

FINAL AGENCY DECISION

STATEWIDE BROADBAND AVAILABILITY MAP VERSION 4 APPEAL

September 14, 2021

DOCKET NO. 21-1030

A. APPELLANT INFORMATION

Company Name	Dumont Telephone Company
Address	PO Box 349
City	Dumont
State	IA
Zip	50625

B. DESIGNATED CONTACT INFORMATION

Contact Name	Roger Kregel
Contact Phone Number	641-857-3211
Contact Email	rogerkr@dumonttelephone.com

C. APPEAL TYPE

- ☐ Resident Challenge
- ☐ First-Party Provider Challenge
- ☒ Third-Party Provider Challenge

D. EVIDENCE CONSIDERED

With respect to the Census Blocks forming the basis of this Appeal, the Office has reviewed the evidence and information submitted by Appellant related thereto (see Appendix B for original submission), in conjunction with the maps and data sources originally utilized in determining the TSA designation of these Census Blocks, and made a determination as to the Census Block TSA Tier designations as set forth in Appendix A.

- ☒ If checked, Appellant submitted a Certification as part of its Appeal, affirming under penalty of perjury whether or not Broadband service was Facilitated, and at which tier level, in Census Blocks as of July 1, 2021.
- ☒ If checked, Appellant submitted additional information in support of its Appeal. This information has been considered by the Office in making its Final Decision.
- ☒ If checked, challenged Census Blocks within this Appeal overlap with other Appeals containing one or more of the same Blocks. The Office considered evidence submitted in connection with any overlapping Appeal in making its final decision for any overlapping Census Block.
- ☒ If checked, the Office sent requests for additional information to Third-Party Provider(s) concerning whether reported broadband service was Facilitated in one or more blocks of this Appeal as reflected on Map V4 as of July 1, 2021. The Office may have received Affirmation(s) and/or other evidence from Third-Party Provider(s) in response to such requests. Refer to Appendix C for a record of these efforts.

Go to <https://ocio.iowa.gov/broadband-availability-map-version-4-challenge-process> for more information regarding how the Office evaluates evidence and decides tier designations for appealed blocks.

E. TO APPEAL FURTHER

The Office will post its Final Decisions on its website at ocio.iowa.gov/broadband. If an Appellant wishes to appeal the Decision further Appellant must notify the Office in writing within thirty (30) days of the posting of the Decision. Iowa Admin. Code r. 129–20.5(5). A request for a contested case must be filed by mailing a written request to:

Office of the Chief Information Officer

c/o Matt Behrens

200 E. Grand Avenue

Des Moines, Iowa 50309

In so doing, the reason for further appealing this Decision must be stated, specifically identifying the particular aspects of the Decision with which Appellant disagrees and the reasons why, whether factual or legal in nature. The request for a contested case proceeding should state the name and address of the requester; identify the specific Office action which is disputed; and, where the requester is represented by a lawyer, identify the provisions of law or precedent requiring or authorizing the holding of a contested case proceeding in the particular circumstances involved, and include a short and plain statement of the issues of material fact in dispute. Iowa Admin. Code r. 129–6.4.

Upon receipt, the appeal will be forwarded to the Department of Inspections and Appeals where an Administrative Law Judge (“ALJ”) will perform an independent review. Iowa Admin. Code r. 129–20.6(1); Iowa Admin. Code r. 129–6.6. At that time, an ALJ will schedule a hearing. If Appellant does not exercise its appeal right within thirty (30) days of the posting of this Decision, this Decision shall become final and no longer subject to challenge. Iowa Admin. Code r. 129–20.5(5).

SIGNED

DATE

Matt Behrens
Deputy Chief Information Officer
State of Iowa

APPENDIX A - FINAL DECISION

DEFINITIONS

Targeted Service Area	A Targeted Service Area (TSA) is a census block within which no communications service provider offers or facilitates broadband service at or above the tier 1, tier 2, or tier 3 download and upload speeds, as applicable.					
Tier 1	A maximum download speed of less than 25 megabits per second (Mbps) and a maximum upload speed of less than 3 Mbps.					
Tier 2	A minimum download speed of greater than or equal to 25 Mbps but less than 50 Mbps. No minimum upload speed is applicable for Tier 2.					
Tier 3	A minimum download speed of greater than or equal to 50 Mbps but less than 80 Mbps. No minimum upload speed is applicable for Tier 3.					
Non-TSA	A non-TSA is a census block in which speeds are Facilitated at greater than or equal to 80 Mbps.					
Facilitate	A communication service provider's ability to provide broadband service at or above the download and upload speeds defined above to a home, farm, school, or business within a commercially reasonable time and at a commercially reasonable price upon request by a consumer. This does <i>not</i> pertain to the Broadband Infrastructure used to facilitate said service; Broadband Infrastructure is <i>not</i> a basis for appeal.					
Map V4 Designation	The speed tier reflected on the Map as of July 1, 2021.					
Decision Basis	The Decision Basis number reflected in this column corresponds to a general explanation for why this Office made its decision regarding the Block. The Decision Bases are posted on the website at https://ocio.iowa.gov/broadband-availability-map-version-4-challenge-process .					
Overlapping Appeal	Indicates the Docket Number in which the Census Block has been challenged in another Appeal. The Final Agency Decision may be impacted by additional or alternate information or affirmations received in conjunction with another Appeal for the same Block.					
Prior Reporting	The Prior Reporting column reflects information provided by Appellant on the Appeal. The Prior Reporting to FCC or Connected Nation may reflect one of the following:					
	In Error: Data was reported incorrectly to FCC or Connected Nation	Correct: Data was reported correctly to FCC or Connected Nation	No Response: Data was not reported to FCC or Connected Nation	Unknown: Data is incorrect for unknown reasons		

Docket No.	Census Block ID	Prior Reporting	Map V4 Designation	Appellant's Request	Final Agency Decision	Decision Basis	Overlapping Appeal
21-1030	190693601001144	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601001145	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601001168	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601001169	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601001171	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601001172	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601001174	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002002	Unknown	Non-TSA	Tier 1	Non-TSA	3	

21-1030	190693601002007	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002009	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002010	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002013	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002014	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002016	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002017	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002022	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002025	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002031	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002034	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002036	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002038	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002039	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002053	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002054	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002068	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002071	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002072	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002073	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002074	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002076	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002079	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002080	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002082	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002084	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002088	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002096	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002097	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002098	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002099	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002110	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002112	Unknown	Non-TSA	Tier 1	Non-TSA	3	

21-1030	190693601002116	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002118	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002119	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002122	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002124	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002127	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002128	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002131	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002138	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002139	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002140	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002142	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002144	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002151	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002153	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601002159	Unknown	Non-TSA	Tier 1	Non-TSA	3	21-1041
21-1030	190693601003017	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601003018	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601003019	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601003020	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601003024	Unknown	Non-TSA	Tier 1	Non-TSA	3	21-1041
21-1030	190693601003026	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601003028	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601003030	Unknown	Non-TSA	Tier 1	Non-TSA	3	21-1041
21-1030	190693601003033	Unknown	Non-TSA	Tier 1	Non-TSA	3	21-1041
21-1030	190693601003292	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693601003293	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693602001086	Unknown	Non-TSA	Tier 1	Non-TSA	3	
21-1030	190693602001092	Unknown	Non-TSA	Tier 1	Non-TSA	3	

APPENDIX B
CERTIFICATION AND SUPPORTING INFORMATION



Grants, OCIO <ociogrants@iowa.gov>

Notice of Appeal

1 message

Roger Kregel <rogerkr@dumonttelephone.com>
To: "ociogrants@iowa.gov" <ociogrants@iowa.gov>
Cc: Roger Kregel <rogerkr@dumonttelephone.com>

Tue, Jul 20, 2021 at 4:04 PM

To OCIO,

I have attached the Appeal Challenge form spreadsheet and a supporting report.

Roger Kregel

General Manager

Dumont Telephone Company

641-857-3211

This email message and any attachments is for the sole use of the intended recipient(s) and may contain confidential and privileged information. Any unauthorized review, use, disclosure or distribution is prohibited. If you are not the intended recipient, please contact the sender by reply E-mail and destroy all copies of the original message.

2 attachments

Map v4 Provider Challenge Form.xlsx
176K



Fixed Wireless Report.pdf
1687K



A. APPELLANT INFORMATION	
Company Name	Dumont Telephone Company
Address	PO Box 349
City	Dumont
State	IA
Zip	50625
B. DESIGNATED CONTACT INFORMATION	
Contact Name	Roger Kregel
Contact Phone Number	641-857-3211
Contact Email	rogerkr@dumonttelephone.com
C. CERTIFICATION/ATTESTATION/AFFIRMATION	
<p>In signing and submitting this form, the above-identified company, and its duly authorized representative signing on behalf thereof, hereby affirms, attests, and certifies under penalty of perjury that, as represented in its submission: Choose one option that describes company/affiliation status.</p>	
<p>Company, consistent with the representations made in this form, and regardless of whether your company's prior reporting to the FCC or State of Iowa was correct or in error as of July 1, 2021, either:</p> <p>(a.) Facilitated material Broadband service according to the designated Tier speed indicated on the Map; or <input type="checkbox"/></p> <p>(b.) Did NOT Facilitate Broadband according to the designated Tier speed in the identified census blocks.</p>	
<p>Another unaffiliated company, as of July 1, 2021, consistent with the representations made in this form, either: (a.) Facilitated material Broadband service according to the designated Tier speed indicated on the Map; or (b.) Did NOT Facilitate Broadband according to the designated Tier speed in the identified census blocks. <input checked="" type="checkbox"/> b</p>	
D. ADDITIONAL EXPLANATION (To the extent you believe additional explanation is required to ensure that you are communicating full and accurate information, please use the below space to further explain, qualify, or substantiate your above certification/attestation/affirmation. To the extent necessary, please feel free to upload additional explanations/supporting documentation.	
<p>All of the census blocks listed in this challenge are in Franklin County and have Fixed Wireless providers serving them. I have attached a detailed technical explanation of the issues with providing Fixed Wireless Broadband. Reality is Fixed Wireless is a shared network product which means the more customers you have on the network, the slower the speed the customers actually experience in ideal conditions. When you add the other challenges to providing wireless broadband, the speeds get even slower. Other challenges include but are not limited to the number of customers per radio, distance, terrain, vegetation, rain, snow, reflection, fading and interference. All of these items individually have a negative affect on speed and usually there are more than one of these issues present at any given time of day. I talk to customers from this census block list weekly at the grocery store, post office, gas station, church, school activities and they also call our office and their message is always the same - "our wireless service is so slow and we never get the speed we are paying for. Can we get your fiber optic broadband service?" Due to these never ending discussions with the countless people from these census blocks and the detailed explanation in the attached document, it appears the fixed wireless providers are overstating and misrepresenting the actual speeds that customers are experiencing. This is very frustrating as a local provider wanting to expand our buried fiber optic network to help others only to be told the census block areas are considered ineligible because of the inaccurate advertised speeds of the Fixed Wireless Broadband providers.</p>	
E. SIGNATURE* By typing your full name you are affixing your signature to this form and attesting to the accuracy of the information submitted herein.	
Authorized Signature:	Roger Kregel
Title:	General Manager
Date:	7/20/2021

