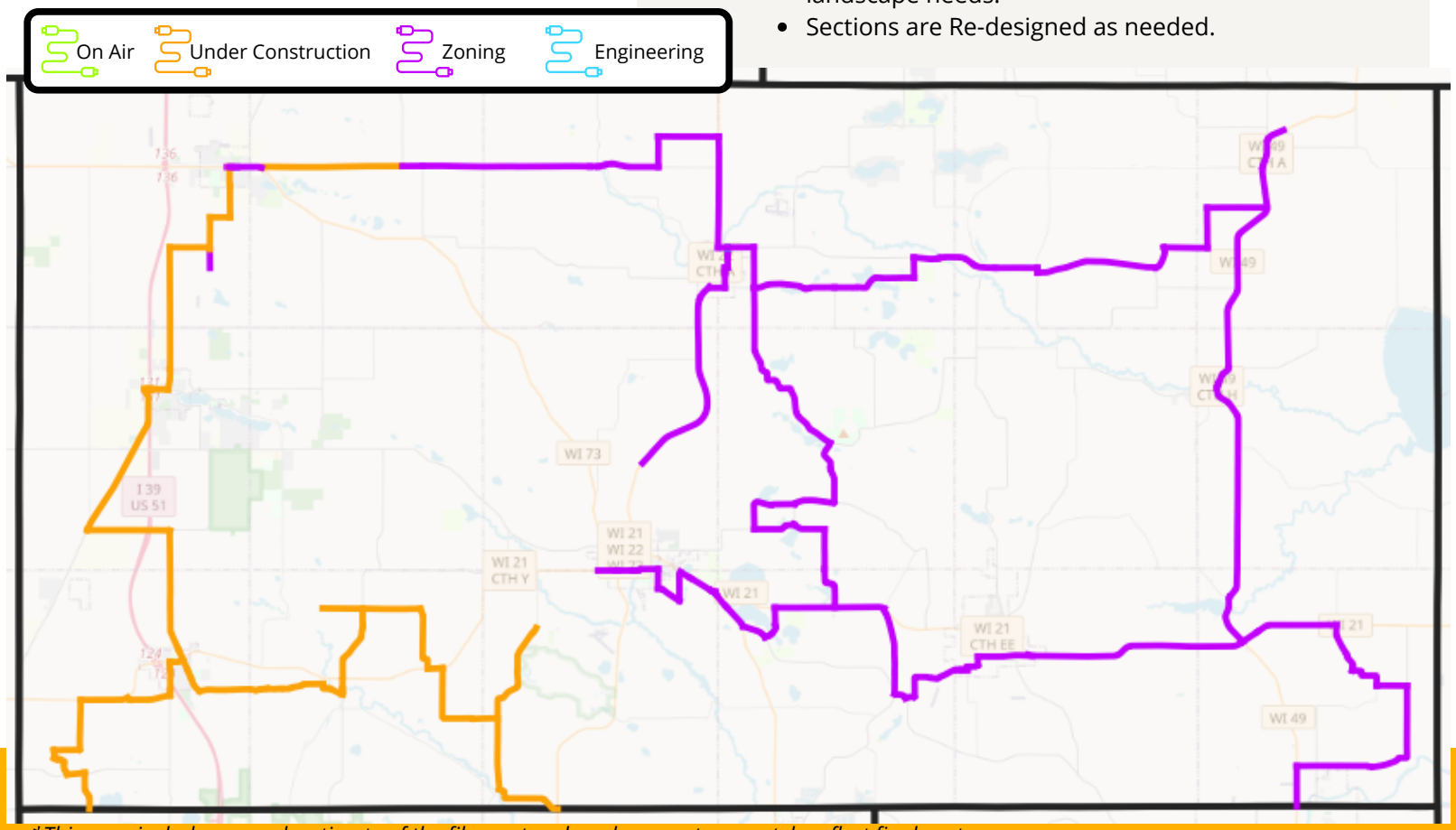
- Conduit, the protection cable that will house the fiber, is installed via Boring (with a drill) or Plowing.
- Handholes, Flowerpots, and Cabinets, access hatches that house utilities and connections, are installed.
- Fiber is sent through the conduit via Fiber Blowing, a technique using a machine on 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: 175 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.



**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.