



Connecting Michigan

Was ... Fiber to Jared's house

Jared Mauch - Washtenaw Fiber Properties LLC

@jaredmauch

Quick biography

- Worked in internet field since 1995
 - Worked for NSFNet regional network 1995-1997
 - Acquired by private company 1997-1998
 - Regional ISP M&A 1998-2000
 - Global ISP backbone 2000-2017
 - CDN 2017-Present
- Internet and telecom have different mindsets but technology overlap
- Lifetime Michigan resident
- Always been passionate about computers and technology
- Oh, and out of necessity I now own a telco

Research

- Access, Costs
 - Tried to get existing providers to build
 - Comcast was most approachable and easy to work with - wanted \$50k
 - AT&T? 1.5Mb/s
 - Still in 2022 :-)

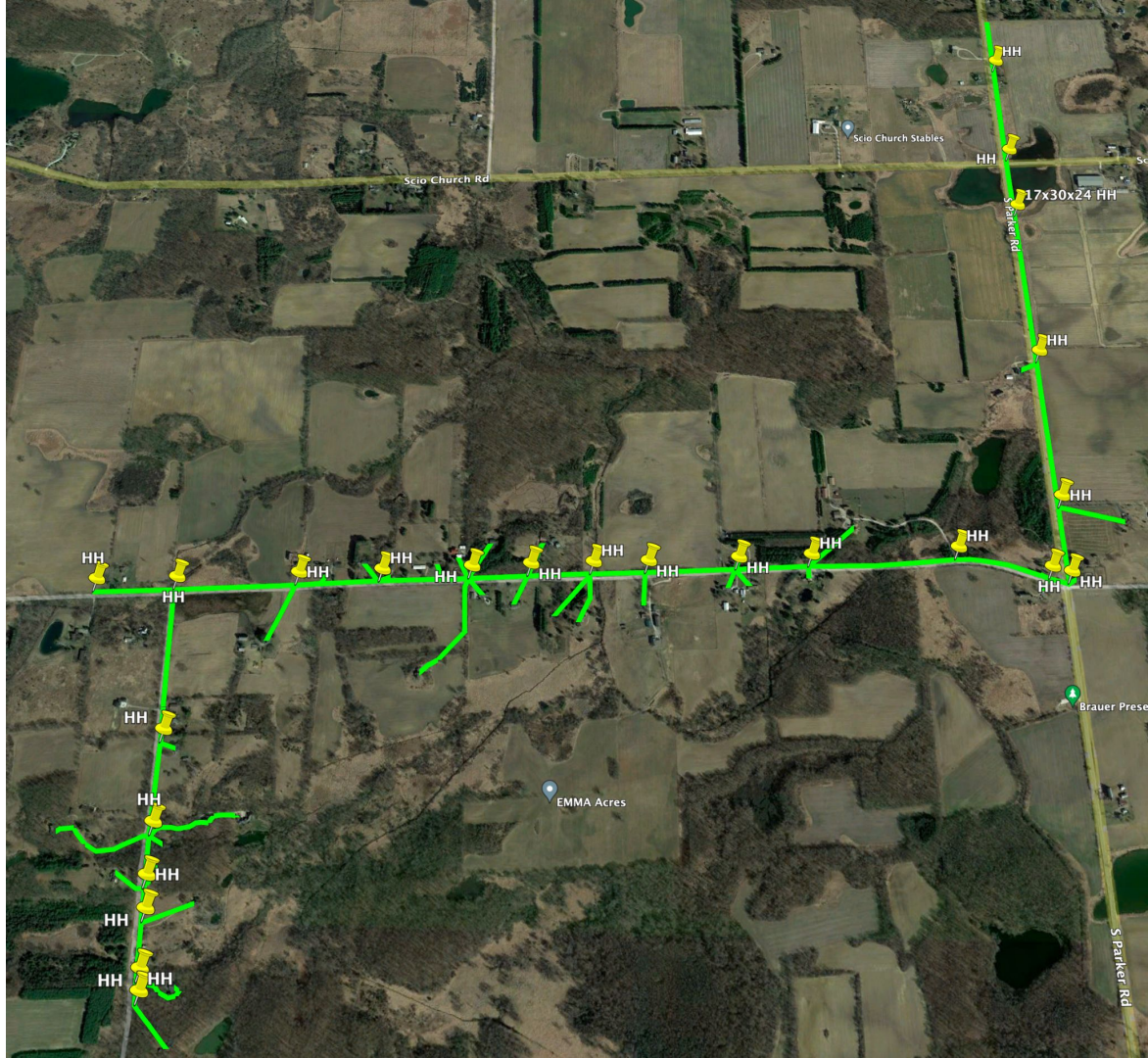
The screenshot shows a website interface for selecting an internet plan. At the top, there is a globe icon and the word "Internet". Below this, a heading reads "1. Choose an internet plan". A promotional message states: "Great news! You can get our **fast**, reliable internet at your address. Check out your available speed below." The main offer is for "Internet Basic 1.5" with "Speeds up to 1.5Mbps". The pricing is shown as "~~\$49.99/mo.~~ \$39.99/mo. Bundle price for 12 months". A small disclaimer at the bottom of the offer box reads: "No annual contract. Price plus taxes & \$10/mo. equip fee. Incl \$10/mo saving when bundled with other qualifying svc. (min. \$19/mo) & may require combined bill. Incl unlimited internet data allowance at no add'l charge (\$30 value). See offer details". A blue "Add" button is located at the bottom of the offer box.