***PLEASE READ BEFORE SIGNING:** By signing and submitting this form, I, on my own behalf or as a representative of the company identified above, as applicable, expressly represent that I am authorized to make the above factual representation on behalf of said company and/or myself, as applicable, and under penalty of perjury as authorized by Iowa Code section 622.1 and pursuant to the laws of the state of Iowa, certify the following with respect to this form submitted on behalf of said company and/or myself: any statements, representations, warranties, certifications, or attestations made in this form, including any attachments or enclosures associated therewith, are true and accurate; I, on behalf of said company and/or myself, have not knowingly made any false statements or representations in this form. In addition to any criminal penalties authorized by Iowa Code section 720.2 that may result from any false statements of material fact made herein or any other remedies available at law, equity, or otherwise, if it is subsequently determined that I have made a statement, representation, warranty, certification, or attestation in this form, or any attachments or enclosures associated herewith, that is later proven untrue in any material respect, the company on which I submitted this form on behalf of may be disqualified from current incentive programs administered by the Office or may be ordered to repay the Office the entire amount of any funds previously distributed by the Office to said company in connection with any current incentive programs administered by the Office. OCIO makes no guarantees as to whether the information supplied by you will result in any change to the Broadband Availability Map V4 or the way any incentive decisions are reviewed, scored, or decided. This form, as completed, any attachments hereto, and any other information or materials submitted to the Office in connection with this form or related inquiry, shall be considered public records and shall be made available for public examination and/or disseminated upon request by third parties as required by Iowa Code chapter 22. The Office reserves the right to reject this form and relatedly consider any information communicated through this form as neither credible nor probative if this form is not fully and properly filled out.

Please familiarize yourself with the following terms prior to determining whether a broadband block may be appealed.

Targeted Service Area	A Targeted Service Area (TSA) is a census block within which no communications service provider offers or facilitates broadband service at or above the tier 1, tier 2, or tier 3 download and upload speeds.
Existing Broadband Speed Tiers	The speed tiers used to determine whether a broadband block qualifies as a Targeted Service Area on the Statewide Broadband Availability Map.
Tier 1	A maximum download speed of less than 25 megabits per second (Mbps) and a maximum upload speed of less than 3 Mbps.
Tier 2	A minimum download speed of greater than or equal to 25 Mbps but less than 50 Mbps. No minimum upload speed is applicable for Tier 2.
Tier 3	A minimum download speed of greater than or equal to 50 Mbps but less than 80 Mbps. No minimum upload speed is applicable for Tier 3.
Non-TSA	A non-TSA is a census block in which speeds are Facilitated at greater than equal to 80 Mbps
Facilitate	A communication service provider's ability to provide broadband service at or above the download and upload speeds defined above to a home, farm, school, or business within a commercially reasonable time and at a commercially reasonable price upon request by a consumer. This does <i>not</i> pertain to the Broadband Infrastructure used to facilitate said service; Broadband Infrastructure is <i>not</i> a basis for appeal.

CENSUS BLOCK ID	Prior Reporting to FCC or Connected Nation Definitions 1. <u>In Error</u> means data was reported incorrectly to FCC or Connected Nation. 2. <u>Correct</u> means data was reported corectly to FCC or Connected Nation. 3. <u>No Response</u> means data was not reported to FCC or Connected Nation. 4. <u>Unknown</u> means data is incorrect for unknown reasons	Speed Tier that is reflected on Map v.4	What do you believe the Map should reflect for Facilitated service as of July1, 2021?
19069-3601001144	Unknown	Non-TSA	Tier 1
19069-3601001145	Unknown	Non-TSA	Tier 1
19069-3601001168	Unknown	Non-TSA	Tier 1
19069-3601001169	Unknown	Non-TSA	Tier 1
19069-3601001171	Unknown	Non-TSA	Tier 1
19069-3601001172	Unknown	Non-TSA	Tier 1
19069-3601001174	Unknown	Non-TSA	Tier 1
19069-3601002002	Unknown	Non-TSA	Tier 1
19069-3601002007	Unknown	Non-TSA	Tier 1
19069-3601002009	Unknown	Non-TSA	Tier 1
19069-3601002010	Unknown	Non-TSA	Tier 1
19069-3601002013	Unknown	Non-TSA	Tier 1
19069-3601002014	Unknown	Non-TSA	Tier 1
19069-3601002016	Unknown	Non-TSA	Tier 1
19069-3601002017	Unknown	Non-TSA	Tier 1
19069-3601002022	Unknown	Non-TSA	Tier 1
19069-3601002025	Unknown	Non-TSA	Tier 1
19069-3601002031	Unknown	Non-TSA	Tier 1
19069-3601002034	Unknown	Non-TSA	Tier 1
19069-3601002036	Unknown	Non-TSA	Tier 1
19069-3601002038	Unknown	Non-TSA	Tier 1
19069-3601002039	Unknown	Non-TSA	Tier 1
19069-3601002053	Unknown	Non-TSA	Tier 1

19069-3601002054
19069-3601002068
19069-3601002071
19069-3601002072
19069-3601002073
19069-3601002074
19069-3601002076
19069-3601002079
19069-3601002080
19069-3601002082
19069-3601002084
19069-3601002088
19069-3601002096
19069-3601002097
19069-3601002098
19069-3601002099
19069-3601002110
19069-3601002112
19069-3601002116
19069-3601002118
19069-3601002119
19069-3601002122
19069-3601002124
19069-3601002127
19069-3601002128
19069-3601002131
19069-3601002138
19069-3601002139
19069-3601002140
19069-3601002142
19069-3601002144
19069-3601002151
19069-3601002153
19069-3601002159
19069-3601003017
19069-3601003018

[illegible]

19069-3601003019
19069-3601003020
19069-3601003024
19069-3601003026
19069-3601003028
19069-3601003030
19069-3601003033
19069-3601003292
19069-3601003293
19069-3602001086
19069-3602001092

[illegible]

Fixed Wireless Challenge

Fixed wireless has its place in the telecommunications arena. It can provide service to a number of subscribers using a shared bandwidth to provide data, voice and video. The access points can be located in elevated locations to provide service to a given area. These systems can be installed relatively quickly providing power, permits, clear line-of-sight and back-haul are available.

There are, however, a number of factors that will degrade the performance of a fixed wireless link. The following takes a look at some of these factors.

Free space loss is the starting point in determining the loss in signal strength and performance of the link between the transmitter and the receiver. Free space loss is dependent on frequency and distance. As these variables increase, the loss increases.

One of the general equations used to estimate free space loss is:

$$L_{FSL} = 92.45 + 20 \log f_{GHz} + 20 \log d_{km}$$

Where:

- L_{FSL} – total path loss in dB
- f – frequency in GHz
- d – distance in kilometers

An example: With a fixed frequency of $f = 5.8$ GHz and a distance varying from 0.5 km (0.31 miles) to 3 km (1.86 miles):

$$L_{FSL} = 92.45 + 20 \log(5.8) + 20 \log(0.5) = 101.70 \text{ dB}$$

$$L_{FSL} = 92.45 + 20 \log(5.8) + 20 \log(1.25) = 109.65 \text{ dB}$$

$$L_{FSL} = 92.45 + 20 \log(5.8) + 20 \log(2.0) = 113.78 \text{ dB}$$

$$L_{FSL} = 92.45 + 20 \log(5.8) + 20 \log(3.0) = 117.23 \text{ dB}$$

For a change of just over 1.55 miles, this results in an additional 15.53 dB of loss in the signal path.

Another factor that can have a major impact on system performance is vegetation attenuation. Vegetation loss is dependent on transmit frequency and the depth of the foliage that the signal is passing through. As can be seen from the equation below, the loss will increase with both frequency and depth of the foliage.

Fixed Wireless Challenge

One of the equations used to determine the vegetation attenuation is:

$$L_{veg} = 0.2f^{0.3}d^{0.6}$$

Here:

- f – frequency in MHz
- d – depth of foliage

Using the same frequency as above, 5800 MHz (5.8 GHz) and depth of foliage between 5 and 20 feet.

$$L_{veg} = 0.2(5800)^{0.3}(5)^{0.6} = 3.47 \text{ dB}$$

$$L_{veg} = 0.2(5800)^{0.3}(10)^{0.6} = 5.25 \text{ dB}$$

$$L_{veg} = 0.2(5800)^{0.3}(15)^{0.6} = 6.70 \text{ dB}$$

$$L_{veg} = 0.2(5800)^{0.3}(20)^{0.6} = 7.96 \text{ dB}$$

This shows how quickly the loss increases as the depth of the foliage increases. This can be thought of as a tree growing between the transmitter and the receiver. The system performance drops as the tree grows.

The vegetation can be related to the Fresnel zone. As seen in the figure below, the Fresnel zone expands as it moves away from the antennas. The Fresnel zone will be at its maximum diameter at the mid-point between the transmit and receive antennas. As can be seen in the figure below.

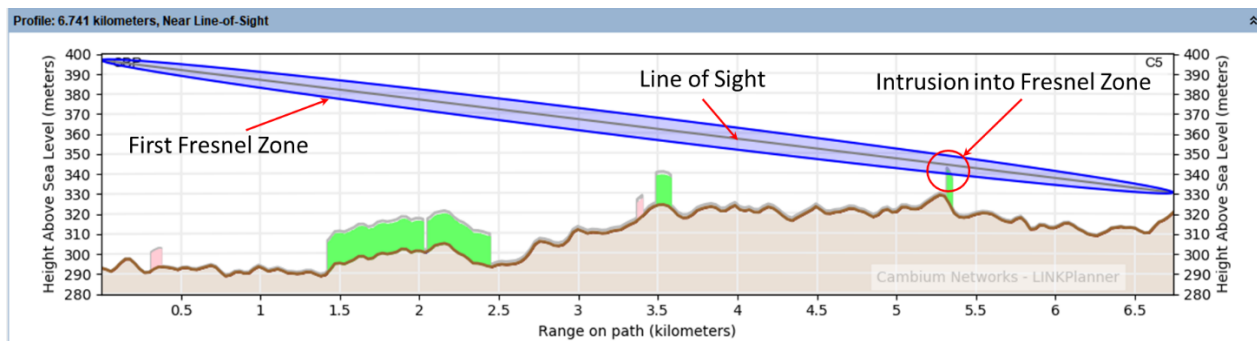


Figure 1 Fresnel Zone

Fixed Wireless Challenge

As can be seen, the Line-of-Sight may be clear, but the Fresnel zone may not. The deeper the intrusion into the Fresnel zone the bigger the effect. This can run from 0 dB to the total blockage of the signal.

