BUG TUSSEL WIRELESS, LLC
RESPONSE TO
KEWAUNEE COUNTY BROADBAND COMMITTEE
REQUEST FOR PROPOSAL
October 21, 2019

BACKGROUND

Bug Tussel Wireless, LLC (Bug Tussel or BTW) is a privately held Eligible Telecommunications Company (ETC) certified by the Wisconsin Public Service Commission. Bug Tussel was incorporated as a limited liability company by Steven Schneider, Terry Cory and Kenneth Anderson in 2003. The Company is currently owned 100% by Hilbert Communications, LLC which is a diversified local holding company which in addition to BTW owns 100% of Midwest DataCore LLC (a switching and data aggregation facility in Madison, WI); Michigan Wireless LLC (a spectrum holding company with Federal Communications Commission licenses for approximately 35 million Mhz pops of airwaves); Cloud 1 LLC (a tower construction and leasing company) and Redtail Tower LLC (a tower construction company).

Hilbert Communications LLC is owned by approximately 14 individuals or organizations with the largest two holders being Paul O. Gehl and related parties and Steven J. Schneider and related parties controlling 59.67% of the outstanding ownership units.

In addition to its core operations, Bug Tussel and its related companies utilize private equity firms and strategic investors to fund its tower operations and to monetize long-term assets such as towers whereby the private equity firm or investor provides the capital to build the towers and BTW provides a lease for its own operations as well as for those of national carriers which it partners with. One the original capital is repaid, BTW and the investor share in profits or a gain on sale of the tower on a 50/50 basis either through a joint venture or similar economic arrangement.

Our VISION is to provide "state of the art" communication services and infrastructure to rural, unserved and underserved communities of the Upper Midwest that allow our communities to compete on a level playing field with all other markets.

Bug Tussel Wireless and related companies typically provide the following services:

1) Tower siting, site acquisition, tower construction and site turn up services (Cloud1 and Redtail Tower)
2) Wholesale cellular services via LTE 4G, 4.5G and 5G services (ATT, T-Mobile and Verizon [limited])
3) Retail broadband services via Cambium or LTE 4G/4.5G services or in select communities on a wholesale basis through a local provider.

capacity. So, if a tower has 40 users subscribing to a 25 Mbps plan, BTW would then add additional capacity for the 41st user.

Bug Tussel utilizes alternate routes to its Madison, Wisconsin aggregation point where it pears with and drops Internet traffic to NetFlix, Hulu, TDS, WIN, AT&T, and over 20 other carriers. Remaining Internet traffic is carried on dedicated Internet trunks to two locations in Chicago (350 Cermak and 700 S. Federal) where it enters the backbone Internet.

3) Cost per month per service offering

The rates below are current service offering prices for Bug Tussel Wireless products:

Rapid Bug	2 Mbps / 1 Mbps	$44.99 per month (promoted at $29.99)
Speedy Bug	4 Mbps / 1 Mbps	$54.99 per month (promoted at $39.99)
Express Bug	8 Mbps / 2 Mbps	$69.99 per month
Screaming Bug	12 Mbps / 3 Mbps	$79.99 per month
Flash Bug	25 Mbps / 5 Mbps	$99.99 per month (promoted at $50.00 or $79.99)
Business	60 Mbps / 8 Mbps	$169.99 per month (promoted to $129.99) (36 mo)
	60 Mbps / 8 Mbps	$269.99 per month (24 month contract)
	60 Mbps / 8 Mbps	$399.99 per month (18 month contract)
Special	100 Mbps / 20 Mbps	Quoted basis for custom designed dedicated onnectivity up to 100 Mbps in either direction.

One-time activation fee of $49.99 and equipment costs $199 to $259. Equipment can be rented for an additional $10-$30 per month depending on the plan.

4) Life expectancy of major components

The primary component of any terrestrial wireless network is the tower structure upon which the electronics are mounted. In addition to the tower structure, there is typically a concrete pad, power and transport cabinet and Radio Access Network (RAN) cabinet. The estimated costs and life expectancies are enumerated below:

Tower Structure	$250,000	50+ years
Compound, ice bridge, power and pad	$ 15,000	50+ years
Microwave transmission equipment	$ 30,000	15+ years
Fiberoptic equipment if used	TBD	40+ years
Radio access network (broadband)	$ 35,000	6-10 years
Cellular RAN	$115,700	8-15 years

5) Overall cost, financing and/or up front funding if needed (Kewaunee may provide a combination of loans, cash, and/or grants to facilitate the offering of the services to underserved areas of the county.

Phase II – Fiberoptic ring intereconnected to Door and Brown Counties:

Brown County Line to Luxemburg	$ 550,000
Luxemburg to Algoma via Casco	$1,000,000
Algoma to Kewaunee	$1,200,000
Kewaunee South to Tisch Mills	$1,200,000
Tisch Mills North to Hwy 29	$ 650,000
Hwy 29 back to Brown County Line	$ 500,000
Total Project	$5,100,000

Broadband Grant Application (2020)	$800,000
Bug Tussel Contribution	$800,000
Kewaunee County Bond or Loan	$3,500,000 (to be repaid by BTW over 144 monthly payments of approximately $29,800.88 assumes 3% bond rate and 50 basis points to Kewaunee County with the financial impact to Kewaunee County being a repayment of all interest and principal plus approximately $105,000 in margin.
Contingent sources of revenue:	Carrier AT – 7 towers at $1,100/mo=$7,700/mo Carrier CC – dark fiber IRU at $8,000/mo Carrier BT – 7 towers at $975/mo=$6,825/mo Carrier X – dark fiber IRU at $8,000/mo County and Municipal Uses -- ??? Schools and Erate -- ??? Open accesss carriers -- ??? TOTAL $30,525 PER MONTH PLUS+???

6) **Rough coverage map within the county**

See Attachment A for coverage to be provided by proposed network.
See Attachment B for coverage that can be acquired from AT&T existing network.
See Attachment C for combined coverage.

7) **Examples of other successes – preferably government and/or regional contacts.**

Bug Tussel has partnered with a variety of counties, townships and municipalities seeking to provide better broadband access for their constituents for both personal use and economic development purposes. The following is a sample of the "public – private" partnerships or wholly funded builds that have been either completed by Bug Tussel or are in progress.

- Adams County (conduit bond issuance ($1.8 million) – initial plan completed including construction of 6 new towers, colocation on 8 towers, installation of broadband services at electric substations owned by Adams-Columbia Electric Coop and addition of nearly 1,000 new broadband users. Bonds are in year 7 of 12 with no missed or late payments) John West is the County Board Chair and CFO of Adams Columbia Electric Coop.

A) Basics of using the Internet
B) Basics of social media
C) Use of the Internet for small businesses
D) Use of the Internet in healthcare
E) Purpose and use for Artificial Intelligence (AI)
F) Purpose and uses for Virtual Reality (VR)
G) Internet speeds, networks and terms
H) Understanding broadband rate plans, service plans and how your home Internet works
I) Basics of using computers for seniors

Furthermore, we suggest that in addition to any existing ad hoc or standing broadband committee, that the county establish a technology education and development committee that would include county board members, school administrators, service providers, healthcare providers, emergency management and representatives of Bug Tussel to meet at least quarterly to assure execution and development of ongoing educational plans and to measure levels of understanding within the community.

Finally, Bug Tussel Wireless will employ a Business Development Manager who will be an employee of Bug Tussel responsible for business development within the community as well as distribution including the hiring and training of Independent Sales Reps who will be part-time, independently contracted agents in the community who will be trained on the latest technology products and uses and will represent Bug Tussel to the community. These individuals have various compensation schedules that incent them for number of users signing up for broadband as well as for the number of Bug Tussel University classes and other community events that are conducted.