2021 Construction

- Built much larger network
- Passed another 42+ homes with fiber
- Take rate over 50%
 - Several homes passed have elderly people 80+ living in them
 - One home - person doesn't own any sort of computer
- Negotiated fiber swap on existing fiber network
- Building dual/extra conduits is very valuable
- Took advantage of ILEC copper replacement construction
 - Contractor gave good rate to pull conduit at same time

2021 Expansion

- Grew once construction started
- Many new leads created
- Expanded fully down Haab Road as a result (RFP area)



RFI/RFP Timeline

- RFI issued Mar 18 - April 9 2021
- RFP Issued May 23rd 2021
 - Originally due June 3rd 2021
 - Extended to June 9th 2021
- Broadband committee recommended approval on June 17th, 2021
- County approved funds on September 15 2021
- Negotiations still ongoing
- Be patient with the process, wheels move slowly

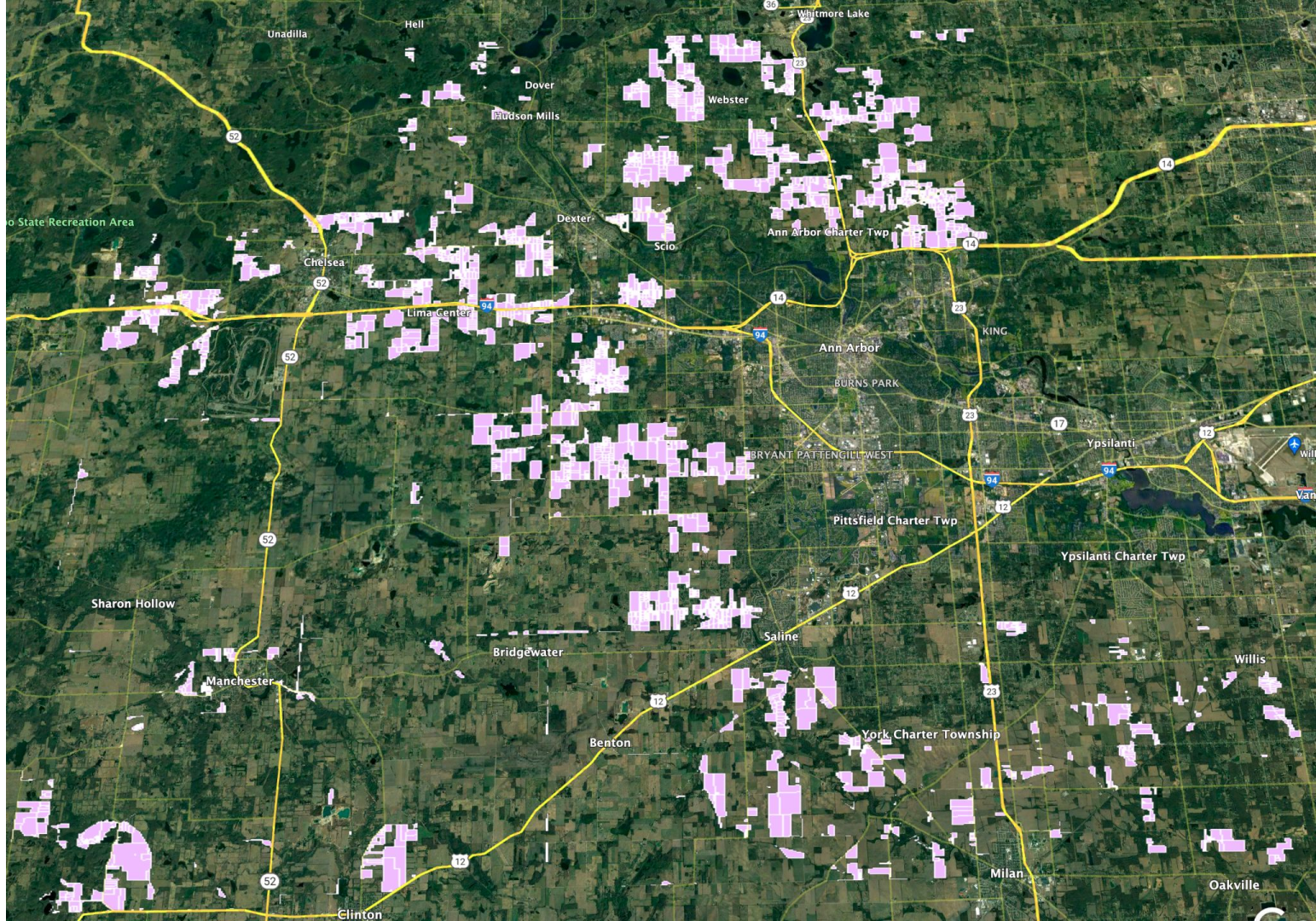
RFI/RFP Timeline