To see how these two factors affect the link, we add the losses together as 15.53 dB + 7.96 dB to obtain an additional loss of up to 23.49 dB. At 3 km the total path loss will increase from 117.23 dB up to 140.72 dB.

What does this mean? As the amount of loss increases, the signal level will decrease. As the signal level decreases, it approaches the noise floor. Once the signal reaches and drops below the noise floor, the signal is lost.

As the signal-to-noise ratio decreases, the channel capacity also decreases. This can be estimated using the Shannon equation for channel capacity.

$$C \leq W \log_2 \left[1 + \left(\frac{S}{n} \right) \right]$$

$$C \leq 3.322 W \log_{10} \left(\frac{S}{n} \right)$$

$$C \leq 0.3322 W \left[\frac{S}{N} (dB) \right]$$

Where:

C – channel capacity in (Mbps)

W – channel bandwidth (MHz)

s/n – channel signal to noise (power ratio)

S/N – channel signal to noise (dB)

The following table shows the effect of decreasing the signal power against a fixed noise floor.

Table 1 Channel Capacity vs. S/N Ratio

Parameters	dBm	S/N (dB)	Capacity (Mbps)
Noise	-56	54	231.25
Signal	-110		
Noise	-75	35	206.8
Signal	-110		
Noise	-90	20	175.69
Signal	-110		
Noise	-100	10	138.38
Signal	-110		
Noise	-109	1	40
Signal	-110		

Fixed Wireless Challenge

In addition to these, there are a number of other factors that impact the performance. Without going into details, the following include:

- Gas absorption
- Precipitation
 - Rain
 - Snow
 - Hail
 - Fog
 - Haze
- Obstacles
 - Buildings
 - Trees
 - Terrain
- Ground reflection
 - Water
 - Flat ground
 - Paved areas
- Fading
 - Atmospheric changes
 - Ground and water reflection changes
 - Flat fading
 - Frequency-selective fading
- Multipath fading
- Interference
 - Other transmitter on the same frequency
 - Transmitters located in the side-lobes
 - Background noise
 - Intentional interference

All of these will have a detrimental effect on the system performance. Some factors will have more of an effect than others.

One method of increasing the through put is to use various modulation formats. For the equipment used in this document, Quadrature Amplitude Modulation (QAM). This format allows multiple bits of information to be transmitted at one time. The tables below show how many bits can be transmitted for each of the modulation levels.

Fixed Wireless Challenge

Table 2 QAM Modulations

Modulation	MINO Type	Aggregated Max Data Rate	# BITS per symbol
256 QAM	B	271.97 Mbps	8
128 QAM	B	237.98 Mbps	7
64 QAM	B	203.98 Mbps	6
32 QAM	B	169.98 Mbps	5
16 QAM	B	135.99 Mbps	4
8 QUAM	B	101.99 Mbps	3
QPSK	B	67.99 Mbps	2
256 QAM	A	135.99 Mbps	8
64 QAM	A	101.99 Mbps	6
16 QAM	A	67.99 Mbps	4
QPSK	A	34.00 Mbps	2

These levels are affected by rain. The heavier the rain the lower the modulation level that can be used. The figure below provides an example of rain fade on the link.

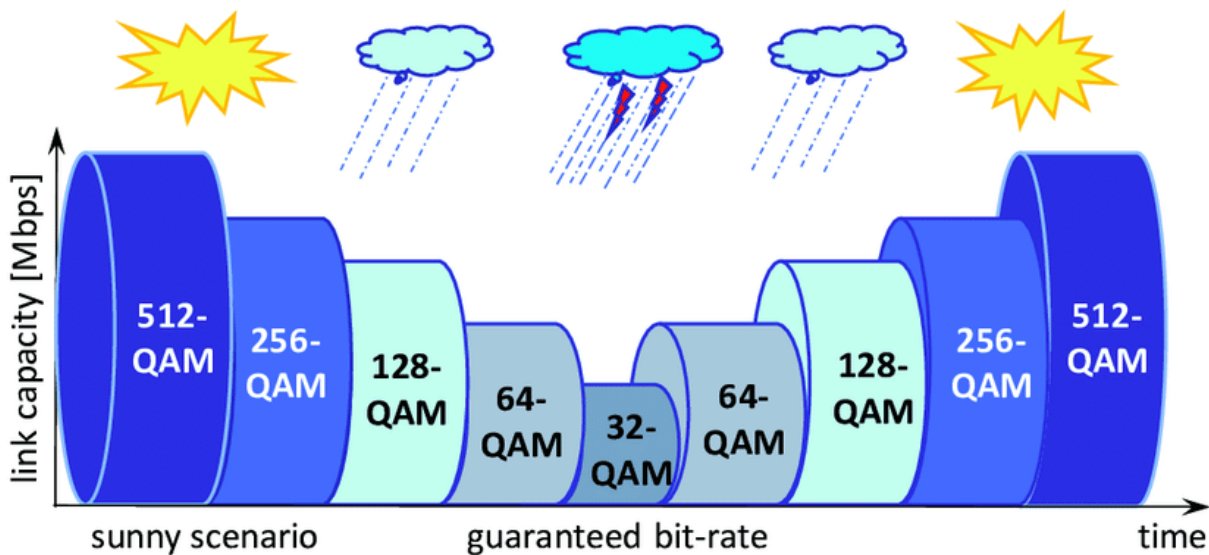


Figure 2 Rain Fade

The following looks at some simulations that demonstrate the effects. The tool used to generate the following: Cambium LINKPlanner 64-bit, 5.5.0 build date 2021-07-01.

The following simulations are based on a tower located between Dumont and Parkersburg; IA. Six potential subscriber locations were selected.

Fixed Wireless Challenge

NOTE: This configuration does not represent the actual configuration for these locations, but is being used for demonstration purposes only. This is being used to demonstrate the effects of some common variables on the link performance.

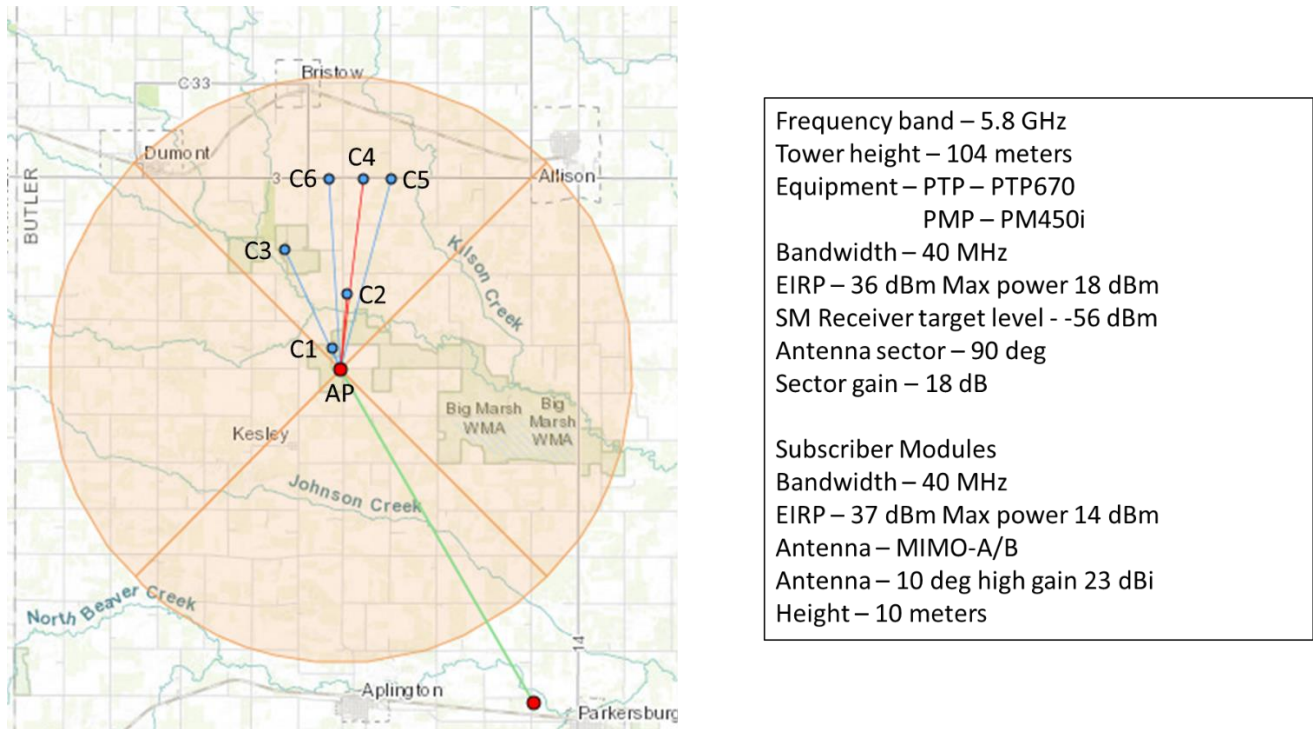


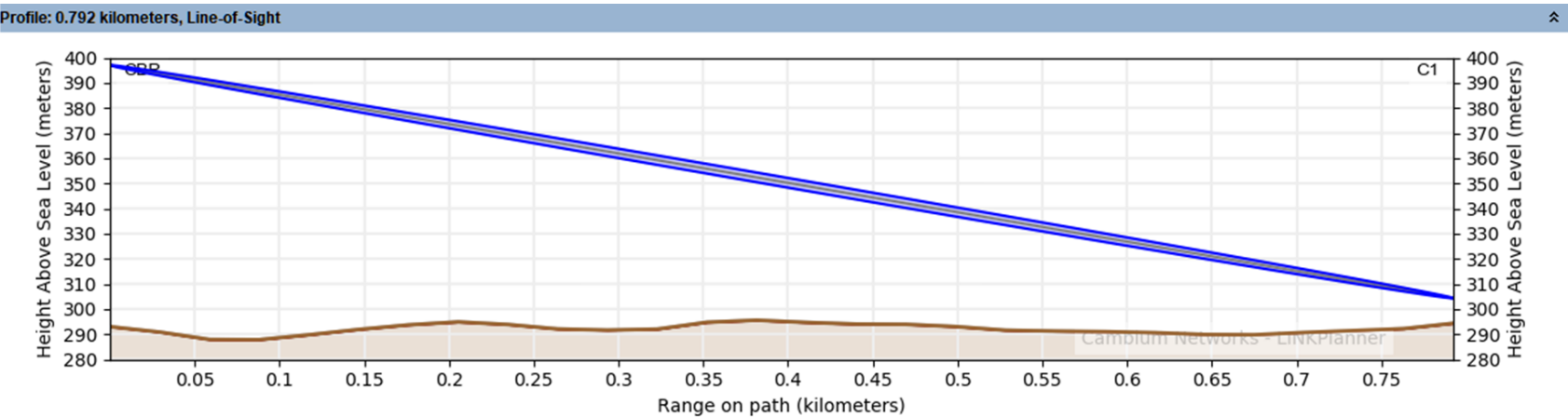
Figure 3 Baseline for Simulations

The following figures show the elevation view of the link. The access point is located on the left side of the figure and the subscriber is on the right side. Raised green areas indicate the presents of vegetation, trees in these cases. The red raised areas indicate the presents of different structures, homes, sheds, animal confinements, grain bins and the like.