Contact Information

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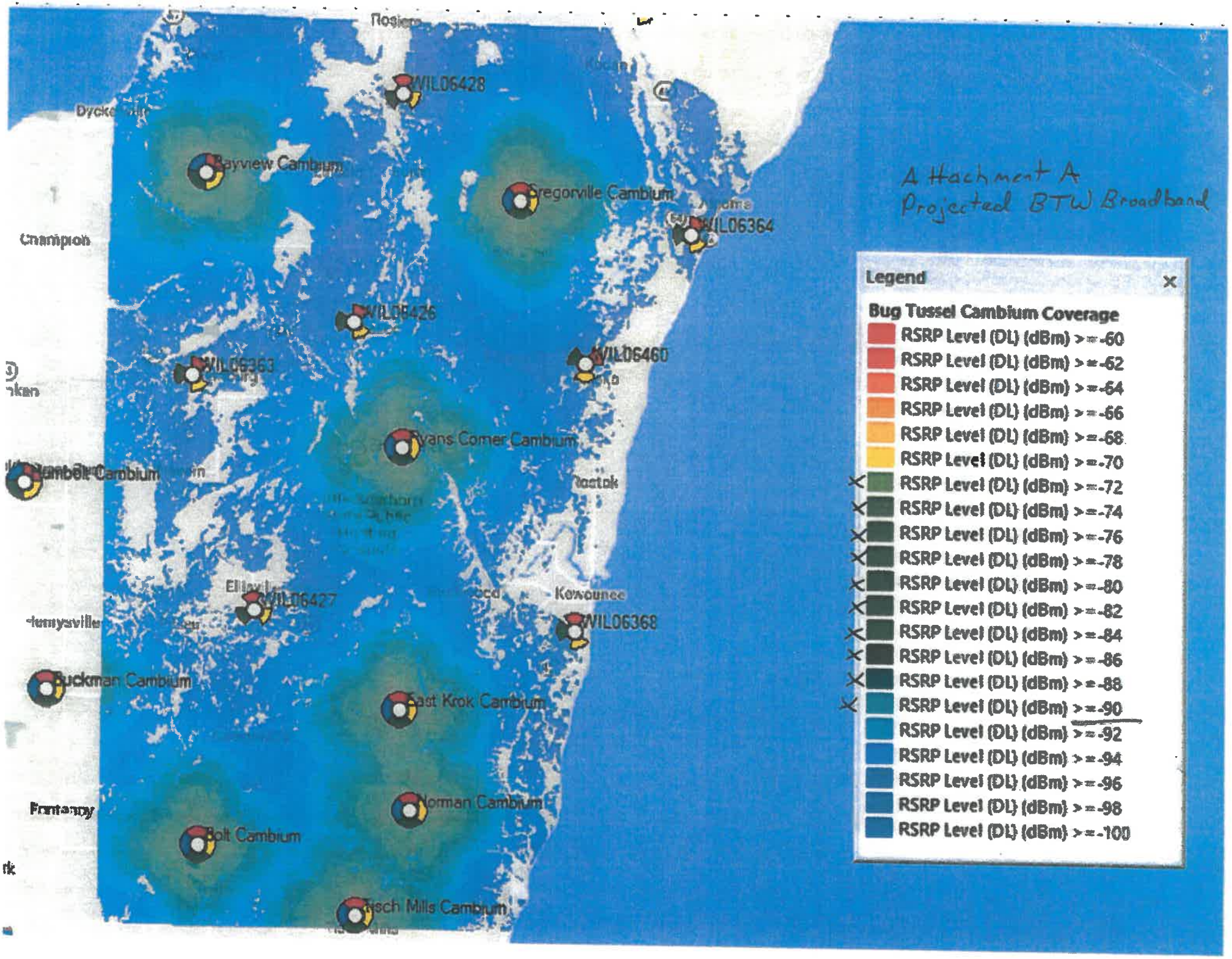
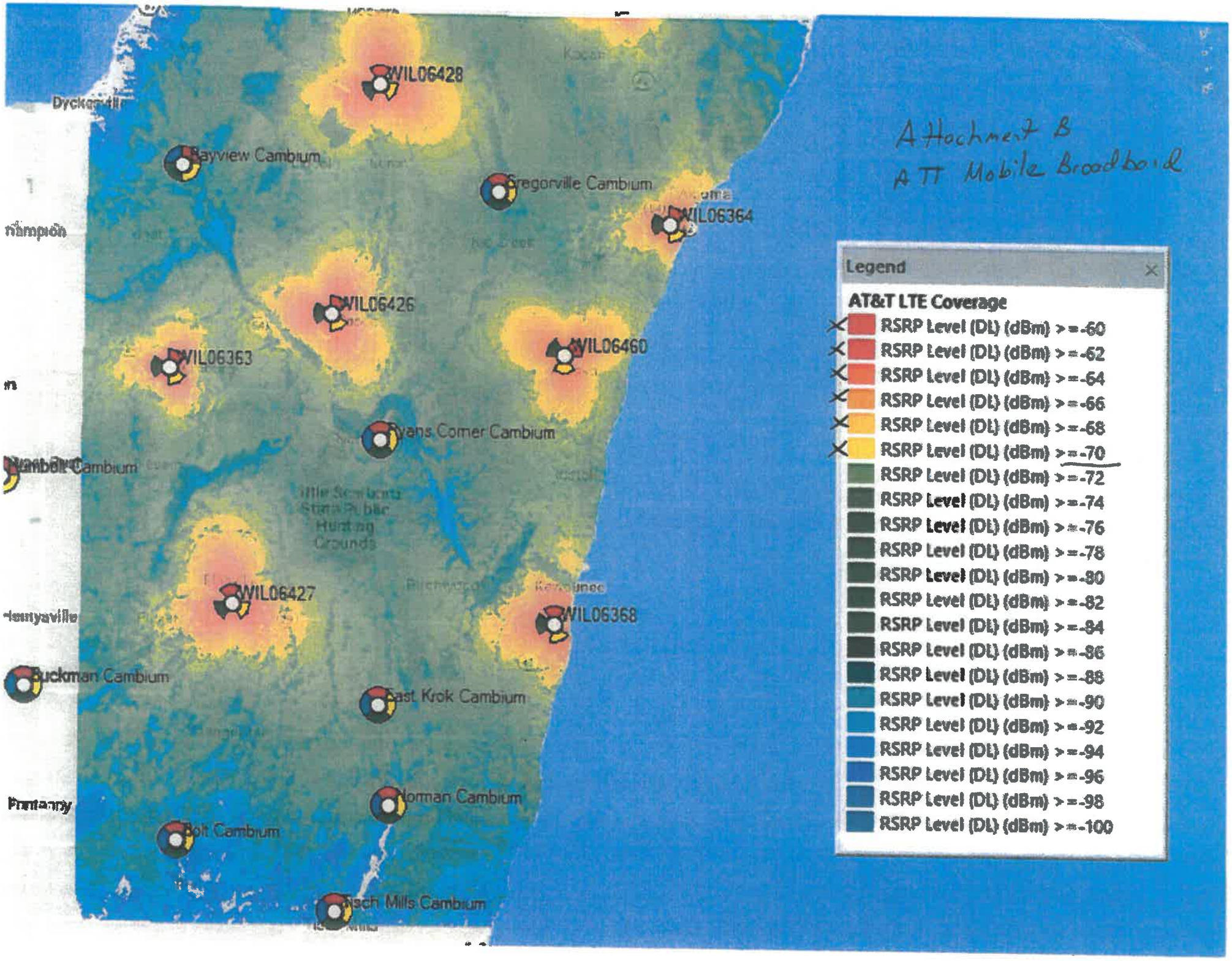


Attachment A
Projected BTW Broadband
Legend
Bug Tussel Cambium Coverage
RSRP Level (DL) (dBm) >=-60
RSRP Level (DL) (dBm) >=-62
RSRP Level (DL) (dBm) >=-64
RSRP Level (DL) (dBm) >=-66
RSRP Level (DL) (dBm) >=-68
RSRP Level (DL) (dBm) >=-70
RSRP Level (DL) (dBm) >=-72
RSRP Level (DL) (dBm) >=-74
RSRP Level (DL) (dBm) >=-76
RSRP Level (DL) (dBm) >=-78
RSRP Level (DL) (dBm) >=-80
RSRP Level (DL) (dBm) >=-82
RSRP Level (DL) (dBm) >=-84
RSRP Level (DL) (dBm) >=-86
RSRP Level (DL) (dBm) >=-88
RSRP Level (DL) (dBm) >=-90
RSRP Level (DL) (dBm) >=-92
RSRP Level (DL) (dBm) >=-94
RSRP Level (DL) (dBm) >=-96
RSRP Level (DL) (dBm) >=-98
RSRP Level (DL) (dBm) >=-100
WIL06428
Bayview Cambium
Gregorville Cambium
WIL06364
WIL06426
WIL06363
WIL06460
Ryans Corner Cambium
Humbolt Cambium
Rostok
Kewaunee
WIL06427
WIL06368
Buckman Cambium
East Krok Cambium
Norman Cambium
Bolt Cambium
Fisch Mills Cambium
Champion
Fontenoy


