Attachment C: Quarterly Program Report (QPR)

CMIC-2021-003	2. Grantee Barger C	Company reek Wireless			
3. Address 16998 81 st Ave N		Maple Grove		5. State MN	6. ZIP Code 55311
II. Progress Report (Due	30 Days After the	End of a Reporting Period)			1
7. Reporting Period					
11/1/2020 - 1/31/2021		1/1/2020 - 1/31/2021		11/1/2020	4/24/2024
2/1/2021 - 4/30/2021		/1/2021 - 4/30/2021			
5/1/2021 - 7/31/2021				/31/2021	
8/1/2021 - 10/31/2021	8/	8/1/2021 - 10/31/2021			
9. Have you encountered roadb	locks to the implem	nentation of this project?			
If yes, please provide details an	d describe your pla	in for overcoming the listed roa	adblocks.		
If no, please provide details and	describe your plan	I for moving the project back o	n track.		
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8. Please summarize current reporting period activities.

Barger Creek has had a very productive first quarter. We have been able to take advantage of the mild start to the Northern Michigan winter. We have begun work on the construction of 5 of the 7 towers we intend to build. Permitting and zoning approval has been obtained and the towers are under construction. These towers are located in the following:

Montmorency County

Mouch Tower - Mouch Road in Briley Township (off M32)

- Construction complete December 2020
- Backhaul turned up between Mouch Tower and the CML tower owned by Central Michigan University in north Montmorency County off M33
- Telrad base stations added and operational

Camp 3 Road in Vienna Township -Camp 3 Tower

• Footings poured and anchors placed. Steel ready for construction. Power to site completed.

Airport Road, Lewiston – Lewiston Tower

• Footings poured and anchors placed. Steel ready for construction. Power to site completed.

MOA Landfill, Avery Township – MOA Tower

• Footings poured and anchors placed. Steel ready for construction. Power to site completed.

Oscoda County

Comins Tower - West Bailey Road, Comins Michigan, Clinton Township

• Footings poured and anchors placed. Steel ready for construction. Power to site completed.

Network upgrade

In addition to the tower construction, Barger Creek has upgraded our overall network from a 300 mbps x 300 mbps connection to Everstream to a 1Gps up and down connection to the Merit Network completed December 2020. Barger Creek has two direct connections to the fiber, one at our building on Mouch Road and one at the Lighthouse Title office in the town of Atlanta. Both connections received upgrades.

Pole upgrade and additions

Barger Creek uses power poles as smaller towers placed in our territory in areas to help bring the network closer to groups of houses. Prior to grant funding, we had 7 poles in place in Briley and Avery Townships. Our pole in the town of Atlanta (Title Office) is located close to our physical connection with Merit. The pole provides service for the town including many businesses and the township office as well as providing backhaul to other pole sites. This pole is crucial for our network and has been upgraded with grant funding with a new hardened service cabinet for switching and routing. We have added Telrad technology to allow increased speeds for town residents.

In addition to this upgrade, Telrad equipment has been added to two additional existing poles bringing faster speeds to points further out on our network.

With grant funding, we have added a pole at the Tri-township Fire Department building on M32 in Atlanta. The Fire Department gets service directly from the backhaul on the pole through underground fiber.

Telrad and Adaptrum TV whitespace base stations have been added to the pole and have been placed in service.

Three poles have been placed and power run to one of them in the Canada Creek Ranch area on north M33. Additional power on hold until spring thaw.

We have located and signed agreements with landowners in Briley and Albert townships for additional pole sites.

9. Have you encountered roadblocks to the implementation of this project?

Overall, the setbacks we have faced have been minor in terms of having any impact on the timeline but are important to mention for budgeting purposes. Our upgrade to the Merit network was carried out by Merit engineers and network engineers from our integrator. Everstream used one method of getting traffic onto the network and Merit uses another. Our integrator was not prepared to make the change and the immediate timeline was set back. Merit engineering helped us bridge the gap and the integrator engineers and Barger Creek staff worked the rest of the bugs out of the network. We have hired a firm specializing in ISP network design to help us smooth out the connection and take the burden off the Merit engineering staff who currently need to interact with our network more than necessary. This work has added increased cost to our network upgrade as well adding the cost of the third-party network engineers. We have some contingency funds built into our budget and can cover the costs but the line for professional services and engineering will show additional money spent.

While not being a setback, the Telrad technology we are using to connect the customer premise to our towers is new to us and has different broadcast power and frequency output which we are gaining experience with as we add new customers and add the technology to our towers. We will need to continue to use our current Adaptrum TV whitespace equipment in some areas but find gains from the Telrad in other areas. More experience is needed to be able to predict best use case but we are pleased with what we have seen so far.

11. Please provide a narrative to accompany Attachment D. Complete and include Attachment D, indicating the census blocks with service available this reporting period, the speed of service offered, the price of service offered, the number of locations subscribing to your service this quarter, and the cumulative number of locations subscribing to your service.

The census blocks listed on Attachment D are the census blocks from our original submitted list of possible households in which we have service currently offered. The list of locations subscribing to our service this quarter represent new customers to BCW or customers upgraded to equipment allowing 50 x 30 if they wished to subscribe. Prior to the grant, BCW used a variety of technologies to connect customers through wireless means to our network. The technologies used covered several ranges of frequencies. Our most common technology is produced by Adaptrum and utilizes frequencies referred to as TV Whitespace which are low frequencies found in the UHF television spectrum. The technology has only been available commercially for a few years and is not widely used. The advantage that the TV Whitespace offers us is that low frequencies are able to penetrate heavy tree cover and do not require line-of-sight to make a connection. The drawback to this technology is that 15 x 3 tends to be the top speed available. In an area of the state with no other options except DSL or satellite, this represented a great improvement. Advancements are being made with the technology that will allow for greater speeds. The technology continues to be very valuable in areas that are longer distances from the transmitter and those in heavily forested areas. That describes a great deal of our service area.

We use several other technologies which cover a range of frequencies, most requiring line of sight. All of our original equipment used unlicensed frequencies which meant less expense to use the frequency but also lower power and the possibility of interference from technology using the same frequencies. Lower cost meant our service is affordable in an economically fragile area of the state. With the grant award, we have been able to begin using licensed telecom grade equipment, in our case manufactured by Telrad. It uses a higher frequency than TV Whitespace but because it is licensed technology, it utilizes a lot more power and can push further through tree coverage than non-licensed line-of-sight. It also works better from having base stations higher on towers than TV Whitespace. With the grant, we have been able to add towers with heights much greater than our existing tower. The census blocks on Attachment D with speeds of 50 x 30 represent areas where we have been able to make the Telrad technology available. While we are in the very early stages utilizing this technology, we are pleased with what we see so far. Our Telrad equipment has been installed when the leaves are off the trees and we will need to see how it responds once trees leaf back up in spring.

For this first quarter, we upgraded 37 customers to the Telrad gear and added 20 new customers, some using Telrad and some still on our older technologies. We hope to upgrade them as our network construction continues. Even those households still using the TV Whitespace technology have benefitted from us being able to move customers from those frequencies, freeing up bandwidth and decreasing noise interference allowing those TV Whitespace users a much more reliable, faster connection. The difference in the number reported on the form of 52 and our reported number 57 accounts for several households adding a second service due to increased usage because of work and school from home as a result of Covid.