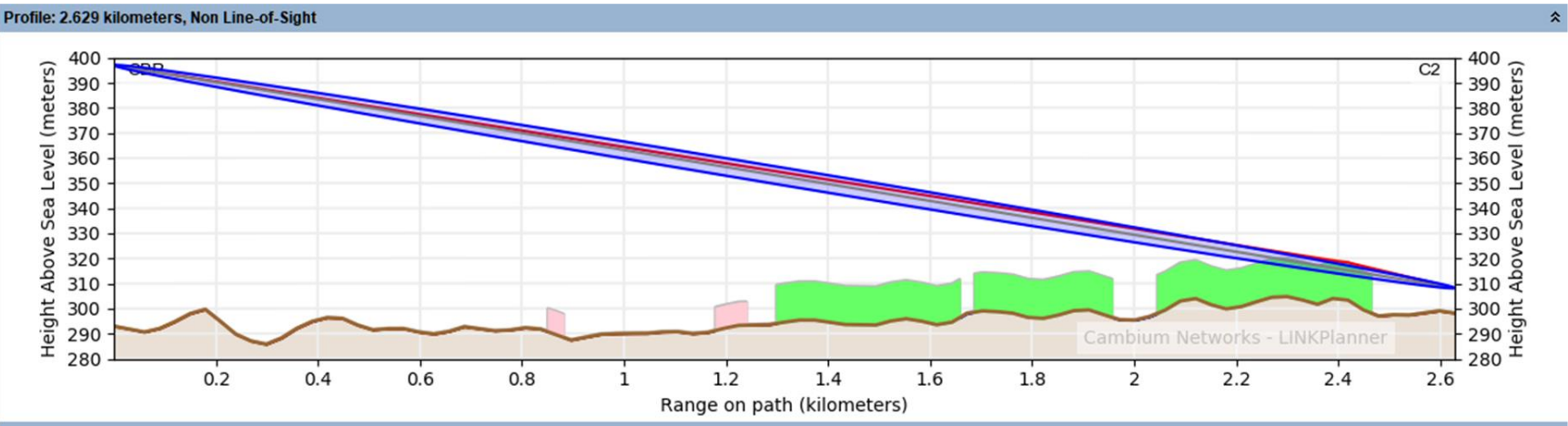
The frequency, location, height of the antennas, transmit power, receive level and bandwidth are maintained through all simulations.

During the simulations, the percent availability and the interference levels were changed to show how some minor changes can have a large effect on the link budget.

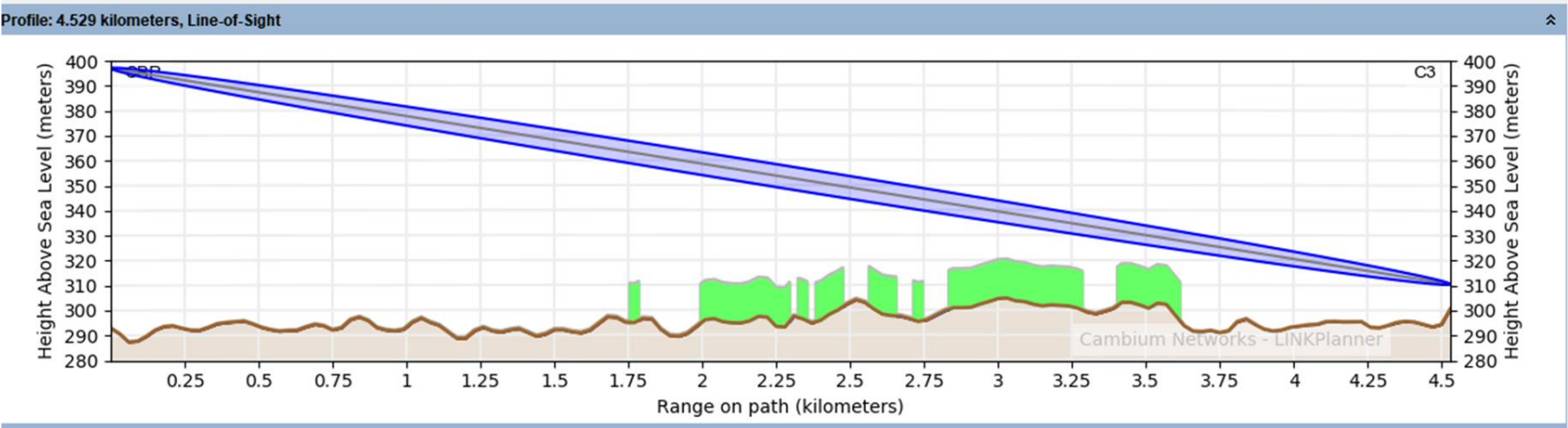
Fixed Wireless Challenge



Subscriber C1
Distance 0.96 km/0.60 miles
Clear Line-of-Sight and Fresnel zone
Fairly flat terrain