- We have had success excluding areas that were added to our original 2021 plans (Part of our funded 2021 build area)
- Partial awards after other grants CMIC 2.0 (Connecting Michigan Communities) taken into consideration

FCC maps lack fidelity

- Well known issue
- Local municipalities or counties are building their own maps
- Washtenaw county performed parcel-by-parcel study in 2019
- Other counties in Michigan following with their own studies
 - Important to participate in mapping exercises to provide clarity on served parcels
- Showed service at my home in 2010+ due to Census level reporting

Gaps



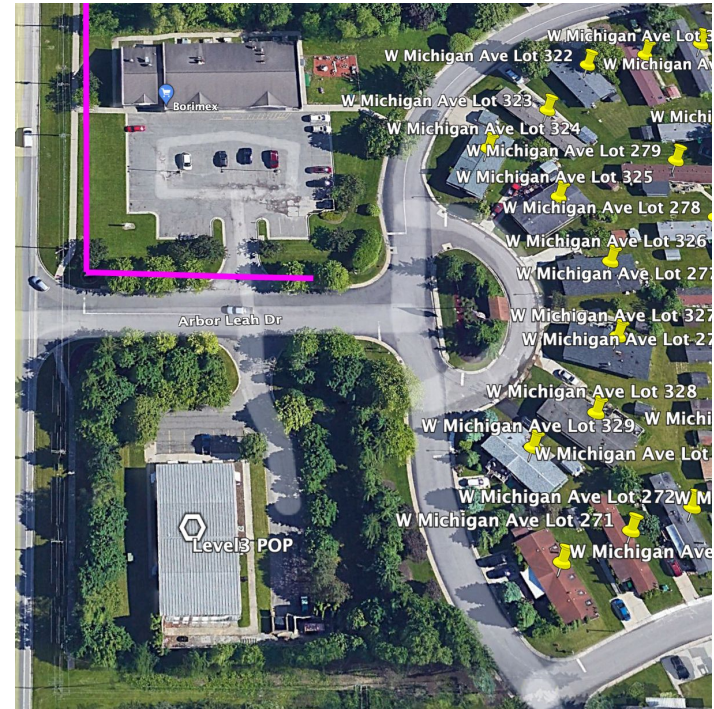
Actual field surveys required

- Comcast serves parcels on right
- Not parcels on left



Fiber is already in the communities

- One property will have 4 different carrier fibers nearby
 - Only one broadband provider using 25/3 metric
- Others have fiber just outside their community
- When communities talk about access - this is it