Attachment B
AT&T Mobile Broadband
WIL06428
Bayview Cambium
Gregorville Cambium
WIL06364
WIL06426
WIL06460
WIL06363
Evans Corner Cambium
WIL06427
WIL06368
East Krok Cambium
Norman Cambium
Bolt Cambium
Legend
AT&T LTE Coverage
RSRP Level (DL) (dBm) >=-60
RSRP Level (DL) (dBm) >=-62
RSRP Level (DL) (dBm) >=-64
RSRP Level (DL) (dBm) >=-66
RSRP Level (DL) (dBm) >=-68
RSRP Level (DL) (dBm) >=-70
RSRP Level (DL) (dBm) >=-72
RSRP Level (DL) (dBm) >=-74
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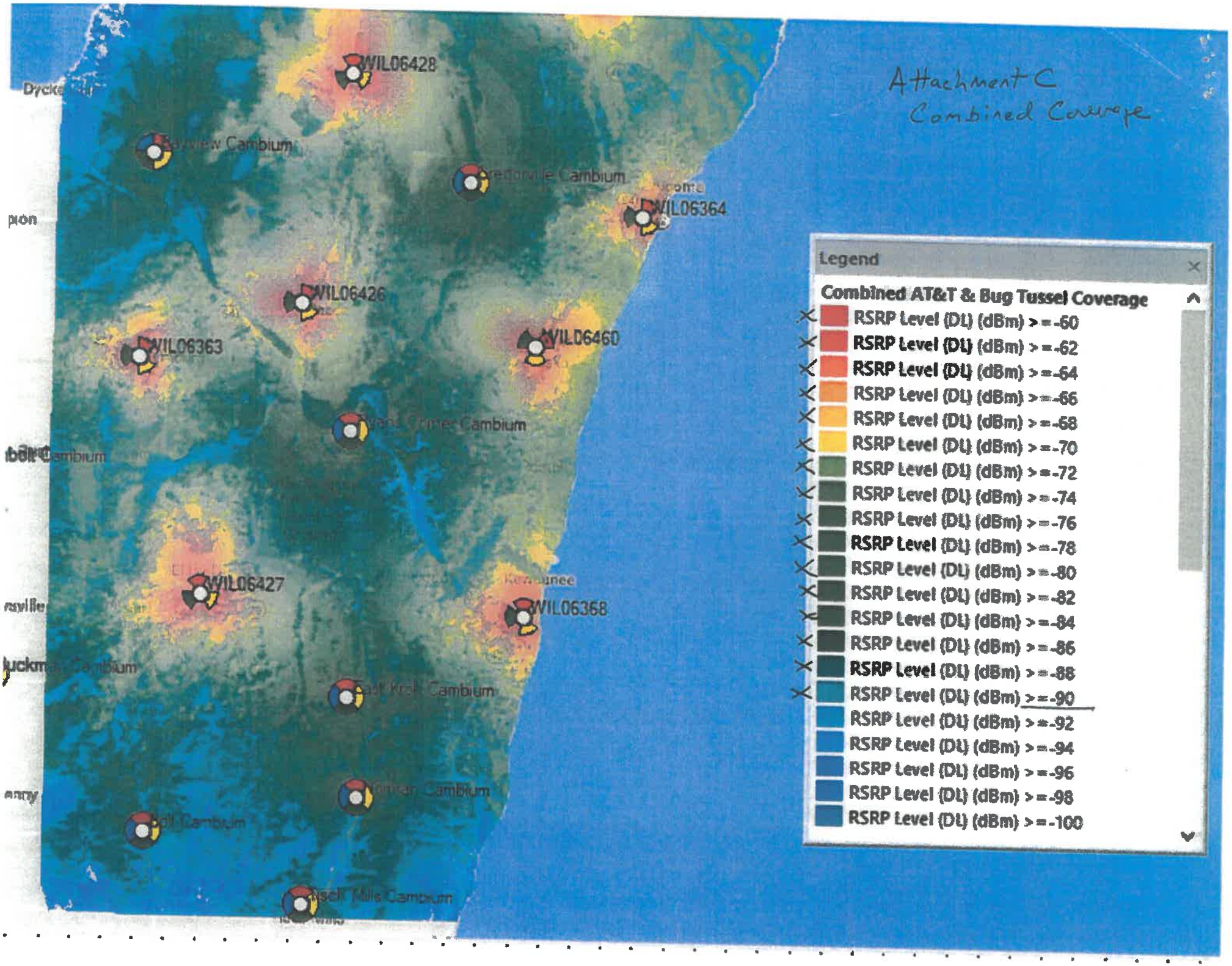
RSRP Level (DL) (dBm) >=-78
RSRP Level (DL) (dBm) >=-80
RSRP Level (DL) (dBm) >=-82
RSRP Level (DL) (dBm) >=-84
RSRP Level (DL) (dBm) >=-86
RSRP Level (DL) (dBm) >=-88
RSRP Level (DL) (dBm) >=-90
RSRP Level (DL) (dBm) >=-92
RSRP Level (DL) (dBm) >=-94
RSRP Level (DL) (dBm) >=-96
RSRP Level (DL) (dBm) >=-98
RSRP Level (DL) (dBm) >=-100

Attachment C
Combined Coverage



BUG TUSSEL WIRELESS LLC

PRESENTATION TO KEWAUNEE COUNTY BROADBAND COMMITTEE

OCTOBER 25, 2019

1:00 P.M.

35m Total
20m Wholesale Cellular

KEWAUNEE COUNTY BROADBAND PROPOSAL

bugtussel™ WIRELESS

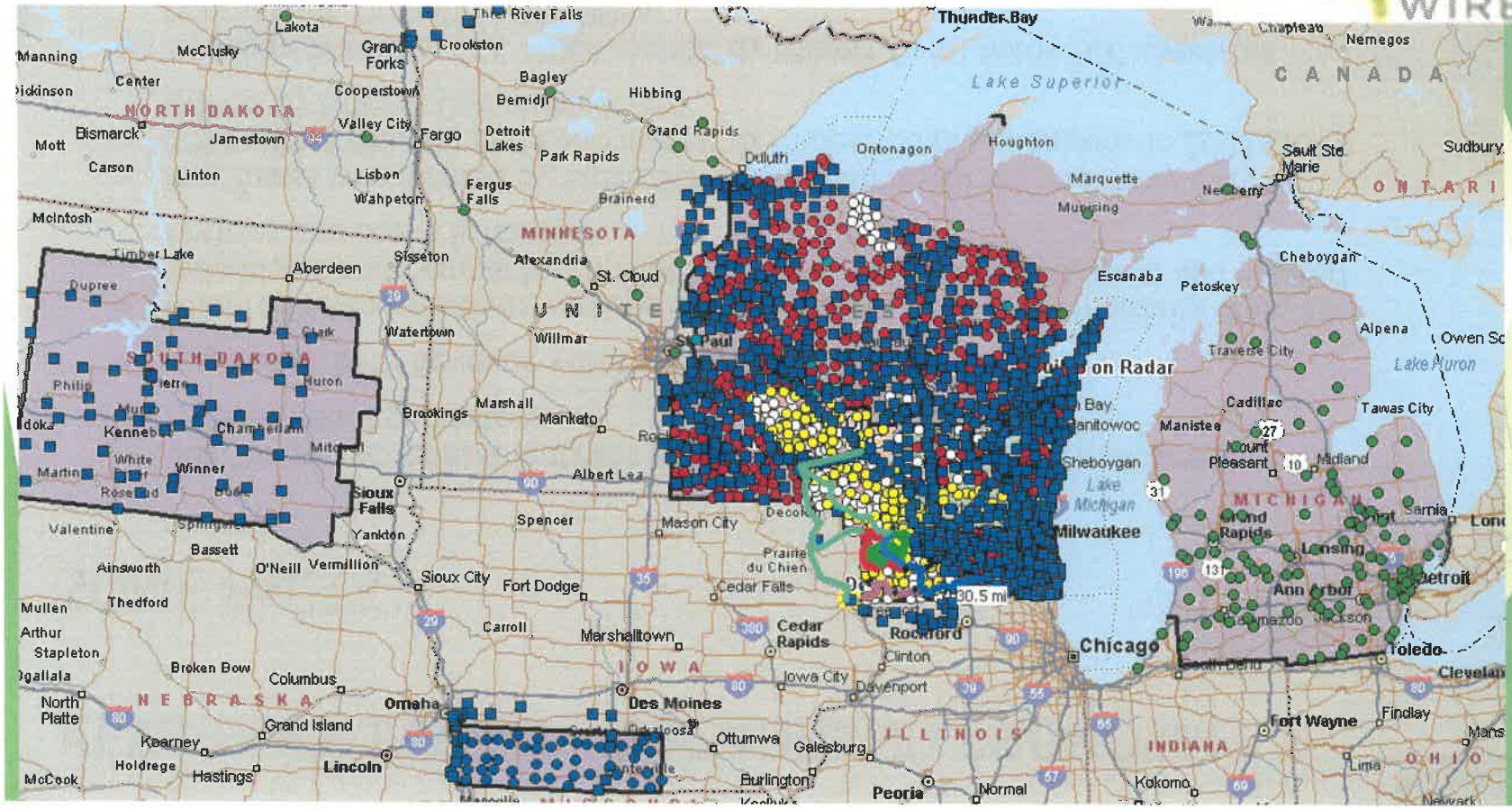
- **Our VISION is to provide "state of the art" communication services and infrastructure to rural, unserved and underserved communities of the Upper Midwest that allow our communities to compete on a level playing field with all other markets.**
- Bug Tussel Wireless and related companies typically provide the following services:
  - Tower siting, site acquisition, tower construction and site turn up services (Cloud1 and Redtail Tower)
  - Wholesale cellular services via LTE 4G, 4.5G and 5G services (ATT, T-Mobile and Verizon [limited])
  - Retail broadband services via Cambium or LTE 4G/4.5G services or in select communities on a wholesale basis through a local provider.
  - Transport services using microwave and/or fiberoptic transmission ranging from 100 Mbps to 100 Gbps speeds or greater.