Subscriber C2
Distance 2.63 km/1.63 miles
Vegetation in Line-of-Sight

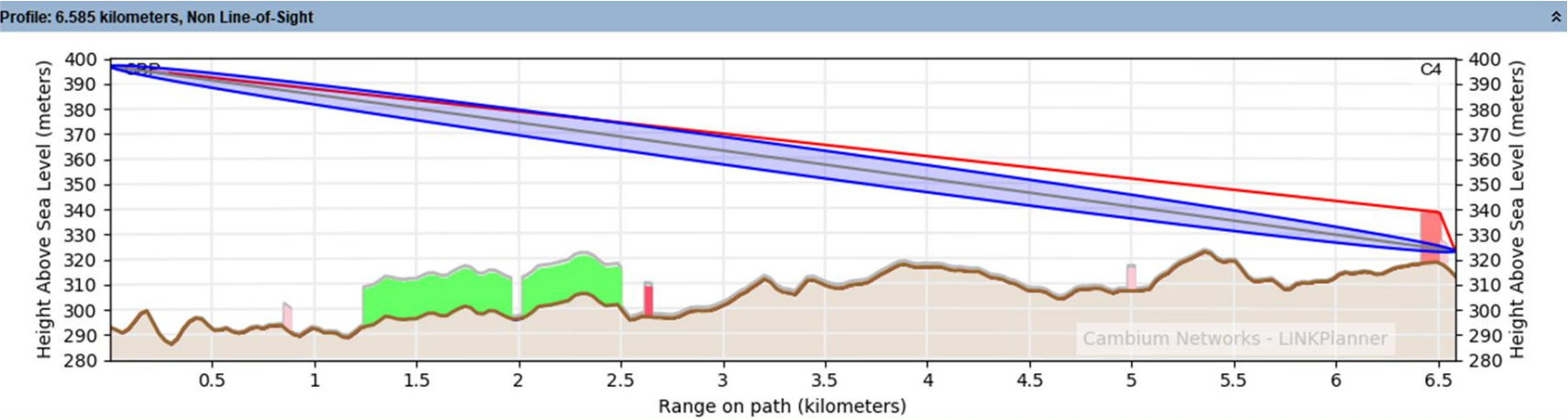


Subscriber C3

Distance 4.53 km/2.81 miles

Clear Line-of-Sight and Fresnel zone

Terrain rough with trees along path

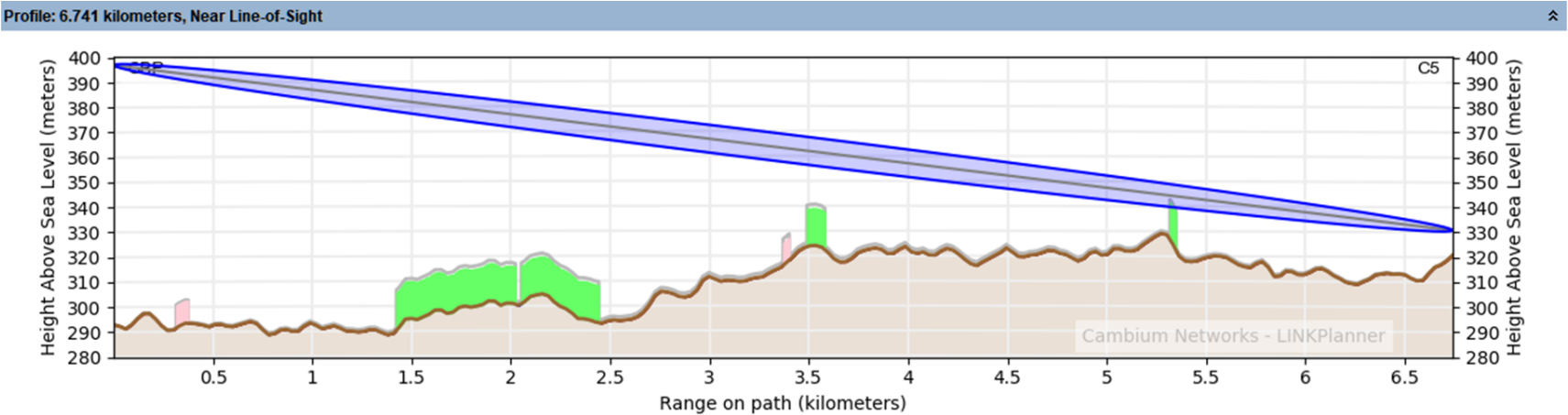


Subscriber C4

Distance 6.53 km/4.06 miles

Site shadowed by another structure

Terrain rough with trees and other structures along the path

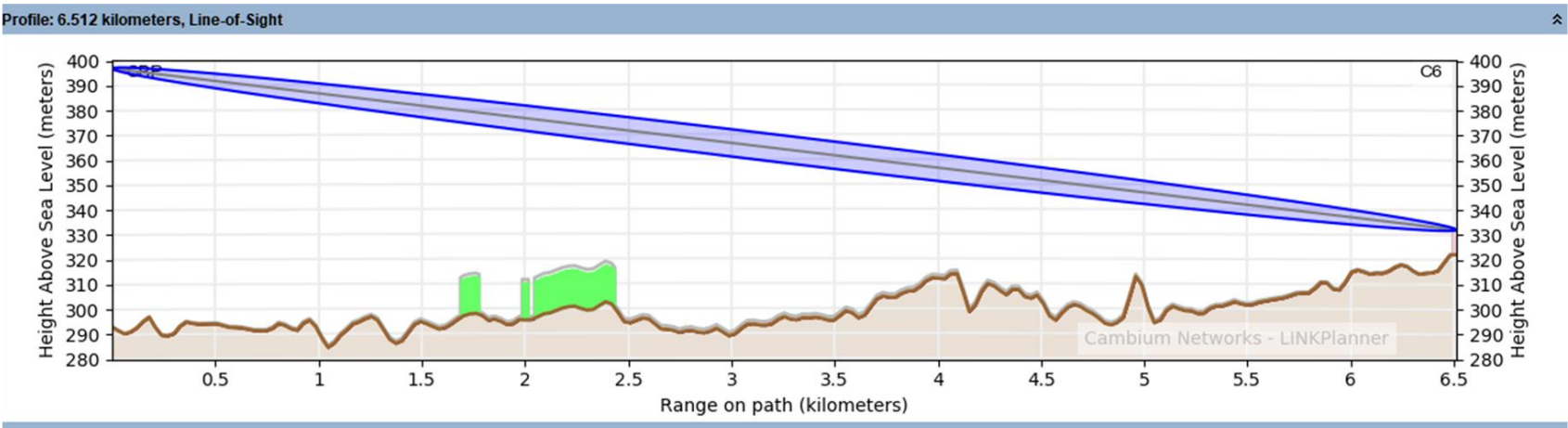


Subscriber C5

Distance 6.73 km/4.18 miles

Small tree entering the Fresnel zone

Terrain rough with increase in
elevation and trees and other
structures along the path



Subscriber C6
 Distance 6.51 km/4.04 miles
 Clear Line-of-Sight and Fresnel zone
 Rough terrain with trees along the path

Fixed Wireless Simulation Initial Condition						
Parameters	C1	C2	C3	C4	C5	C6
AP Interference	-90 dBm	-90 dBm	-90 dBm	-90 dB	-90 dB	-90 dB
SM Interference	-90 dBm	-90 dBm	-90 dBm	-90 dB	-90 dB	-90 dB
Distance	0.96 km/0.60 miles	2.63 km/1.63 miles	4.53 km/2.81 miles	6.53 km/4.06 miles	6.73 km/4.18 miles	6.51 km/4.04 miles
Predicted Received Power	-53 dBm	-83 dBm	-64 dBm	-30.18 dBm	-72 dBm	-67 dBm
Min Availability Required	99.0000%	99.0000%	99.0000%	99.0000%	99.0000%	99.0000%
Max Usable Mode	x7 (128QAM MIMO-B)	N/A	x4 (16QAM MIMO-B)	N/A	x1(QPSK MIMO-A)	x4(16QAM MIMO-B)
Predicted Available	99.9995%	6.12%	100.0000%	0.0000%	99.9984%	99.3320%
System Gain Margin	22.48 dB	-2.58 dB	16.35 dB	-30.18 dB	7.74 dB	13.43 dB
Free Space Path Loss	105.68 dB	116.09 dB	120.82 dB	124.07 dB	124.27 dB	123.97 dB
Gaseous Absorption Loss	0.01 dB	0.02 dB	0.04 dB	0.06 dB	0.06 dB	0.06 dB
Excess Path Loss	0.00 dB	25.63 dB	0.00 dB	43.29 dB	4.87 dB	0.00 dB
Total Path Loss	105.68 dB	141.74 dB	120.86 dB	167.42 dB	129.20 dB	124.03 dB

Fixed Wireless Simulation Increase in Availability						
Parameters	C1	C2	C3	C4	C5	C6
AP Interference	-90 dBm	-90 dBm	-90 dBm	-90 dB	-90 dB	-90 dB
SM Interference	-90 dBm	-90 dBm	-90 dBm	-90 dB	-90 dB	-90 dB
Distance	0.96 km/0.60 miles	2.63 km/1.63 miles	4.53 km/2.81 miles	6.53 km/4.06 miles	6.73 km/4.18 miles	6.51 km/4.04 miles
Predicted Received Power	-53 dBm	-83 dBm	-64 dBm	-30.18 dBm	-72 dBm	-67 dBm
Min Availability Required	99.9990%	99.9990%	99.9990%	99.9990%	99.9990%	99.9990%
Max Usable Mode	x6 (128QAM MIMO-B)	N/A	x2 (16QAM MIMO-B)	N/A	N/A	x2(QAM MIMO-B)
Predicted Available	99.9995%	6.12%	100.0000%	0.0000%	99.9984%	99.3320%
System Gain Margin	22.48 dB	-2.58 dB	16.35 dB	-30.18 dB	7.74 dB	13.43 dB
Free Space Path Loss	105.68 dB	116.09 dB	120.82 dB	124.07 dB	124.27 dB	123.97 dB
Gaseous Absorption Loss	0.01 dB	0.02 dB	0.04 dB	0.06 dB	0.06 dB	0.06 dB
Excess Path Loss	0.00 dB	25.63 dB	0.00 dB	43.29 dB	4.87 dB	0.00 dB
Total Path Loss	105.68 dB	141.74 dB	120.86 dB	167.42 dB	129.20 dB	124.03 dB
Number of seconds per year	31,557,600					
Outage at 99.0000%	315,576	3.6525	days			
Outage at 99.9000%	31,557.6	8.766	hours			
Outage at 99.9900%	3155.76	52.596	seconds			
Outage at 99.9990%	315.576	5.2596	seconds			
Outage at 99.9999%	31.5576	0.52596	seconds			

Fixed Wireless Simulation Results Increase in Interference						
Parameters	C1	C2	C3	C4	C5	C6
AP Interference	-75 dBm	-75 dBm	-75 dBm	-75 dBm	-75 dBm	-75 dBm
SM Interference	-75 dBm	-75 dBm	-75 dBm	-75 dBm	-75 dBm	-90 dB
Distance	0.96 km/0.60 miles	2.63 km/1.63 miles	4.53 km/2.81 miles	6.53 km/4.06 miles	6.73 km/4.18 miles	6.51 km/4.04 miles
Predicted Received Power	-53 dBm	-83 dBm	-64 dBm	-110 dBm	-72 dBm	-67 dBm
Min Availability Required	99.0000%	99.0000%	99.0000%	99.0000%	99.0000%	99.0000%
Max Usable Mode	x4 (16QAM MIMO-B)	N/A	x1 (QAM MIMO-B)	N/A	N/A	N/A
Predicted Available	99.9831%	0.0000%	99.9762%	0.0000%	0.0126%	0.0001%
System Gain Margin	10.75 dB	-14.46 dB	4.47 dB	-42.06 dB	-4.14 dB	1.55 dB
Free Space Path Loss	105.68 dB	116.09 dB	120.82 dB	124.07 dB	124.27 dB	123.97 dB
Gaseous Absorption Loss	0.01 dB	0.02 dB	0.04 dB	0.06 dB	0.06 dB	0.06 dB
Excess Path Loss	0.00 dB	25.63 dB	0.00 dB	43.29 dB	4.87 dB	0.00 dB
Total Path Loss	105.68 dB	141.74 dB	120.86 dB	167.42 dB	129.20 dB	124.03 dB
Increase AP interference	-75 dB					
Increase SM interference	-75 dB					

Fixed Wireless Challenge

In summary, what this shows is that there are a number of variables that have a detrimental effect on the performance of fixed wireless networks. As can be seen above, each variable can have an affect on the link by its self. However, in the operating environment, each variable not only has its own effect on the link, but will also affects other parameters which results in more degradation of the signal.

For example, the signal-to-noise (S/N) ratio will cause the signal power level to decrease, it also effects the Bit Error Rate (BER). Thus, with a high S/N ratio in addition to losing power the number of errors will increase also. This will result in the loss of usable information.

Another example is rain fade. As the perception increases, the amount of data that can be transmitted over the link decreases. This means that the amount of bandwidth available to each user on that link will be reduced. If this happens to the backhaul channel, all access point associated with that back haul link will be affected. This results in a lowering of the bandwidth available to each subscriber.

A fixed wireless link will behave in a manner similar to an xDSL link. As the length of a xDSL link increases, the uplink and downlink speeds decrease. A wireless link will behave in a similar manner. This is due to the spreading of the pulses. Each pulsed in made up of a number of different frequencies that are centered on the center frequency. As the pulse propagates through a medium, (air or copper in this case) each frequency will travel as a slightly different velocity. As the distance gets longer, the pulses will spread until they begin to interfere with the pulses on either side. In addition to the spreading, the power of the pulse will also decrease. This results in an increase in the BER, resulting in the loss of usable information.

The performance for a wireless network can not be given in general terms, covering a large area. Each location needs to be evaluated on its own. Two subscribers using the same equipment and at the same distance from the access point can have very different levels of performance. The difference between the two can be as simple as a tree in the path that is intruding into the Fresnel zone.

The fixed wireless performance will be affected by changes during the seasons, the weather, new construction in the area, addition of new service providers located in the general area, and the stability of the power to the equipment. All will have an effect on the performance of the fixed wireless link.

Fixed Wireless Challenge

Fixed wireless has its place in the telecommunications arena. It can provide service to a number of subscribers using a shared bandwidth to provide data, voice and video. The access points can be located in elevated locations to provide service to a given area. These systems can be installed relatively quickly providing power, permits, clear line-of-sight and back-haul are available.

There are, however, a number of factors that will degrade the performance of a fixed wireless link. The following takes a look at some of these factors.

Free space loss is the starting point in determining the loss in signal strength and performance of the link between the transmitter and the receiver. Free space loss is dependent on frequency and distance. As these variables increase, the loss increases.

One of the general equations used to estimate free space loss is:

$$L_{FSL} = 92.45 + 20 \log f_{GHz} + 20 \log d_{km}$$

Where:

- L_{FSL} – total path loss in dB
- f – frequency in GHz
- d – distance in kilometers

An example: With a fixed frequency of $f = 5.8$ GHz and a distance varying from 0.5 km (0.31 miles) to 3 km (1.86 miles):

$$L_{FSL} = 92.45 + 20 \log(5.8) + 20 \log(0.5) = 101.70 \text{ dB}$$

$$L_{FSL} = 92.45 + 20 \log(5.8) + 20 \log(1.25) = 109.65 \text{ dB}$$

$$L_{FSL} = 92.45 + 20 \log(5.8) + 20 \log(2.0) = 113.78 \text{ dB}$$

$$L_{FSL} = 92.45 + 20 \log(5.8) + 20 \log(3.0) = 117.23 \text{ dB}$$

For a change of just over 1.55 miles, this results in an additional 15.53 dB of loss in the signal path.