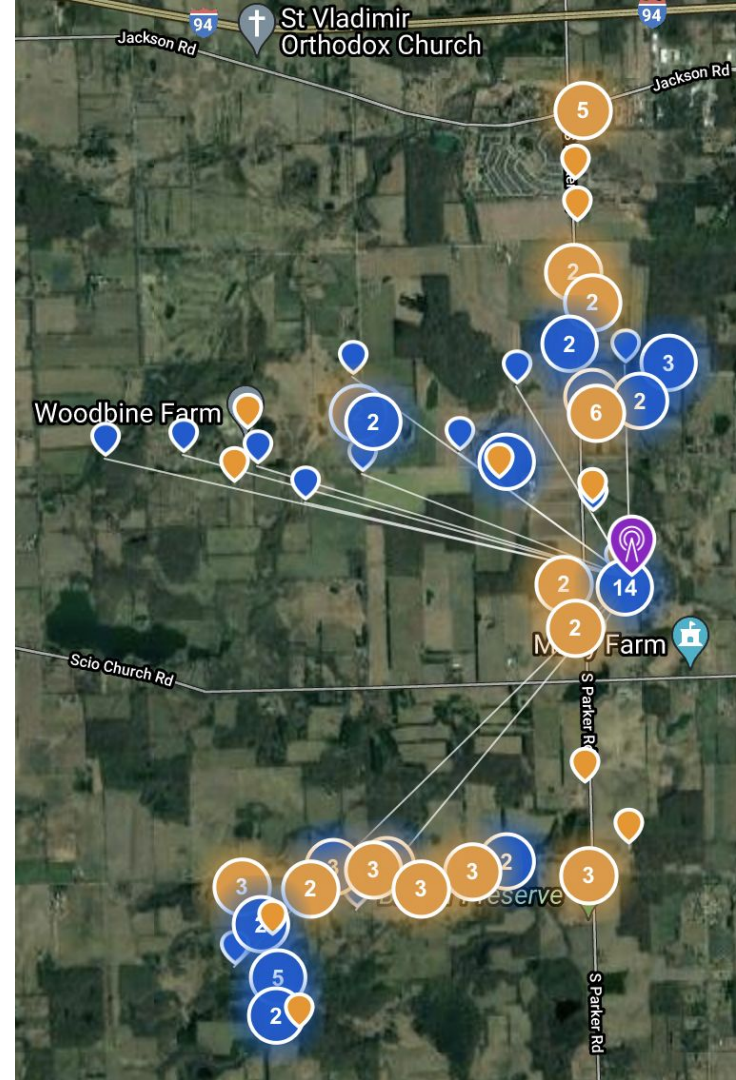


American Recovery Act (COVID-19)

- Several discussions with municipalities about broadband expansion
 - One of the ways in which money can be spent under the act
- Longstanding broadband gap filling research came to fruition
- County issued RFI and subsequent RFP
 - Did not participate in the RFI
 - Did offer a bid for RFP
- Was awarded several service areas
 - In contract negotiations to build service
 - DSL/wireless not considered adequate

January 2022 Customer map

- Over 13km end-to-end
- Common to get 80% market penetration
- Some areas still have low density of 3 homes/mile