KEWAUNEE COUNTY BROADBAND PROPOSAL

SOME FACTS

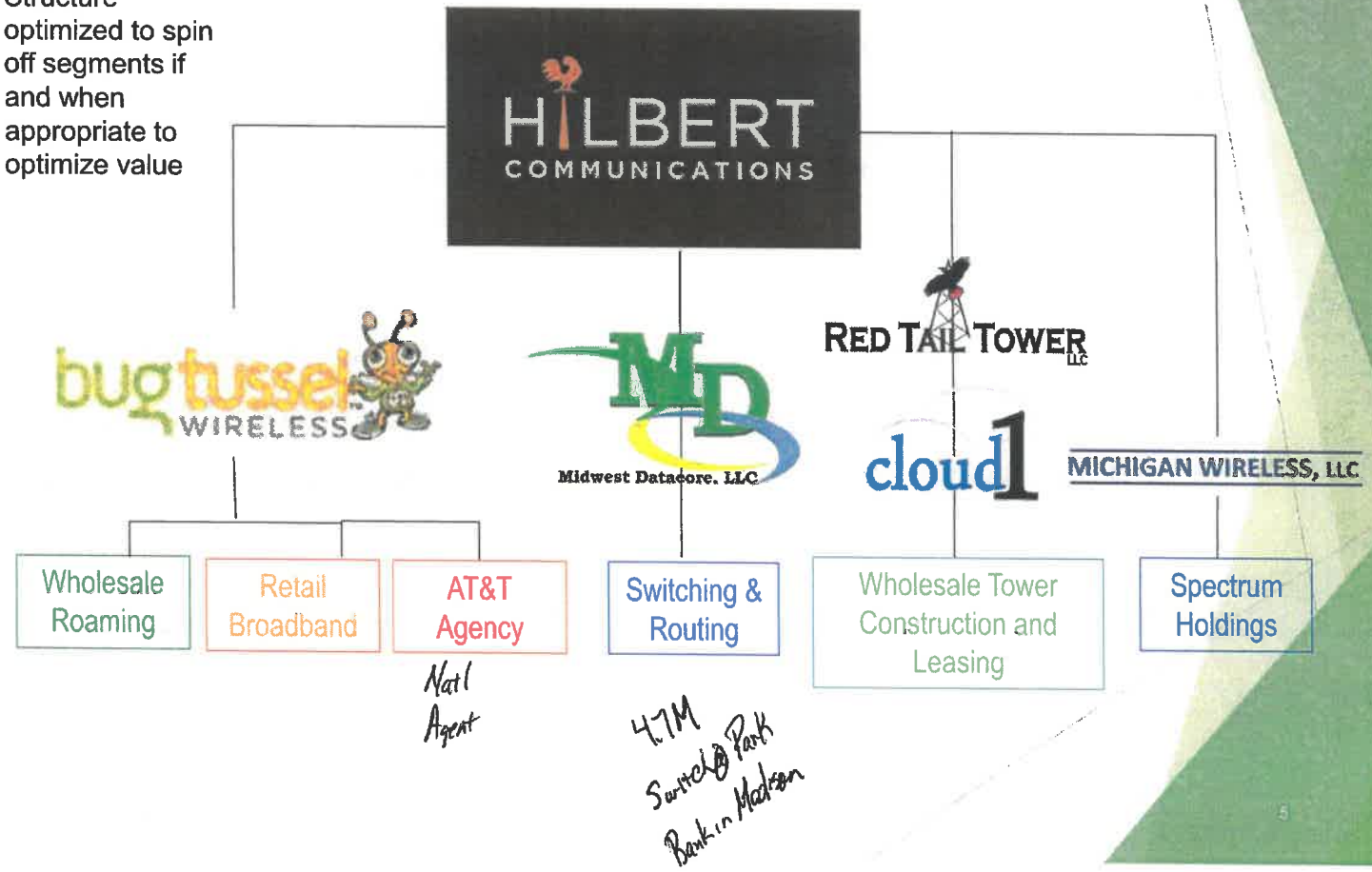
- Bug Tussel and Related entities employs approximately 75 employees and 60 independent contractors
- Bug Tussel 2019 Revenue will be approximately $35 million
- Hilbert Communications was capitalized with $27.5 million in equity from 14 individuals and companies in 2008. 60% is owned by Paul O. Gehl and related entities and Steve Schneider.
- Bug Tussel was formed by Steve Schneider, Ken Anderson and Terry Cory in 2003 with $150,000 and contributed to Hilbert Communications in 2008 (100% owned by Hilbert Communications.
- Michigan Wireless, LLC (100% owned by Hilbert Com) holds FCC spectrum licenses for 35 million Mhz POPs.
- The fastest data transmission speed accomplished is 256 Terabytes per second in a joint venture with the U.S. and Netherlands. Fast enough to carry the entire world's peak traffic on a single strand of glass.

KEWAUNEE COUNTY BROADBAND PROPOSAL
CURRENT PROJECTS & SCOPE



The Divisions of Hilbert Communications

- Structure optimized to spin off segments if and when appropriate to optimize value



KEWAUNEE COUNTY BROADBAND PROPOSAL

Speed and Cost of Service

Rapid Bug	2 Mbps / 1 Mbps	$44.99 per month (promoted at $29.99)
Speedy Bug	4 Mbps / 1 Mbps	$54.99 per month **(promoted at $39.99)**
Express Bug	8 Mbps / 2 Mbps	$69.99 per month
Screaming Bug	12 Mbps / 3 Mbps	$79.99 per month
Flash Bug	25 Mbps / 5 Mbps	$99.99 per month **(promoted at $50.00** or $79.99)
Business	60 Mbps / 8 Mbps	$169.99 per month **(promoted to $129.99)** (36 mo)
	60 Mbps / 8 Mbps	$269.99 per month (24 month contract)
	60 Mbps / 8 Mbps	$399.99 per month (18 month contract)
Special	100 Mbps / 20 Mbps	Quoted basis for custom designed dedicated connectivity up to 100 Mbps in either direction.

Dedicated RADIO

KEWAUNEE COUNTY BROADBAND PROPOSAL

Component Cost and Useful Life

- The primary component of any terrestrial wireless network is the tower structure upon which the electronics are mounted. In addition to the tower structure, there is typically a concrete pad, power and transport cabinet and Radio Access Network (RAN) cabinet. The estimated costs and life expectancies are enumerated below:

Tower Structure	$250,000	50+ years
Compound, ice bridge, power and pad	$ 15,000	50+ years
Microwave transmission equipment	$ 30,000	15+ years
Fiberoptic equipment if used	TBD	40+ years
Radio access network (broadband)	$ 35,000	6-10 years
Cellular RAN	$115,700	8-15 years