Another factor that can have a major impact on system performance is vegetation attenuation. Vegetation loss is dependent on transmit frequency and the depth of the foliage that the signal is passing through. As can be seen from the equation below, the loss will increase with both frequency and depth of the foliage.

Fixed Wireless Challenge

One of the equations used to determine the vegetation attenuation is:

$$L_{veg} = 0.2f^{0.3}d^{0.6}$$

Here:

- f – frequency in MHz
- d – depth of foliage

Using the same frequency as above, 5800 MHz (5.8 GHz) and depth of foliage between 5 and 20 feet.

$$L_{veg} = 0.2(5800)^{0.3}(5)^{0.6} = 3.47 \text{ dB}$$

$$L_{veg} = 0.2(5800)^{0.3}(10)^{0.6} = 5.25 \text{ dB}$$

$$L_{veg} = 0.2(5800)^{0.3}(15)^{0.6} = 6.70 \text{ dB}$$

$$L_{veg} = 0.2(5800)^{0.3}(20)^{0.6} = 7.96 \text{ dB}$$

This shows how quickly the loss increases as the depth of the foliage increases. This can be thought of as a tree growing between the transmitter and the receiver. The system performance drops as the tree grows.

The vegetation can be related to the Fresnel zone. As seen in the figure below, the Fresnel zone expands as it moves away from the antennas. The Fresnel zone will be at its maximum diameter at the mid-point between the transmit and receive antennas. As can be seen in the figure below.

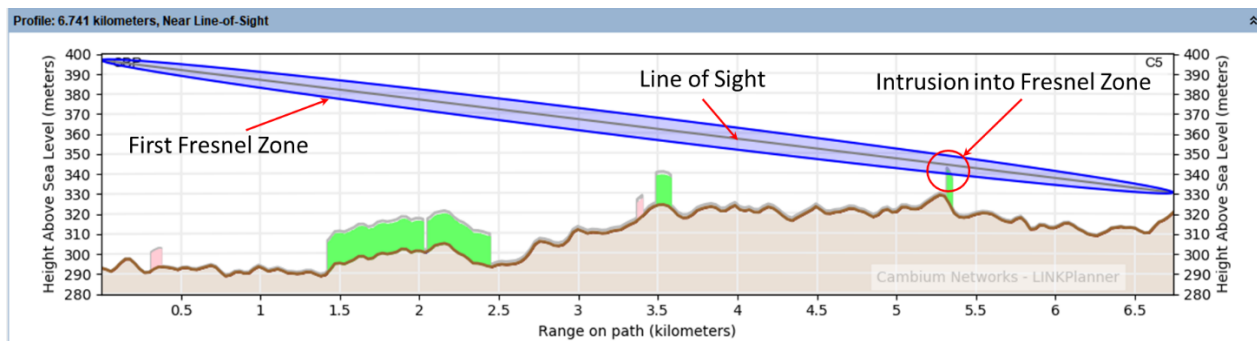


Figure 1 Fresnel Zone

Fixed Wireless Challenge

As can be seen, the Line-of-Sight may be clear, but the Fresnel zone may not. The deeper the intrusion into the Fresnel zone the bigger the effect. This can run from 0 dB to the total blockage of the signal.

To see how these two factors affect the link, we add the losses together as 15.53 dB + 7.96 dB to obtain an additional loss of up to 23.49 dB. At 3 km the total path loss will increase from 117.23 dB up to 140.72 dB.

What does this mean? As the amount of loss increases, the signal level will decrease. As the signal level decreases, it approaches the noise floor. Once the signal reaches and drops below the noise floor, the signal is lost.

As the signal-to-noise ratio decreases, the channel capacity also decreases. This can be estimated using the Shannon equation for channel capacity.

$$C \leq W \log_2 \left[1 + \left(\frac{S}{n} \right) \right]$$

$$C \leq 3.322 W \log_{10} \left(\frac{S}{n} \right)$$

$$C \leq 0.3322 W \left[\frac{S}{N} (dB) \right]$$

Where:

C – channel capacity in (Mbps)

W – channel bandwidth (MHz)

s/n – channel signal to noise (power ratio)

S/N – channel signal to noise (dB)

The following table shows the effect of decreasing the signal power against a fixed noise floor.

Table 1 Channel Capacity vs. S/N Ratio

Parameters	dBm	S/N (dB)	Capacity (Mbps)
Noise	-56	54	231.25
Signal	-110		
Noise	-75	35	206.8
Signal	-110		
Noise	-90	20	175.69
Signal	-110		
Noise	-100	10	138.38
Signal	-110		
Noise	-109	1	40
Signal	-110		

Fixed Wireless Challenge

In addition to these, there are a number of other factors that impact the performance. Without going into details, the following include:

- Gas absorption
- Precipitation
 - Rain
 - Snow
 - Hail
 - Fog
 - Haze
- Obstacles
 - Buildings
 - Trees
 - Terrain
- Ground reflection
 - Water
 - Flat ground
 - Paved areas
- Fading
 - Atmospheric changes
 - Ground and water reflection changes
 - Flat fading
 - Frequency-selective fading
- Multipath fading
- Interference
 - Other transmitter on the same frequency
 - Transmitters located in the side-lobes
 - Background noise
 - Intentional interference

All of these will have a detrimental effect on the system performance. Some factors will have more of an effect than others.

One method of increasing the through put is to use various modulation formats. For the equipment used in this document, Quadrature Amplitude Modulation (QAM). This format allows multiple bits of information to be transmitted at one time. The tables below show how many bits can be transmitted for each of the modulation levels.

Fixed Wireless Challenge

Table 2 QAM Modulations

Modulation	MINO Type	Aggregated Max Data Rate	# BITS per symbol
256 QAM	B	271.97 Mbps	8
128 QAM	B	237.98 Mbps	7
64 QAM	B	203.98 Mbps	6
32 QAM	B	169.98 Mbps	5
16 QAM	B	135.99 Mbps	4
8 QUAM	B	101.99 Mbps	3
QPSK	B	67.99 Mbps	2
256 QAM	A	135.99 Mbps	8
64 QAM	A	101.99 Mbps	6
16 QAM	A	67.99 Mbps	4
QPSK	A	34.00 Mbps	2

These levels are affected by rain. The heavier the rain the lower the modulation level that can be used. The figure below provides an example of rain fade on the link.

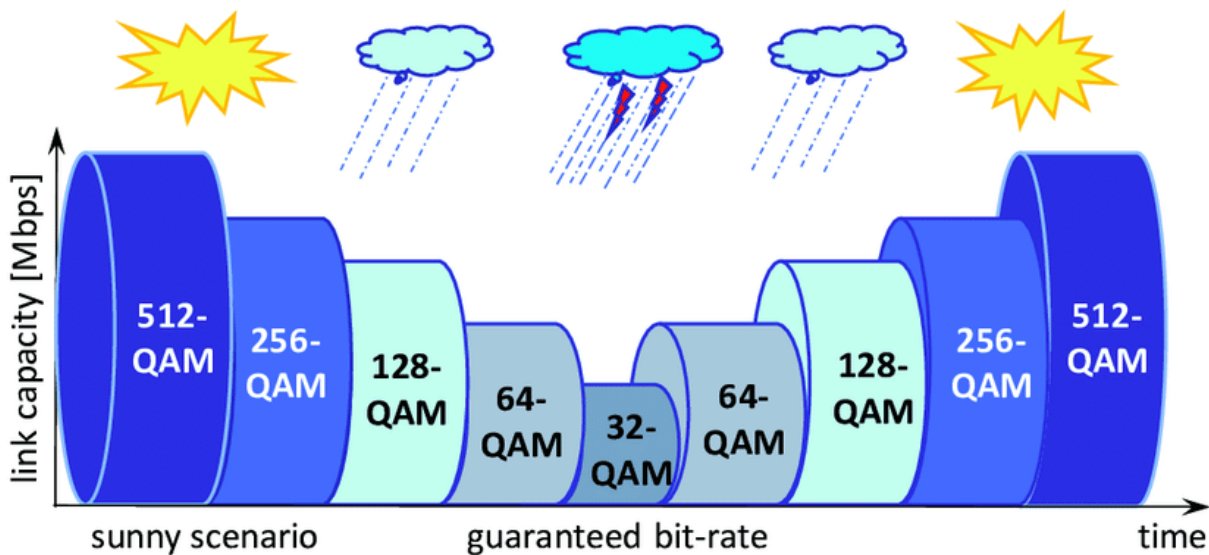


Figure 2 Rain Fade

The following looks at some simulations that demonstrate the effects. The tool used to generate the following: Cambium LINKPlanner 64-bit, 5.5.0 build date 2021-07-01.

The following simulations are based on a tower located between Dumont and Parkersburg; IA. Six potential subscriber locations were selected.

Fixed Wireless Challenge

NOTE: This configuration does not represent the actual configuration for these locations, but is being used for demonstration purposes only. This is being used to demonstrate the effects of some common variables on the link performance.