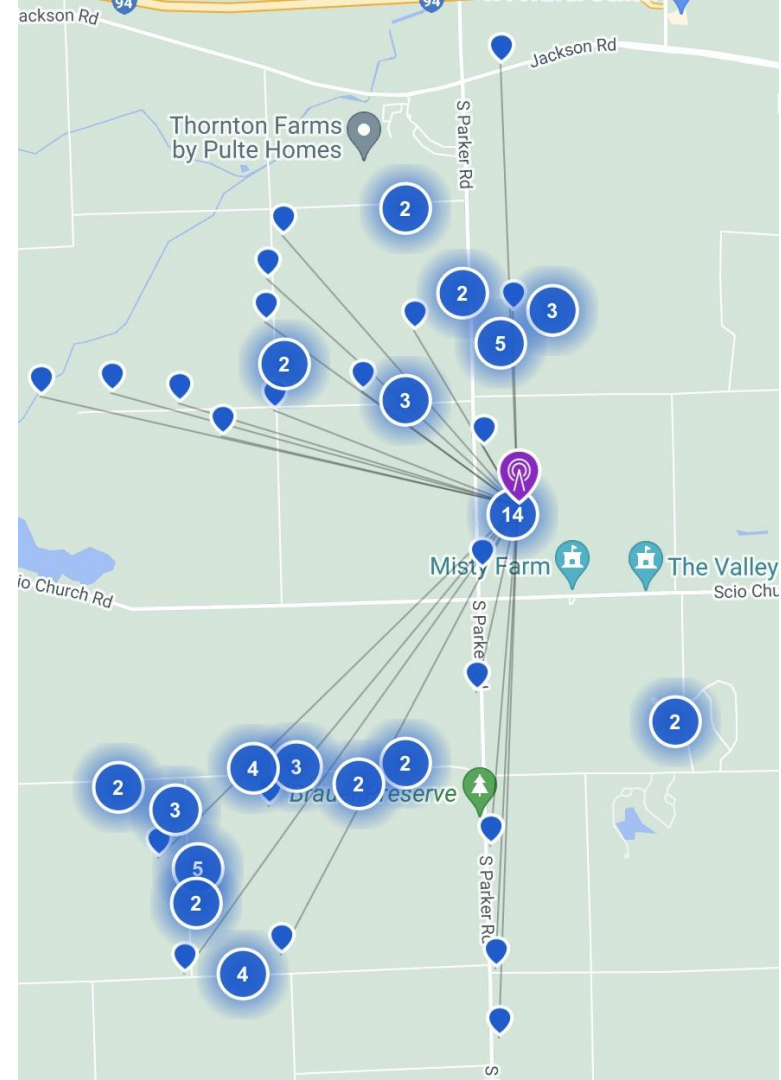


Customer status (Jan 28, 2022)

- 65 customers online
- 1 Business customer (previous WISP)
- 5+ still being installed
- Many prospective customers
 - Once service is active the neighbors want it

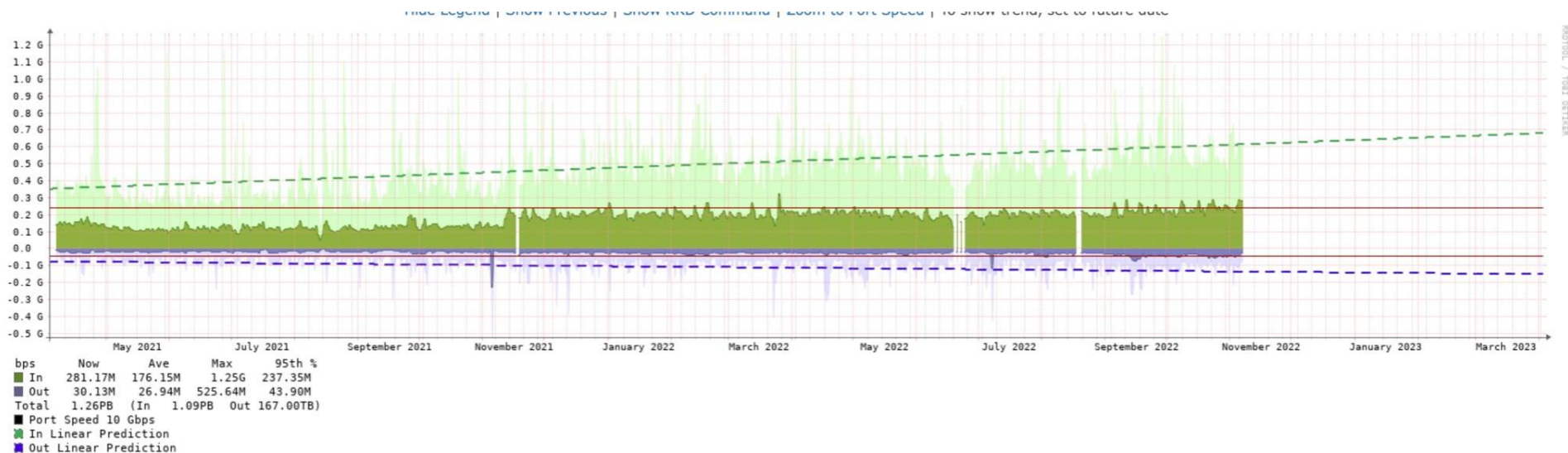
November 2022

- 81 Customers online
- About 35 homes waiting to be installed
- About 7 miles built so far
- One customer lost (non-payment)



