

# Examining CAF II Deployments in East Central Minnesota

# Differing Perspectives on CAF II

## Providers

### *From management*

- Will deliver 40 – 80 Mb
- Solves rural broadband accessibility challenge
- We are installing hundreds of miles of fiber and advanced electronics
- Trust us!

### *From field techs*

- “Sorry, we can only get you 16 Mb/1 Mb because you are 0.6 miles (3,100 ft.) from the DSLAM.”

## Community

### *From broadband advocates*

- This is a 10 Mb/1 Mb network
- Delivers an incomplete solution over old technology
- Inhibits prospective competitors
- CAF II falls far short as a future-oriented solution

### *From some customers*

- “10/1 is a lot better than 1.5 Mb!”

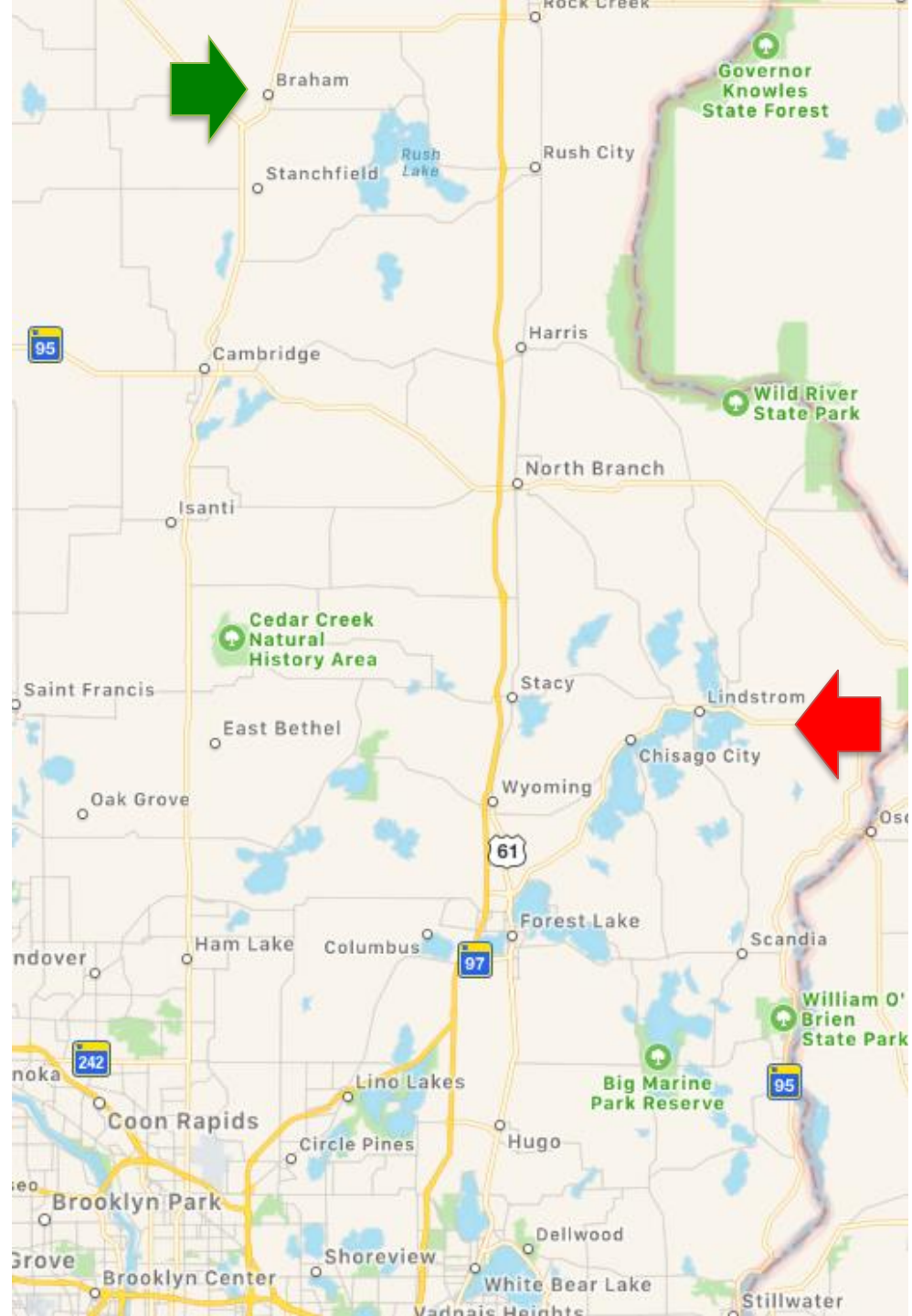
# Research Goals

- Document two CAF II network deployments
- Understand the prospective bandwidth capacity of these networks
- Assist local leaders determine whether CAF II networks will meet community needs
- Educate state policy leaders about CAF II