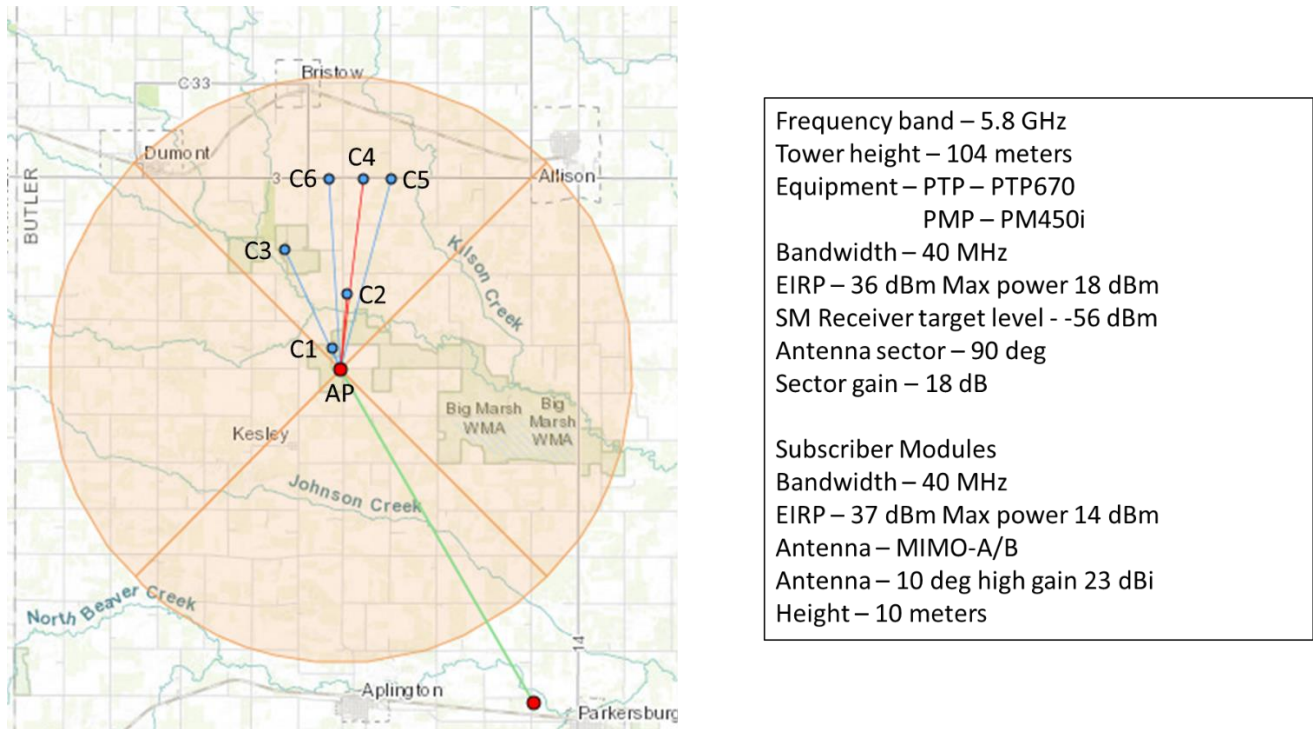


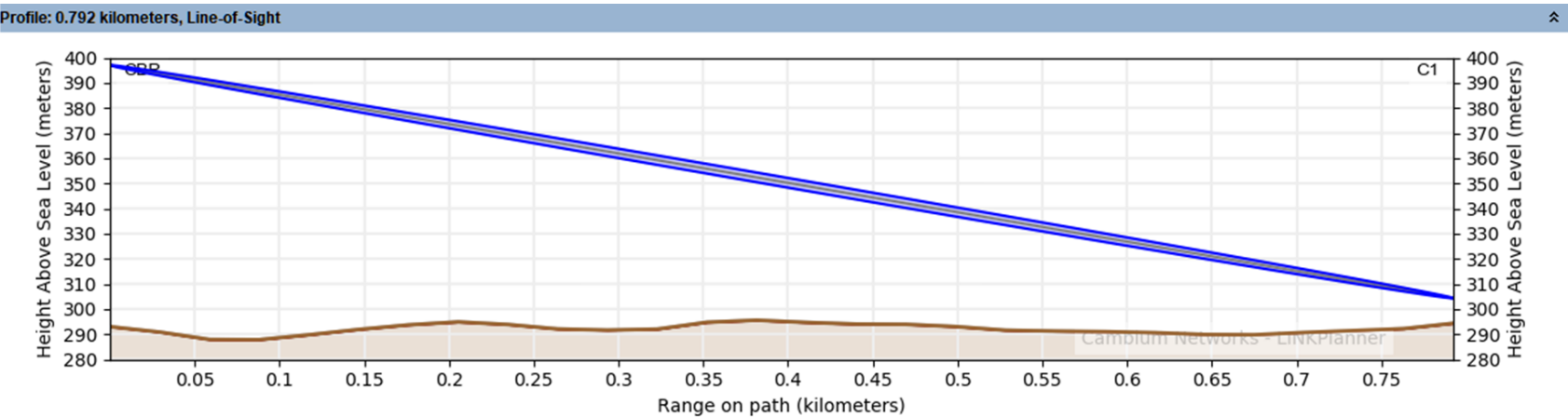
Figure 3 Baseline for Simulations

The following figures show the elevation view of the link. The access point is located on the left side of the figure and the subscriber is on the right side. Raised green areas indicate the presents of vegetation, trees in these cases. The red raised areas indicate the presents of different structures, homes, sheds, animal confinements, grain bins and the like.

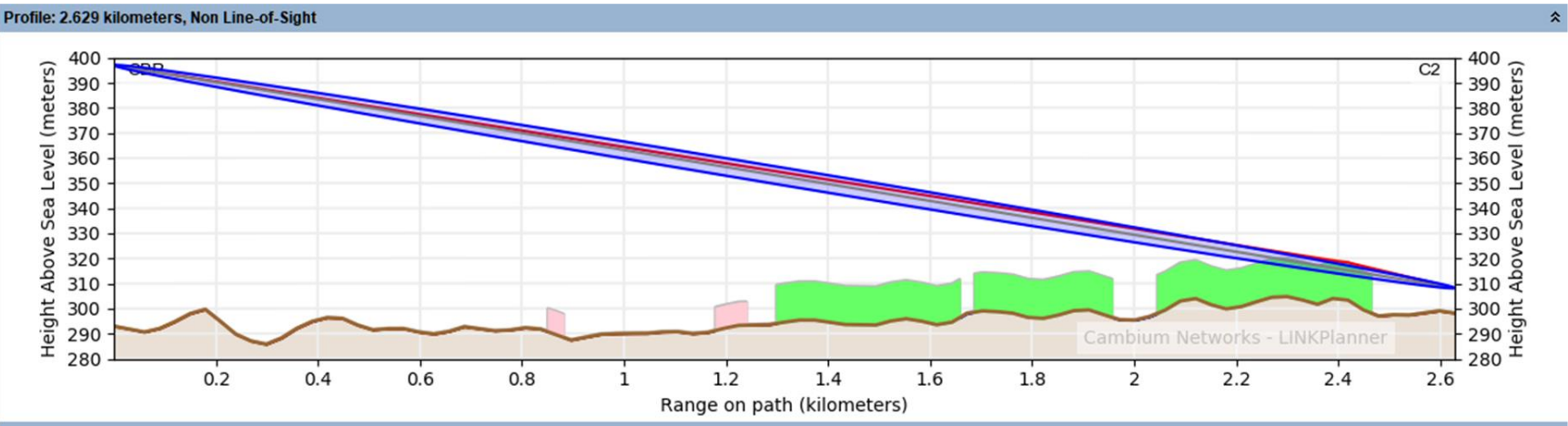
The frequency, location, height of the antennas, transmit power, receive level and bandwidth are maintained through all simulations.

During the simulations, the percent availability and the interference levels were changed to show how some minor changes can have a large effect on the link budget.

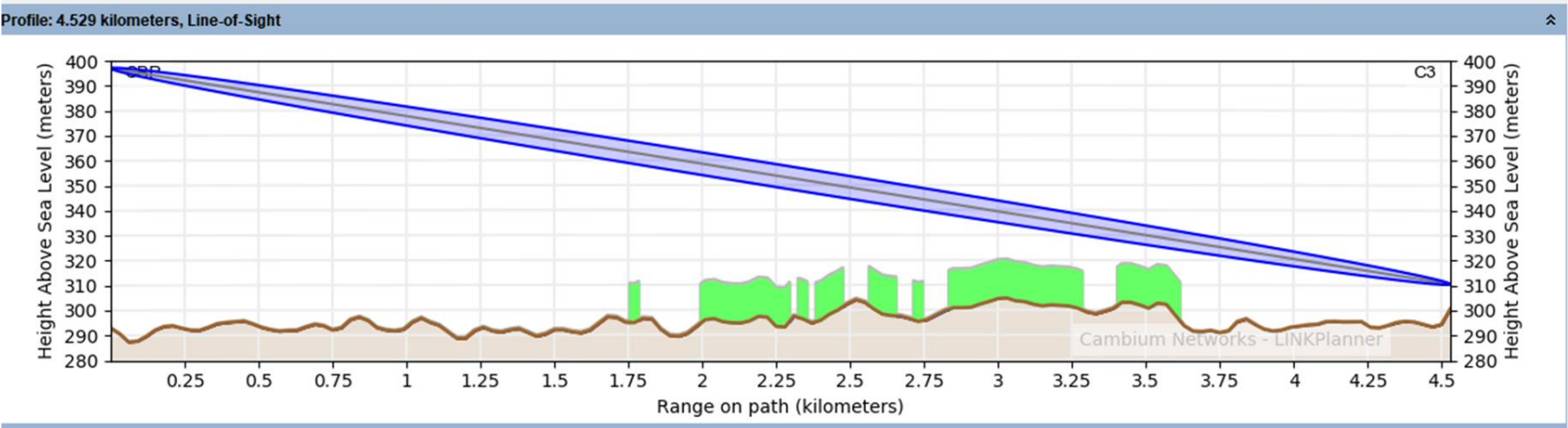
Fixed Wireless Challenge



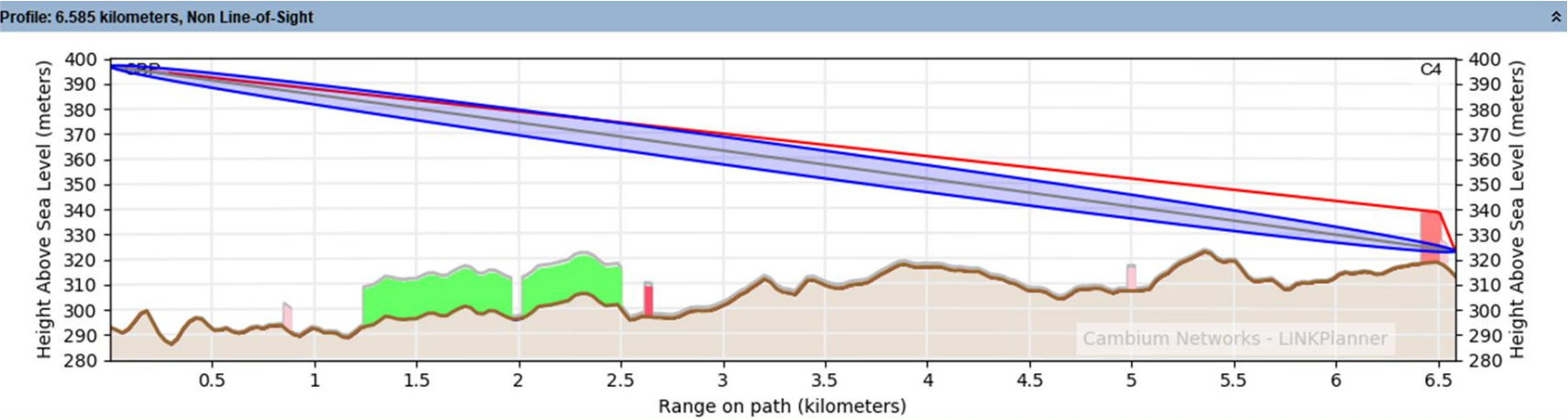
Subscriber C1
Distance 0.96 km/0.60 miles
Clear Line-of-Sight and Fresnel zone
Fairly flat terrain



Subscriber C2
Distance 2.63 km/1.63 miles
Vegetation in Line-of-Sight



Subscriber C3
 Distance 4.53 km/2.81 miles
 Clear Line-of-Sight and Fresnel zone
 Terrain rough with trees along path