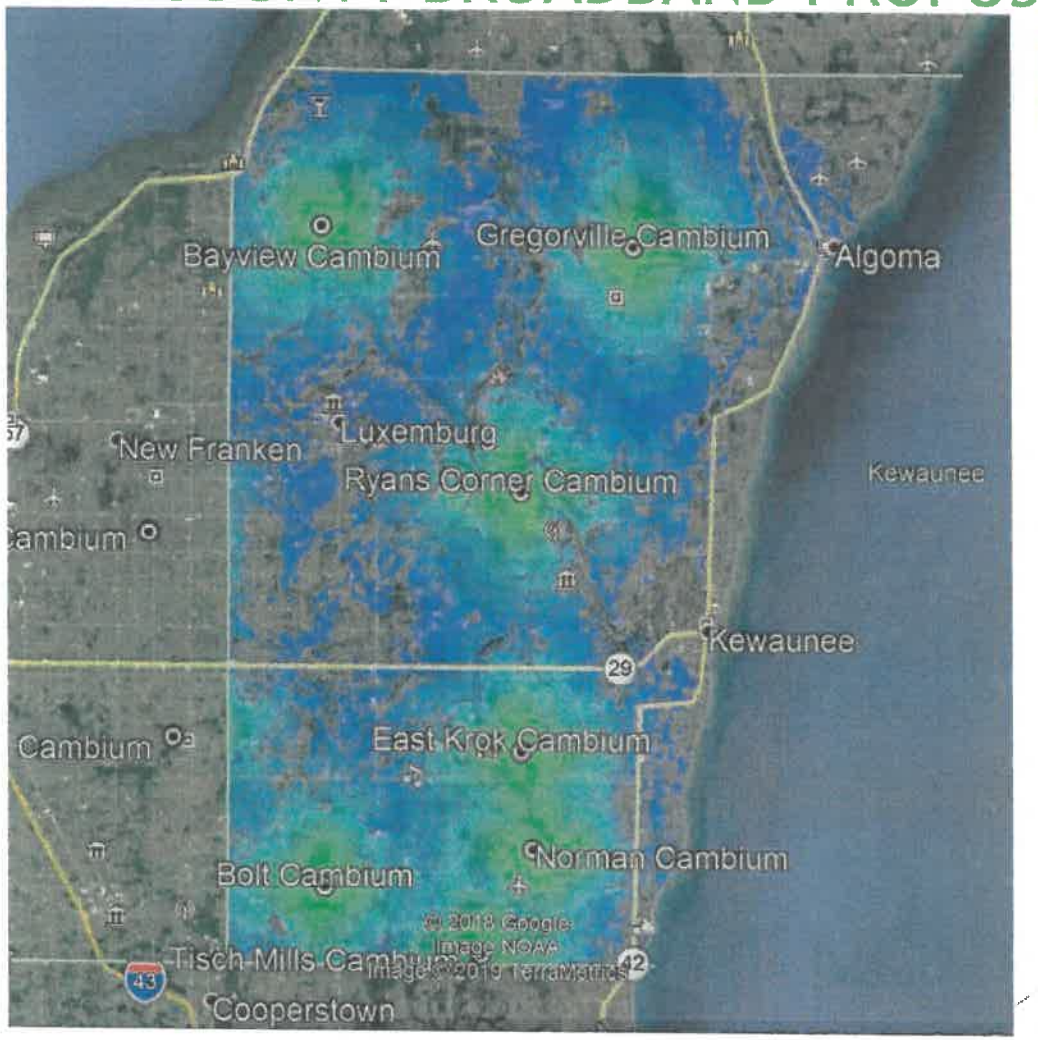
Voice traffic is typically on 2G

KEWAUNEE COUNTY BROADBAND PROPOSAL

PROPOSED NETWORK EXPANSION LOCATIONS

- Tisch Mills
  - Bolt
- Norman
- East Krok
- Ryan's Corner
- Gregorville
- Bayview

KEWAUNEE COUNTY BROADBAND PROPOSAL



KEWAUNEE COUNTY BROADBAND PROPOSAL

- REFERENCE GOOGLE EARTH MAPS IN LIVE PRESENTATION

KEWAUNEE COUNTY BROADBAND PROPOSAL

FINANCING

- Joint application to the **WPSC 2019 and 2020 Grant Programs** for roughly 1/3 of the cost of 7 sites and a fiberoptic network extending from the county border West of Luxemburg through Casco to Algoma down to Kewaunee and West back to the Brown County border.
- **Contributions by Bug Tussel or its private equity affiliates** to construct the 7 tower structures.
- **Conduit bonding or a direct loan from Kewaunee County** that would be repaid over 12 years by Bug Tussel at a fixed rate equal to the cost of the bonds plus 50 basis points on a monthly basis. The bonds or loan would be collateralized by all of the network located in Kewaunee County.

Fond du Lac Co
does conduit loans

KEWAUNEE COUNTY BROADBAND PROPOSAL

PHASE I COST AND FUNDING

- **Phase I -- Wireless Broadband in unserved or underserved areas:**
- Tisch Mills — Tower, Cambium Broadband, GigE Microwave ($315,000)
- Bolt — Tower, Cambium Broadband, GigE Microwave ($315,000)
- Norman — Tower, Cambium Broadband, GigE Microwave ($315,000)
- East Krok — Tower, Cambium Broadband, GigE Microwave ($315,000)
- Ryan's Corner — Tower, Cambium Broadband, GigE Microwave ($315,000)
- Gregorville — Tower, Cambium Broadband, GigE Microwave ($315,000)
- Bayview — Tower, Cambium Broadband, GigE Microwave ($315,000)

up to 1 G mbps

Potential for 5G but need to check w/ ATT, Verizon, et.al

- **Phase I TOTAL** — **$2,205,004**
- **Broadband Grant Application (2019)** — **$735,000** -PSC
- **Bug Tussel Contribution** — **$500,000**
- **Kewaunee County Bond or Loan** — **$970,004**

(to be repaid by BTW over 144 monthly payments of approximately $8,259.10 assumes 3% bond rate and 50 basis points to Kewaunee County with the financial impact to Kewaunee County being a repayment of all interest and principal plus approximately $30,000 in margin. Loan or bond would be collateralized by towers and equipment)

KEWAUNEE COUNTY BROADBAND PROPOSAL

bug tussel WIRELESS

- **Phase II - Fiberoptic ring intereconnected to Door and Brown Counties:**
-
- Brown County Line to Luxemburg $ 550,000
- Luxemburg to Algoma via Casco $1,000,000
- Algoma to Kewaunee $1,200,000
- Kewaunee South to Tisch Mills $1,200,000
- Tisch Mills North to Hwy 29 $ 650,000
- Hwy 29 back to Brown County Line $ 500,000
-
- **Total Project** **$5,100,000** – ESTIMATE
-
- **Broadband Grant Application (2020)** **$800,000** – PSC
- **Bug Tussel Contribution** **$800,000**
- **Kewaunee County Bond or Loan** **$3,500,000**

(to be repaid by BTW over 144 monthly payments of approximately $29,800.88 assumes 3% bond rate and 50 basis points to Kewaunee County with the financial impact to Kewaunee County being a repayment of all interest and principal plus approximately $105,000 in margin.)

30% aerial vs underground

$5.3M

Add Fiber line to Door (Sturgeon Bay)

KEWAUNEE COUNTY BROADBAND PROPOSAL

PHASE II SOURCE OF REVENUE ESTIMATES

- Carrier AT - 7 towers at $1,100/mo=$7,700/mo
- Carrier CC - dark fiber IRU at $8,000/mo
- Carrier BT - 7 towers at $975/mo=$6,825/mo
- Carrier X - dark fiber IRU at $8,000/mo
- County and Municipal Uses -- ??? Can we have free access
- Schools and Erate -- ???
- Open accesss carriers -- ???
-
- TOTAL $30,525 PER MONTH PLUS+???

KEWAUNEE COUNTY BROADBAND PROPOSAL

PURPOSE AND NECESSITY OF PROJECT

- HOME BASED BUSINESSES
- RURAL BUSINESSES
- ECONOMIC DEVELOPMENT
- CONNECTIVITY TO OTHER ECONOMIES
- AGRI-BUSINESS
- HEALTH CARE AND HOME LIVING SITUATIONS
- AUTONOMOUS TRANSPORTATION
- USES OF ARTIFICIAL INTELLIGENCE
- USES OF VIRTUAL REALITY
- DATA DRIVEN SOCIETY AND USE OF DATA ANALYTICS
- COMMERCIAL ADVERTISING
- EMERGENCY MANAGEMENT, SECURITY AND CRIME PREVENTION
- UTILITY MANAGEMENT

KEWAUNEE COUNTY BROADBAND PROPOSAL

BUG TUSSEL UNIVERSITY COURSES

A) Basics of using the Internet
B) Basics of social media
C) Use of the Internet for small businesses
D) Use of the Internet in healthcare
E) Purpose and use for Artificial Intelligence (AI)
F) Purpose and uses for Virtual Reality (VR)
G) Internet speeds, networks and terms
H) Understanding broadband rate plans, service plans and how your home Internet works
I) Basics of using computers for seniors

KEWAUNEE COUNTY BROADBAND PROPOSAL

TIMELINE

10/31/2019	Partnership decided by County Broadband Committee
11/18/2019	County Board approvals
12/5/2019	Draft of WPSC Grant Application
12/19/2019	Grant Application filing
2/28/2020	Award of Grants by WPSC & Move Forward Decision
5/31/2020	Site Acquisition and Zoning Complete
9/30/2020	Regulatory Filings Achieved
10/15/2020	Bug Tussel University Courses Begin
12/1/2020	WPSC Grant Application for Phase II
12/31/2020	Tower Construction Complete
2/28/2021	Award of Phase II Grants by WPSC & Move Forward Decision
3/31/2021	All Towers On Air
3/31/2021	All fiber contracts in place
4/30/2021	Phase II Bond Issuance
5/31/2021	Fiber Construction Begins
12/31/2021	560 New Subscribers
12/31/2022	1,000 Subscribers reached

KEWAUNEE COUNTY BROADBAND PROPOSAL

	POPS	RSRP	POPS	RSRP	AVG		80 RSRP
East Krok	389	88	1,579	100	1,179		17
Bayview	253	88	1,946	100	1,226		7
Gregorville	247	88	3,734	100	2,114		12
Norman	225	88	515	100	483		13
Tisch Mills	210	88	285	100	353		27
Ryan's Corner	198	88	3,212	100	1,804		6
Bolt	187	88	671	100	523		22
TOTAL POPS	1,709		11,942		7,680		104
@80/site	560	32.8%	560	4.7%	560	7.3%	
@200/site	1,400	81.9%	1,400	11.7%	1,400	18.2%	
Buckman	11	88	211	100			
Humboldt	-	88	403	100			
FROM BROWN CTY	11		614				
TOTAL COVERAGE	1,720	#	12,556				
BASED ON 20,445 2017 POPS	8.4%		61.4%				

KEWAUNEE COUNTY BROADBAND PROPOSAL

- **Contact Information**

Steven J. Schneider	Jason Wied
President/CEO	Chief Operating Officer and General Counsel
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920-202-2390	920-737-7016
Steve.Schneider@BugTusselWireless.com	Jason.Wied@BugTusselWireless.com

Kewaunee County Broadband Committee RFP - October, 2019

Presented by:
Door County Broadband, LLC
Kevin Voss, CEO

Speed up, speed down (if there are multiple speeds, note them).