Network usage? Growing with customers of course

Gaps due to collection server issues, hardware was eventually replaced



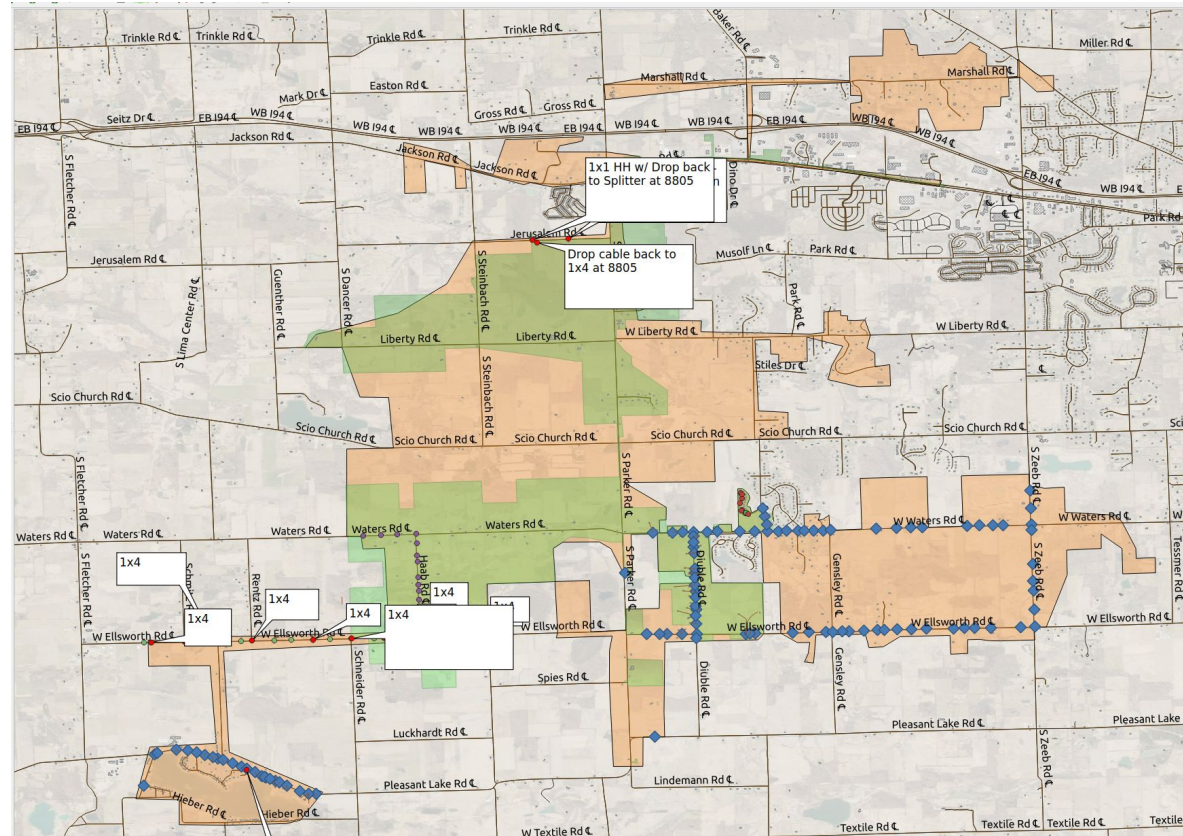
Currently in-use hardware

- 3x Juniper QFX5100-48S-6Q
- Intel NUC (dhcp server1, speedtest server, librenms)
- Raspberry PI4 (redundant dhcp server2)
 - Can boot from NVMe on USB
- UBNT UF-OLT8
 - PON customers
- Arista DCS-7050S-52-F
 - Active ethernet customers
- Quanta LB4M
 - Access switch (2x10G, 48x1G RJ45)
- UISP-R-Pro/UISP-Console (Annapurna Labs Alpine based)
 - 10G home CPE

2022 Activities

- 2022 construction underway with signed contracts
 - Middle mile requirements to reach areas will pass other properties
- Finances are tricky
 - ROI cycle is 7-12 years without subsidies
 - Contract payout mechanics not as expected
- Federal infrastructure money expected to be a boon to local areas
- ARA money is still in local government hands

Coverage Area and Plans 2023



The Future (2023+)

- Complete ARPA project
- Expect to be going head-to-head with incumbents
- Lots of M&A activity in this space
 - No long term goals here on either side, maybe i keep maybe i sell?
- Lots of interest in expanding the coverage area
 - “Next house” problem
- As area increases so does the number of adjacent homes and properties

Questions?

Time for questions?

twitter - @jaredmauch

Jared Mauch

jared@washftth.com



Media Coverage

- NPR
 - <https://www.npr.org/2022/09/05/1121145068/encore-fed-up-with-poor-broadband-access-he-started-his-own-internet-provider>
- Arstechnica
 - <https://arstechnica.com/tech-policy/2022/08/man-who-built-isp-instead-of-paying-comcast-50k-expands-to-hundreds-of-homes/>
- Scrips Media
 - National - <https://www.denver7.com/news/national/meet-the-man-on-a-mission-to-bring-internet-to-his-rural-michigan-town>
 - Local - WXYZ - <https://youtu.be/qiGzPsL0GsE>
- MLIVE
 - <https://www.mlive.com/news/ann-arbor/2022/08/michigan-man-started-his-own-internet-provider-now-hes-got-26m-to-bring-broadband-to-neighbors.html>