# Study Areas

Braham Exchange  
served by CenturyLink

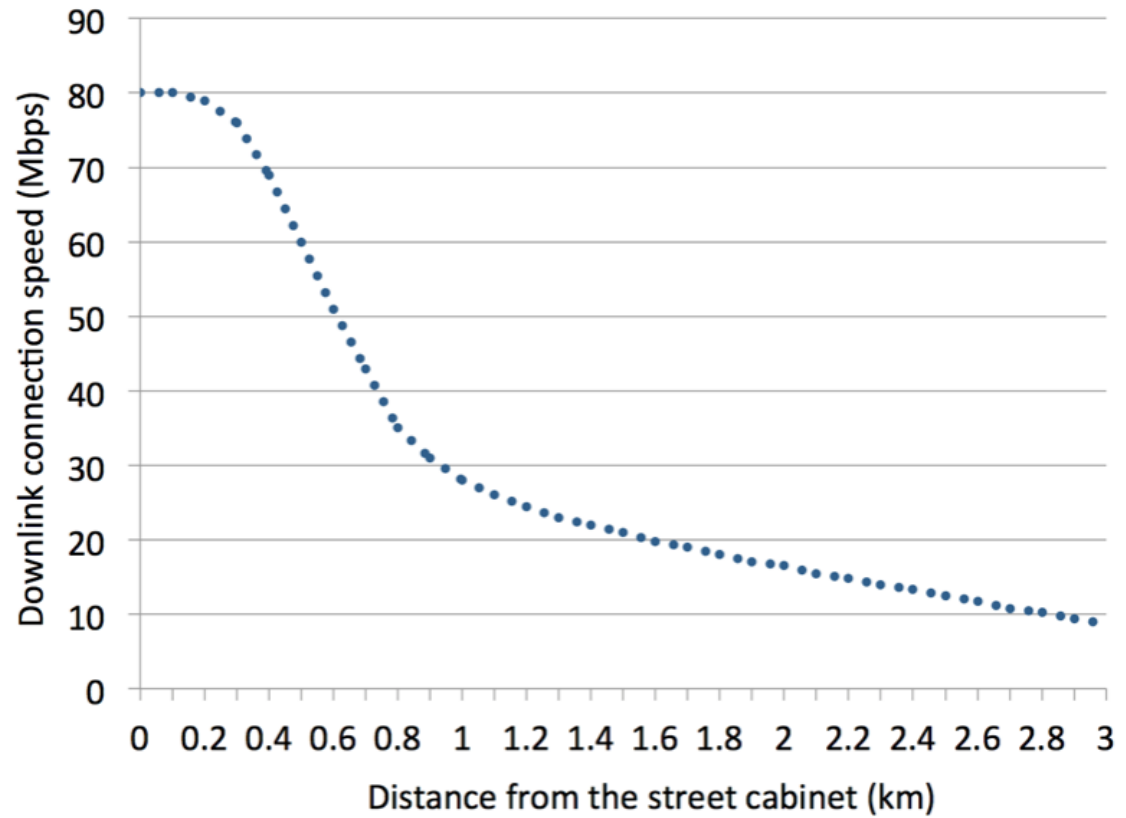
Lindstrom Exchange  
served by Frontier

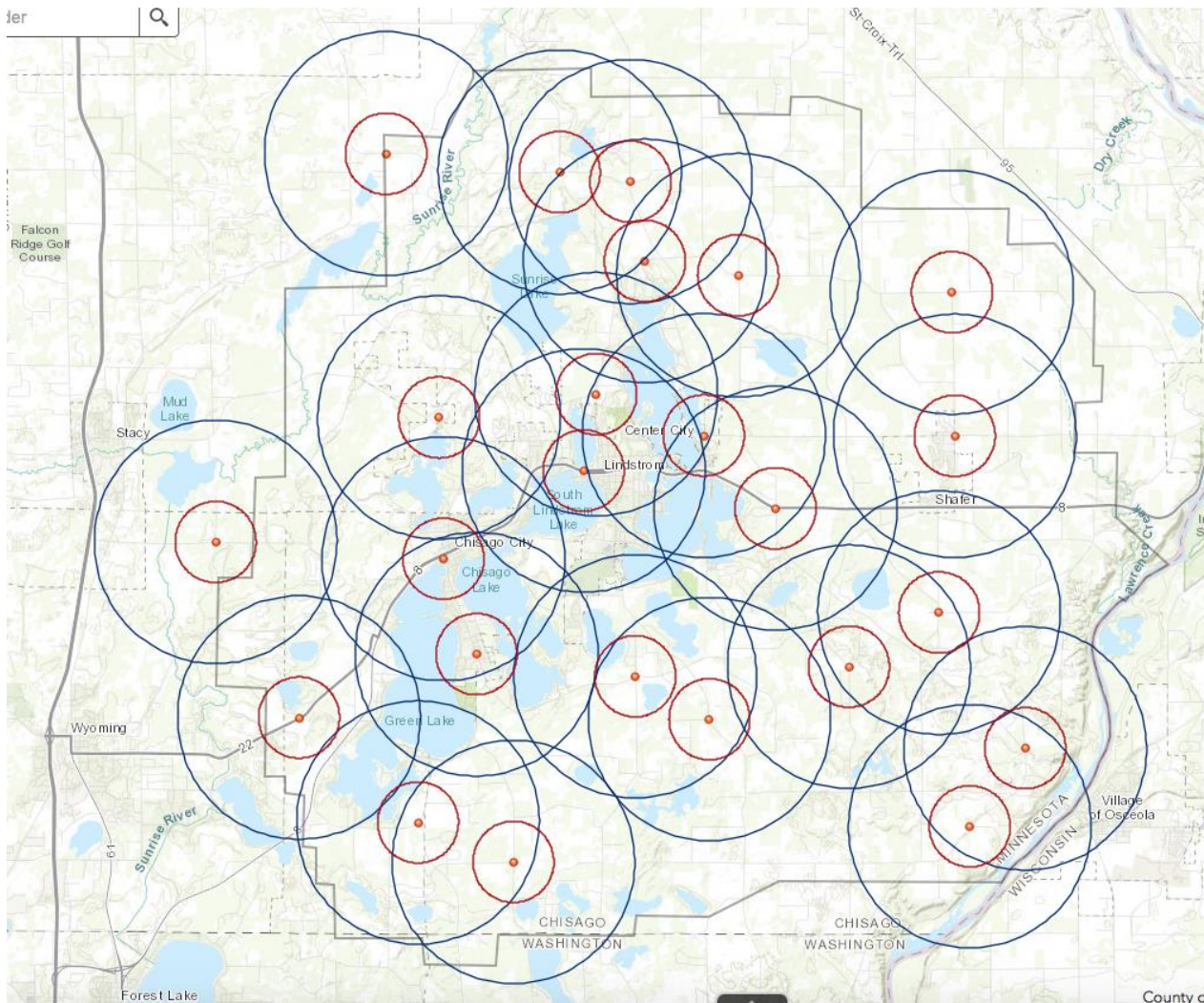


# CAF II Networks = FTTN w/VDSL2

## DSL Speed Chart

- Speeds decline rapidly over distance
- Up to 80 Mb at the node
- Approximately 25 Mb/3 Mb at 1 km or 3,280 feet
- Approximately 10 Mb/1 Mb at 3 km or 10,000 feet
- Vectoring increases capacity within 3,000 feet
- Pair bonding increases speeds
- Copper capacity is dependent on line quality