Service Plan - Download/Upload Speeds (Mbps)

Silver	4/1
Silver+	6/2
Gold	8/2.5
Gold+	10/3
Platinum	12/3.5
Platinum+	14/4
Diamond	18/5
Diamond+	25/6

Backhaul bandwidth per 100 users.

Our presumption to this questions is “what is our allocation of backhaul bandwidth per month, per user?”. We don’t allocate backhaul bandwidth per customers. We build our backhaul capacity to exceed the needs of our customer base, therefore we are always adding to our capacity approximately every 9 months. Our average residential customer uses approximately 250 GB per month and multiplied by 100 users, implies a backhaul bandwidth of (250 GB x 100 users=25,000 GB) or the equivalent of 25 TB per month per 100 residential users.

Identify number of internet sources.

DCB is served by two providers, NSight/Cellcom and Spectrum (Charter), allowing DCB to have redundant internal feeds via fiber and microwave.

We currently have 5 separate fiber feeds from NSight/Cellcom and 2 separate fiber feeds from Spectrum (Charter).

Oversubscription rate: such as 20 to 1, 50 to 1.

Our oversubscription rate is currently 3.2256 to 1.

Cost per month per service offering.

Service Plan - Price/Month
(Credit Card/Automatic Payment)

Silver	$54.95	4/1
Silver+	$64.95	6/2
Gold	$74.95	8/2.5
Gold+	$84.95	10/3
Platinum	$99.95	12/3.5
Platinum+	$114.95	14/4
Diamond	$144.95	18/5
Diamond+	$204.95	25/6

Dedicated up to 300/300 – 30/30 50/50 100/100

No Caps or Throttles

Life expectancy of major components.

Mean time between failure for RF is greater than 40 years. The expected useful life of hardware is 5-10 years.

Overall cost, financing and/or up front funding, if needed. (Kewaunee may provide a combination of loans, cash, and/or grants to facilitate the offering of the services to underserved areas of the county.

This is a difficult question to answer as there is no way of knowing what actual coverage will be until transmission sites are energized. As new transmission sites are needed, they will be deployed. As for how to fund, it is recommended that application be made for the PSC Grants in each appropriate phase, with matching funds between the County, DCB (25% each) and the state (50%). In the event Kewaunee wishes to provide additional cash/loans, this will be addressed then.

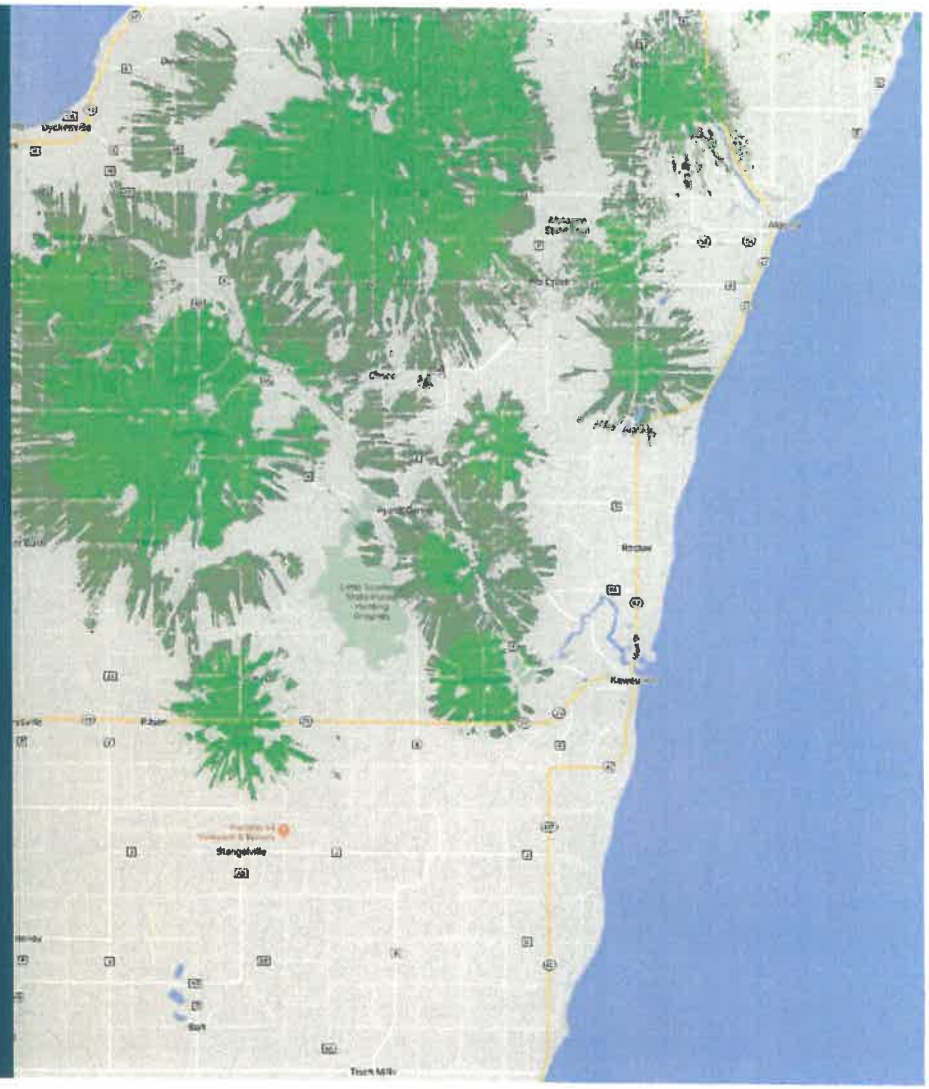
Rough coverage map within the county

-Does not include the grant tower site that is not yet constructed/active.

-This is **ROUGH** coverage, as actual coverage WILL vary.

Coverage Map within County, NEW SITES

This map indicates the estimated coverage with 4 new sites DCB is now in control of and in the process of engineering/building. 3 of the 4 will be energized within 60 days, and the fourth site, as it's a new build from scratch, will be energized Q2 2020.



Examples of other successes - preferably government and/or regional contacts.

Town of Nasewaupee, Door County. First tower built in 2014.

Town of Liberty Grove, Door County. Tower built with revolving funds in 2015. Payback is ahead of schedule, anticipate full payback in 2020.

Town of Liberty Grove, Door County. FY2018 Successful Grant Application, WI PSC.

Kewaunee County. FY2018 Successful Grant Application, WI PSC.

Summary of how we (vendor and broadband committee) can:

a. *Educate the community on the services and value it provides.*

b. *Communicate to the community and the County Board*

We will work with the broadband committee to determine the best course of action. This will be a team effort.

BERTRAM

COMMUNICATIONS

Introduction

Presentation by Bertram Communications.

- The reason for the interest in collaboration is as follows
  - We have an excellent start through our own significant investments in Kewaunee County and have been providing service to the area for years.
  - In order to be successful in county wide initiatives and grant submissions we've already been working on how a roll out a plan may work without causing congestion or issues with other providers.
  - This to ensure stability, high speeds and excellent latency.
  - We have experience in fixed wireless, high capacity backhauls, fiber, wifi, 4G and mesh.
  - We also have our own software, hardware and tower companies

Topics Being Covered

Here are the eight topics we've been asked to cover.

1. Speed
2. Backhaul bandwidth per 100 users.
    a. Identify number of internet sources
    b. Oversubscription rate: such as (20 to 1) or (50 to 1)
3. Cost per month per service offering
4. Life expectancy of components
5. Overall Cost
6. Coverage map
7. Successes
8. Summary
    a. educate the community on the services and value it provides.
    b. Communicate to the community and to the County Board

Areas of Focus

Areas of Focus Providing Access/Coverage

- In order to understand the areas of focus it's critical to understand__
  - Current Infrastructure in Kewaunee County
  - Current Coverage in Kewaunee County
  - Current Customers around the Kewaunee County area
  - Current Service offerings
  - Community Outreach
    - **SPECIAL NOTE: This information will score well in the PSC's Screening Panels review of the application.**
    - Why? It proves to the screening panel that the provider(s) have already significantly invested in the area.

Avg use 6.5 mbps

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Areas of Focus

Current Infrastructure in Kewaunee County.
Bertram has already invested significant time, effort and money in Kewaunee County.

1 • Speeds available from 1.5mbps to excess of 10gbps
- Towers
  - Bertram - 8

2 • Backhauls
  - Bertram – 14
  - Fiber – 3 sources
  - Total bandwidth available >40gbps.

Oversubscription

Areas of Focus

Wants to add 5 sites

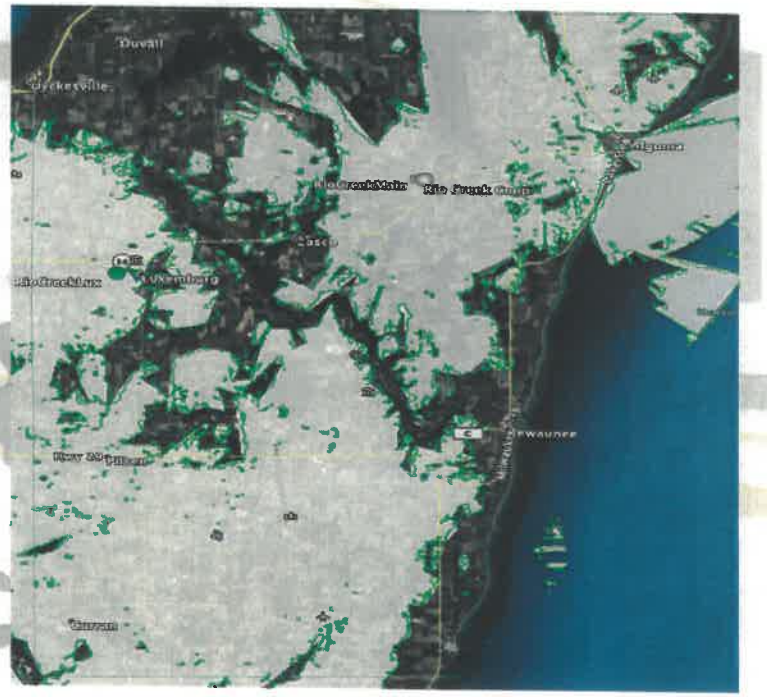
Cost: 200K/tower

or

$1.0M for 5 towers

Current Bertram Coverage around the Kewaunee County area

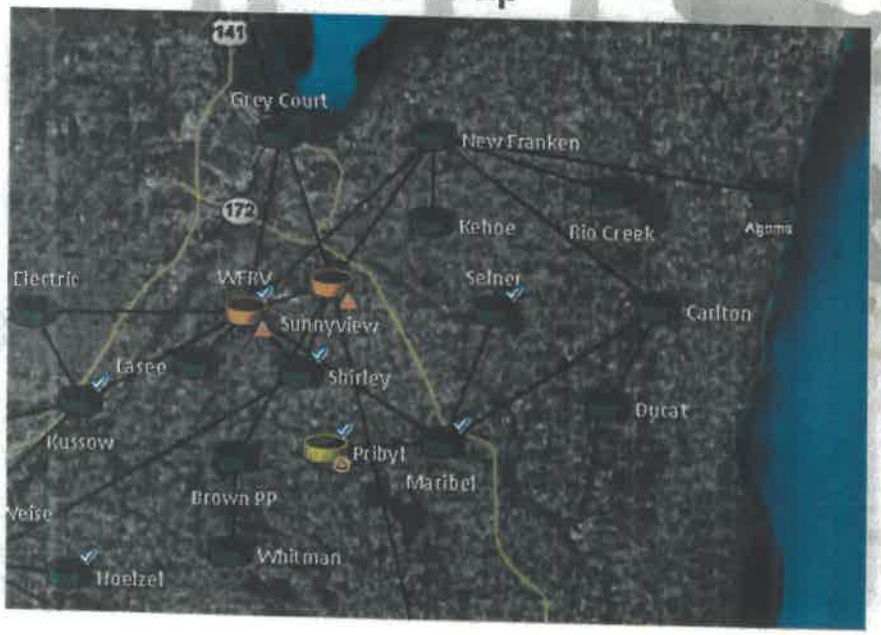
Proposed new locations (min. of 5 sites to be presented at meeting)



Areas of Focus

Current Bertram Network in Kewaunee County.
Bertram has prominent low latency network operating in Kewaunee County

- Current Network Map



PSC eligible map

Areas of Focus

Current Bertram Customers in the Area.

Cost

- Bertram current customers includes both residential and businesses served with rates starting at $59.95/month 10/
- Most customers can receive the PSC defined 25x3 "broadband" speeds 79
- Customers have excellent low latency
- Carrier Class upgradeable equipment with class leading lifespan

Component Lifespan

- Community Outreach Programs

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Areas of Focus

Estimated Customers in Kewaunee County.

- Current unserved or underserved customers
- Additional tower sites required for coverage - ~5 sites identified
- Grants, funding available
- Community Outreach Programs
  - AccessToSchool
  - AccessToWork
  - Security 101
  - Service organization support

Outreach

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Areas of Focus

Areas of Focus - Proposed Locations

- The Why and WOW Factor!
- Our focus is Kewaunee County rural areas that meet the PSC requirements
- As we already have significant infrastructure surrounding this area:
  - We can work with the work group to target specific areas county wide via fixed wireless broadband, carrier class licensed backhauls, and fiber.
  - Lowers the cost to get to those areas nearby existing infrastructure
  - Lowers the cost of the project to Kewaunee and Wisconsin taxpayers
  - Allows us to address another major point required in the application
    - Section 3.2.1.4 part e. Scalability - Opportunities for Future Scalability
- **All of which if incorporated in the application scores points with the screening panel!**

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Oconto
7 towers
Bertrand 54%
invested
(~$1.4M)

Proposed Funding

Cost

The PSC Broadband Expansion Grant in particular, requires local/provider funding, what funds do you have available for the PSC grant?
Matching funds is one of the six important items in the application.

- It's difficult to provide the final matching fund amount until the full scope of the defined project has been determined. Approximates have been calculated
- We can state from experience:
  - The larger the project, the larger the matching funds.
- This is due to the fact that there are two available funding methods:
  - Cash
  - In-Kind
- The larger the project the larger the In-Kind funds can be provided in the application.

Oconto 54%
~~F.4 Bertrand~~
6

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Proposed Funding

The areas in the application where you will show this is in sections

- 3.2.1.2 - Description of the Project
- 3.2.1.3 - Itemized Statement of Funding Request

We can show you how we've addressed the use of In-Kind funding in the Oconto and Shawano County wide applications and subsequent awards.

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Proposed Funding

A Hidden Cost Savings to Kewaunee County!

- Many Towns, Economic Development Groups, Counties, etc
  - Hire a company to develop or assist in the development of the application
    - Ensuring the many rules and guidelines are followed
    - At a significant expense
- Bertram and Kewaunee will collaborate to develop the application.
  - Implementing proven successful methods and procedures
  - Resulting in our applications being granted for:
    - Towns
    - Counties

Bertram property easements
Summer of 2020

Timeline

If the Kewaunee County Broadband Workgroup wishes to submit an application for the next available PSC Broadband Expansion Grant project.

- Bertram will assist in the definition of the timeline depending on funding sources chosen.
- The Wisconsin PSC has defined the timelines for the FY 2020 grant as due December 19th, 2019
- Bertram recommends completion date of December 1st 2019
- Allows for PSC review and any updates, fixes and addendums.

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Methods & Collaboration

Special notes, applicable skills and proven results:

- It's critical to note that time is of the essence to meet the next grant cycle
- An in-depth applicable knowledge of the rules and guidelines is of significant importance in order to develop an application that will be granted.
- Successful experience in the project management of committee, work group or economic development organization will be required.
- Melding and adapting to the committee, workgroup or economic development organization is a skill set required in order to successfully manage or co-manage the project.

Methods & Collaboration

What methods will be used to collaborate and put together an application?

- Implement frameworks, roadmap, tools and processes used in the successful application awarded for Oconto and Shawano Counties were full county initiatives.
- Using Monday.com software and a combination of Google Docs and Sheets to easily collaborate.
  - Allows for sharing with all participants
  - Allows for security to the participants
- Generate a project management methodology that matches the requirements of the rules/guidelines to ensure no point is missed.
  - The baseline project plan already exists from previous successful applications

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Methods & Collaboration

NEW Tool Developed and Available

- Bertram has collaborated to build a new tool
- To assist the towns and counties constituents in providing information
- Web-enabled front end with pertinent information
  - Securely stored in a database
  - Allowing for gathering information to apply in the application
  - Can also be used for other projects outside of a grant

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Methods & Collaboration

Methods Used in the Application Itself

- Strictly follow the guidelines and rules provided
  - As well as take into account all tips/tricks provided in the webinar
- Follow the framework and roadmaps developed
  - After analyzing each and every application submitted since 2014
    - Including both Winners and Losers
    - In order to grasping why an application was granted or not.
- To get results!
- Multiple town and county applications have been awarded grants
- Previous applications were rated in the TOP 15 by merit by the PSC screening panel out of the 84 applications submitted.