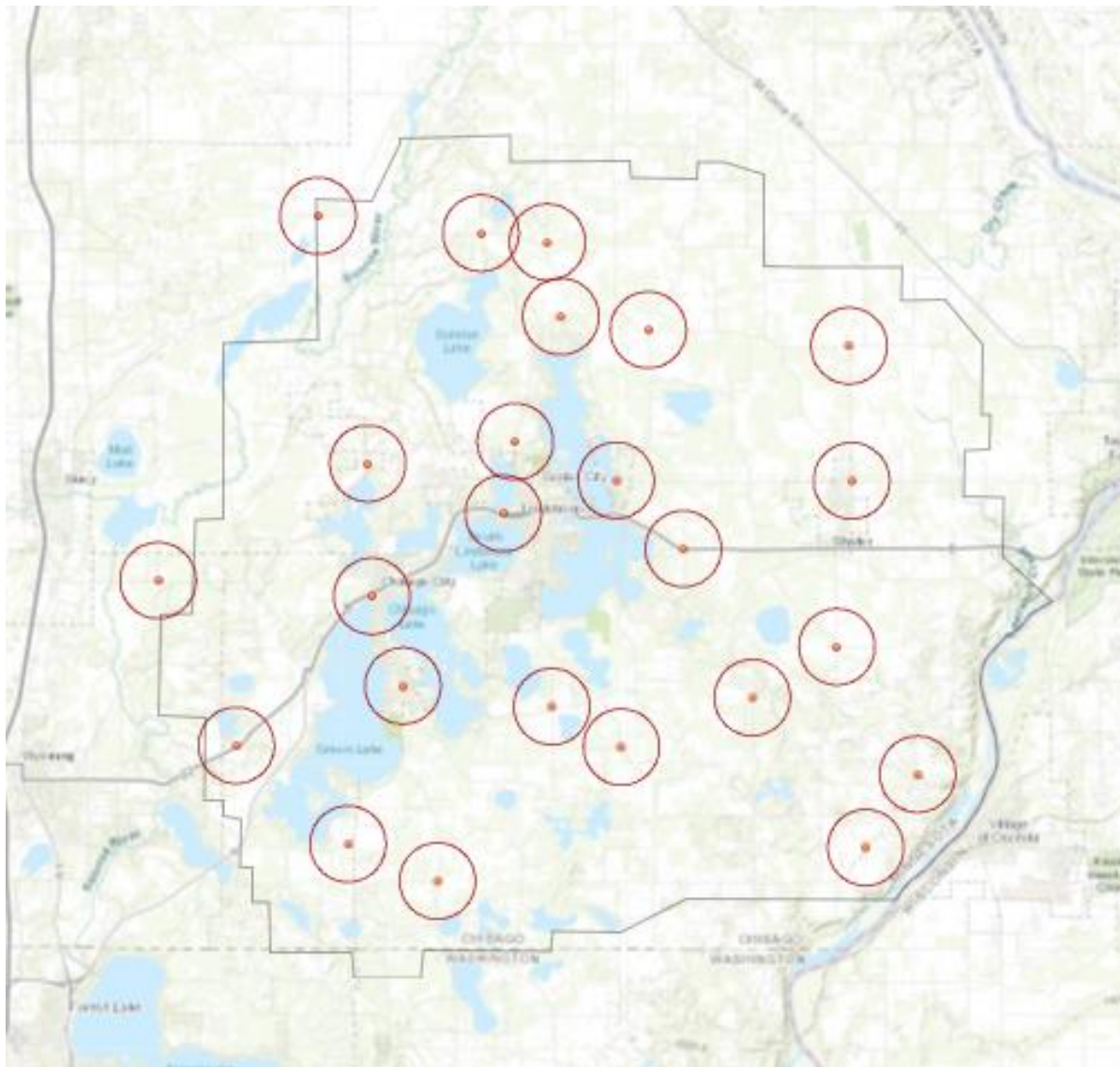




Red circles = 3,000 foot radius = 25 Mb/3 Mb and higher

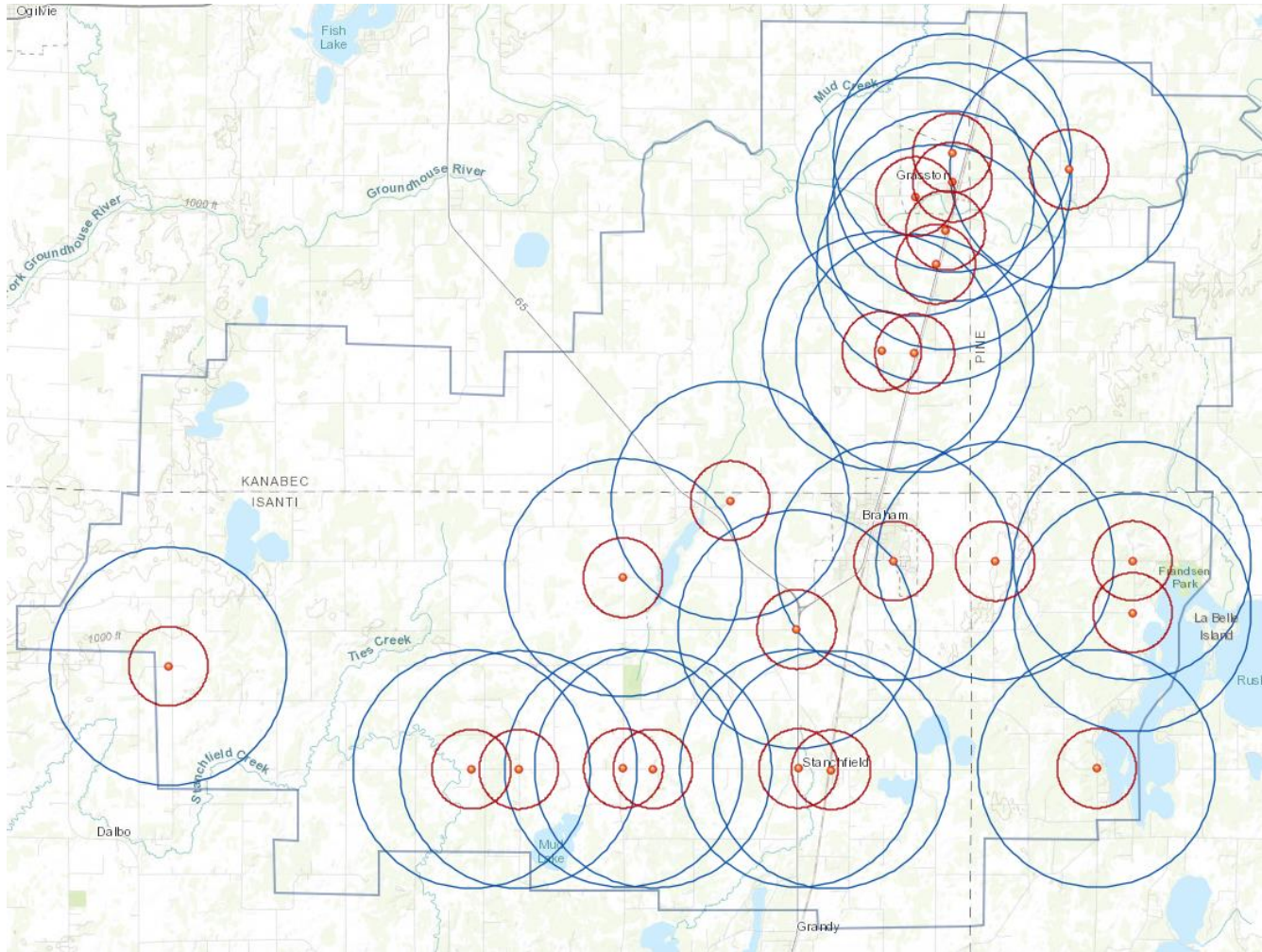
Blue circles = 9,000 foot radius = between 25 Mb/3 Mb to 10 Mb/1 Mb

# FRONTIER'S LINDSTROM EXCHANGE



Those within the circles, about 10% of land area, may meet the 2022 state goal of 25 Mb/3Mb; no one would meet the 100 Mb/20 Mb 2026 state goal.