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Q&A

BERTRAM

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www.mercury.net
support@mercury.net

Your Full-Service
Internet
Communications
Company

Kewaunee County
Attn: Broadband Study Committee
c/o County Administrators Office
810 Lincoln St
Kewaunee, WI 54216

RE: Kewaunee County Broadband Committee RFP

Mercury Network operates a network that delivers High-Speed Internet service to customers throughout Kewaunee County as well as neighboring counties. Founded in 1996 as a dial-up Internet service provider, we helped launch LakeShore OnLine, a dial-up Internet service in Manitowoc in 1997. In 2004, Mercury acquired LakeShore OnLine and launched fixed wireless High-Speed Internet service. Since then, we have expanded our fixed wireless High-Speed Internet network to include nearly all of Manitowoc and Kewaunee Counties, as well as parts of Brown, Calumet, Door, and Sheboygan Counties.

We cover over 99% of Kewaunee County's population today with High-Speed Internet service that supports up to 75 Mbps Down and 25 Mbps Up. The caveat is one-time installation costs. About three-quarters of Kewaunee County homes and businesses can get our service at our standard prices. However, about one-quarter will need to pay a Non-Standard Installation charge ranging between $100 and $1,500 to establish service. Non-Standard Installation charges are for installing telescoping masts, poles, and residential-style TV antenna towers that allow us to get above or around foliage that blocks our High-Speed Internet signals.

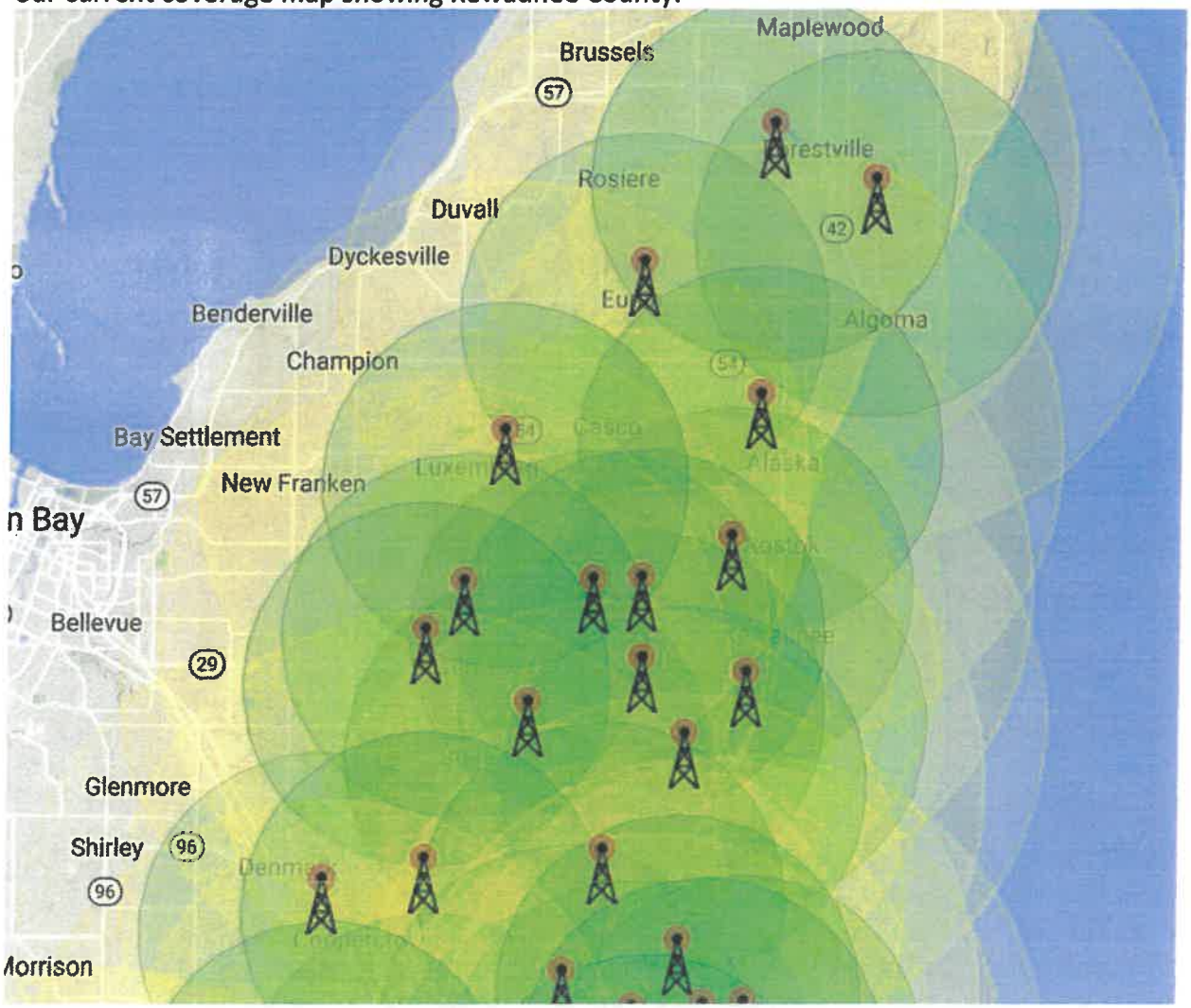
Answers to your questions:

1. Up to 75 Mbps Down and 25 Mbps Up. Actual speeds vary based on signal strength at the customer location. Generally speaking, our fixed wireless Internet service is faster than DSL but slower than cable. It supports all current Internet technologies such as streaming videos on Netflix and YouTube, multi-player gaming, home automation technologies like video doorbells and smart thermostats, as well as basics like web and e-mail access.
2. We do not measure backhaul bandwidth per 100 users or oversubscription rates. Rather than use formulas, we monitor our backhaul connections and upgrade them when they begin approaching maximum capacity. Bandwidth consumption rates vary significantly. A family with five kids who stream videos all

day will use exponentially more bandwidth than a senior couple who uses only web and email.

   a. Mercury has two Internet backbone connections at most sites for maximum redundancy and reliability.
   b. Not measured.

3. Our $50 a month plan provides speeds up to 75 Mbps Down and 25 Mbps Up, includes a Wi-Fi Router, as well as technical support.
4. Mercury owns all of the equipment, including the radios and antennas outside the building used to transmit and receive the fixed wireless signals, as well as the Wi-Fi router that goes inside the building. Different types of radios have had longer and shorter service lives on our network, but a five-year life-cycle is probably typical.
5. See number 8, below.
6. Accessible to the public at https://www.mercury.net/high-speed-internet.php, here is our current coverage map showing Kewaunee County:



7. Our "towers" include silos, water towers, grain elevators, as well as traditional towers and other tall structures. We broadcast from many municipal facilities, including the Town of Two Creeks tower, the Village of Kellnersville water tower, the Village of

Reedsville water tower, the Village of Valders water tower, the City of New Holstein water tower, and other municipal sites further south. If there are County, City, Village, Town or other assets that the County can make available or encourage to be made available to us at little or no cost, we would certainly be interested in using them. The more tower locations we have, the greater our ability to serve customers with only Standard Installation charges.

8. Thoughts on how to use this money:
    a. Identify customers who want service but cannot get it. Establish a web site with a form and a database to collect information from citizens about where service is not available and ask citizens to fill out the form so you can identify where the needs are. We have a form that does this on our web site at https://www.mercury.net/high-speed-internet.php, but potential customers can be hesitant to provide us with their address. Without this information, we cannot identify where concentrations of customers exist for establishing repeaters. As their local government, perhaps they would be willing to give you this information more freely.
    b. We need only 10 customers in close proximity to establish a local signal repeater. Once a local repeater is built, most customers in the local area can start service with only a Standard Installation charge, which is $200 on a month-to-month agreement, $100 with a one-year agreement, and $0 on a three-year agreement. If neighbors coordinate and come to us with a group of 10 or more in close proximity to one another, we can build a local repeater to serve them—without any subsidies.
    c. Provide a subsidy of our repeater cost. We require commitments from 10 customers to establish a local repeater. With a subsidy, we could reduce that, allowing us to establish repeaters in even extremely rural parts of the county.
    d. Provide a subsidy on the Non-Standard Installation cost. This way, your grant money is helping citizens who actually want service and cannot afford to get the service without the subsidy, as opposed to being used to build out a network that may end up serving citizens who can already get service from an existing provider, and does nothing to deliver broadband to people who cannot otherwise get it.
    e. Subsidizing a new provider's expansion into areas already served by existing providers gives the new entrant a financial advantage over non-subsidized operators, can cause customer loss for those existing providers, and therefore harm existing providers' investment and expansion plans into new areas not already served. Please be very thoughtful in how you proceed, as your good intentions may easily cause more harm than help.

I am unable to attend a meeting on October 25, but I would be available by phone. I work out of our Midland, Michigan office and am in Manitowoc a few days each month. My next visit to Manitowoc is scheduled for November 13 and 14, and I would be available for a face-to-face meeting at that time.

I hope our thoughts and ideas are helpful and insightful in helping you bring broadband to unserved citizens in Kewaunee County.

Respectfully,

David Sovereen

David Sovereen
President