## **FRONTIER'S LINDSTROM EXCHANGE**

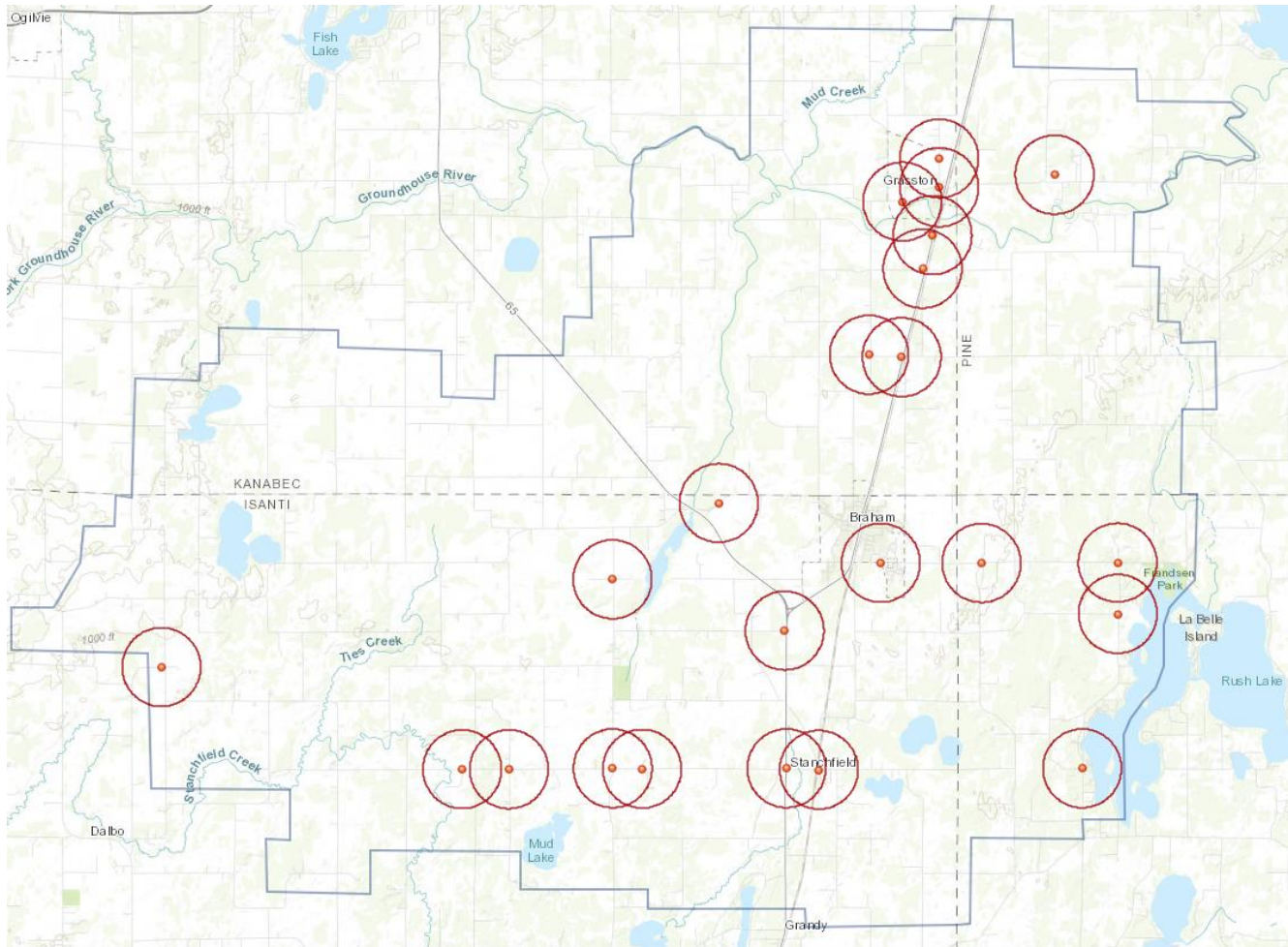


Red circles = 3,000 foot radius = 25 Mb/3 Mb and higher

Blue circles = 9,000 foot radius = between 25 Mb/3 Mb to 10 Mb/1 Mb

# CENTURYLINK'S BRAHAM EXCHANGE





3,000 foot radius circles occupy less than 10 percent of the land area

# **CENTURYLINK'S BRAHAM EXCHANGE**

# Post CAF II Findings

- Some customers receive less than 10 Mb/1 Mb
- Many will receive less than 25 Mb/3 Mb as they are more than 3,000 feet from node
  - Current FCC broadband definition
  - 2022 MN state broadband goal
- Few, if any, will receive 100 Mb/20 Mb
  - 2026 Minnesota broadband goal

# Methodology Challenges

- **Overestimating broadband capacity**
  - Distances from DSLAM measured as crow flies
  - VDSL2 chart displays lab conditions
  - Copper may be quite old
  - Some equipment possibly misidentified as DSLAMs
- **Underestimating broadband capacity**
  - Vectoring
  - Pair bonding
- **Provider input**
  - CenturyLink & Frontier review sought
  - No substantive response
- **Peer Review**
  - Study methodology and report reviewed and approved by:
    - Other providers
    - Equipment vendors
    - Network engineering consultants
  - Hesitancy to go “on the record”