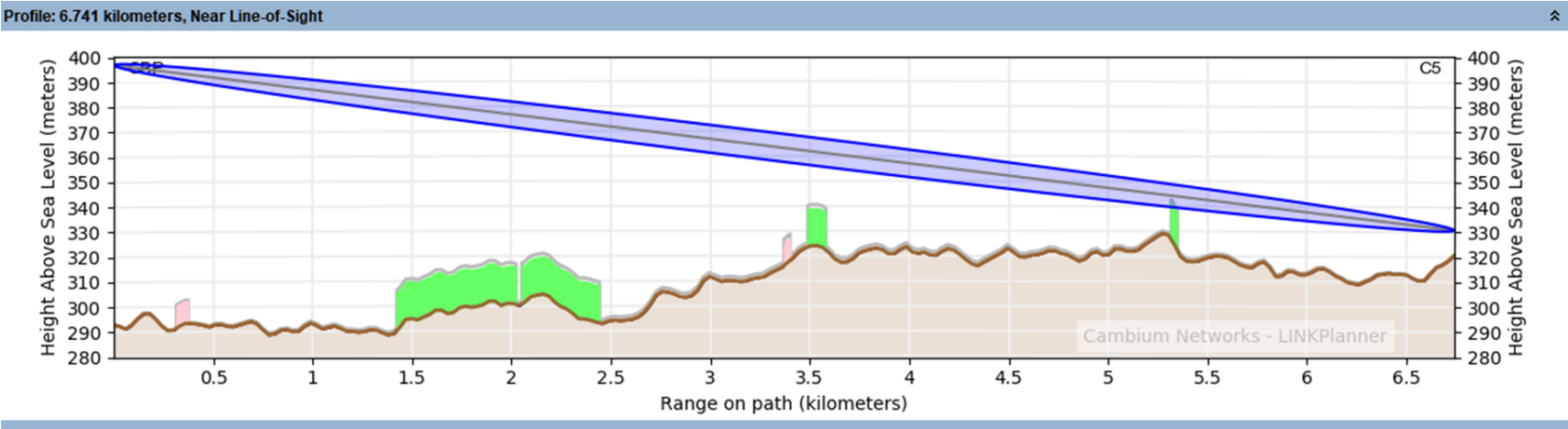


Subscriber C4

Distance 6.53 km/4.06 miles

Site shadowed by another structure

Terrain rough with trees and other structures along the path

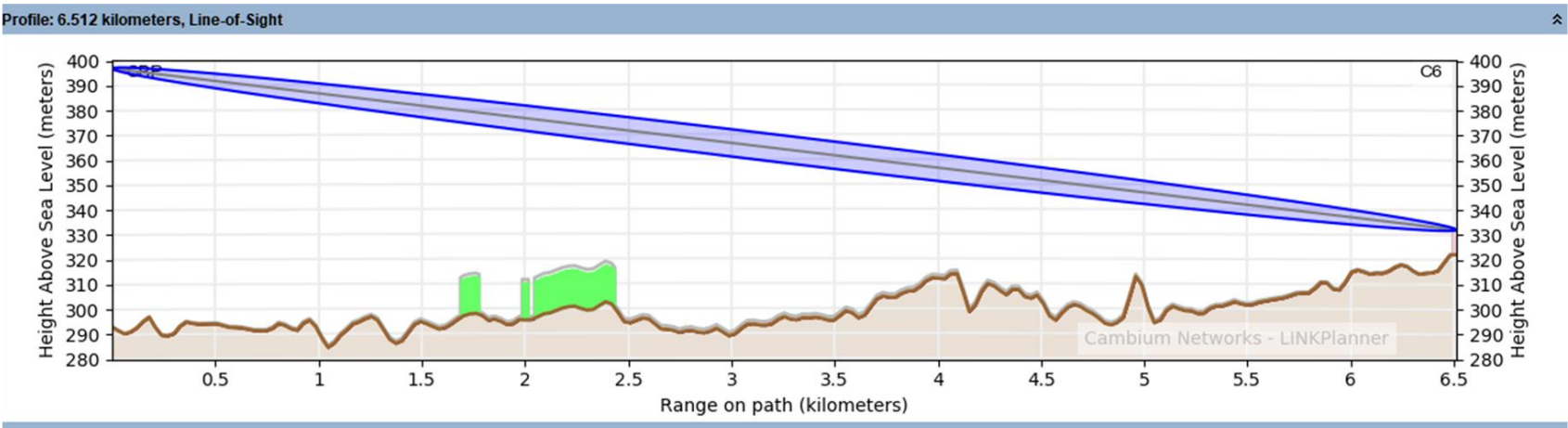


Subscriber C5

Distance 6.73 km/4.18 miles

Small tree entering the Fresnel zone

Terrain rough with increase in elevation and trees and other structures along the path



Subscriber C6
 Distance 6.51 km/4.04 miles
 Clear Line-of-Sight and Fresnel zone
 Rough terrain with trees along the path

Fixed Wireless Simulation Initial Condition						
Parameters	C1	C2	C3	C4	C5	C6
AP Interference	-90 dBm	-90 dBm	-90 dBm	-90 dB	-90 dB	-90 dB
SM Interference	-90 dBm	-90 dBm	-90 dBm	-90 dB	-90 dB	-90 dB
Distance	0.96 km/0.60 miles	2.63 km/1.63 miles	4.53 km/2.81 miles	6.53 km/4.06 miles	6.73 km/4.18 miles	6.51 km/4.04 miles
Predicted Received Power	-53 dBm	-83 dBm	-64 dBm	-30.18 dBm	-72 dBm	-67 dBm
Min Availability Required	99.0000%	99.0000%	99.0000%	99.0000%	99.0000%	99.0000%
Max Usable Mode	x7 (128QAM MIMO-B)	N/A	x4 (16QAM MIMO-B)	N/A	x1(QPSK MIMO-A)	x4(16QAM MIMO-B)
Predicted Available	99.9995%	6.12%	100.0000%	0.0000%	99.9984%	99.3320%
System Gain Margin	22.48 dB	-2.58 dB	16.35 dB	-30.18 dB	7.74 dB	13.43 dB
Free Space Path Loss	105.68 dB	116.09 dB	120.82 dB	124.07 dB	124.27 dB	123.97 dB
Gaseous Absorption Loss	0.01 dB	0.02 dB	0.04 dB	0.06 dB	0.06 dB	0.06 dB
Excess Path Loss	0.00 dB	25.63 dB	0.00 dB	43.29 dB	4.87 dB	0.00 dB
Total Path Loss	105.68 dB	141.74 dB	120.86 dB	167.42 dB	129.20 dB	124.03 dB

Fixed Wireless Simulation Increase in Availability						
Parameters	C1	C2	C3	C4	C5	C6
AP Interference	-90 dBm	-90 dBm	-90 dBm	-90 dB	-90 dB	-90 dB
SM Interference	-90 dBm	-90 dBm	-90 dBm	-90 dB	-90 dB	-90 dB
Distance	0.96 km/0.60 miles	2.63 km/1.63 miles	4.53 km/2.81 miles	6.53 km/4.06 miles	6.73 km/4.18 miles	6.51 km/4.04 miles
Predicted Received Power	-53 dBm	-83 dBm	-64 dBm	-30.18 dBm	-72 dBm	-67 dBm
Min Availability Required	99.9990%	99.9990%	99.9990%	99.9990%	99.9990%	99.9990%
Max Usable Mode	x6 (128QAM MIMO-B)	N/A	x2 (16QAM MIMO-B)	N/A	N/A	x2(QAM MIMO-B)
Predicted Available	99.9995%	6.12%	100.0000%	0.0000%	99.9984%	99.3320%
System Gain Margin	22.48 dB	-2.58 dB	16.35 dB	-30.18 dB	7.74 dB	13.43 dB
Free Space Path Loss	105.68 dB	116.09 dB	120.82 dB	124.07 dB	124.27 dB	123.97 dB
Gaseous Absorption Loss	0.01 dB	0.02 dB	0.04 dB	0.06 dB	0.06 dB	0.06 dB
Excess Path Loss	0.00 dB	25.63 dB	0.00 dB	43.29 dB	4.87 dB	0.00 dB
Total Path Loss	105.68 dB	141.74 dB	120.86 dB	167.42 dB	129.20 dB	124.03 dB
Number of seconds per year	31,557,600					
Outage at 99.0000%	315,576	3.6525	days			
Outage at 99.9000%	31,557.6	8.766	hours			
Outage at 99.9900%	3155.76	52.596	seconds			
Outage at 99.9990%	315.576	5.2596	seconds			
Outage at 99.9999%	31.5576	0.52596	seconds			

Fixed Wireless Simulation Results Increase in Interference						
Parameters	C1	C2	C3	C4	C5	C6
AP Interference	-75 dBm	-75 dBm	-75 dBm	-75 dBm	-75 dBm	-75 dBm
SM Interference	-75 dBm	-75 dBm	-75 dBm	-75 dBm	-75 dBm	-90 dB
Distance	0.96 km/0.60 miles	2.63 km/1.63 miles	4.53 km/2.81 miles	6.53 km/4.06 miles	6.73 km/4.18 miles	6.51 km/4.04 miles
Predicted Received Power	-53 dBm	-83 dBm	-64 dBm	-110 dBm	-72 dBm	-67 dBm
Min Availability Required	99.0000%	99.0000%	99.0000%	99.0000%	99.0000%	99.0000%
Max Usable Mode	x4 (16QAM MIMO-B)	N/A	x1 (QAM MIMO-B)	N/A	N/A	N/A
Predicted Available	99.9831%	0.0000%	99.9762%	0.0000%	0.0126%	0.0001%
System Gain Margin	10.75 dB	-14.46 dB	4.47 dB	-42.06 dB	-4.14 dB	1.55 dB
Free Space Path Loss	105.68 dB	116.09 dB	120.82 dB	124.07 dB	124.27 dB	123.97 dB
Gaseous Absorption Loss	0.01 dB	0.02 dB	0.04 dB	0.06 dB	0.06 dB	0.06 dB
Excess Path Loss	0.00 dB	25.63 dB	0.00 dB	43.29 dB	4.87 dB	0.00 dB
Total Path Loss	105.68 dB	141.74 dB	120.86 dB	167.42 dB	129.20 dB	124.03 dB
Increase AP interference	-75 dB					
Increase SM interference	-75 dB					

Fixed Wireless Challenge

In summary, what this shows is that there are a number of variables that have a detrimental effect on the performance of fixed wireless networks. As can be seen above, each variable can have an affect on the link by its self. However, in the operating environment, each variable not only has its own effect on the link, but will also affects other parameters which results in more degradation of the signal.

For example, the signal-to-noise (S/N) ratio will cause the signal power level to decrease, it also effects the Bit Error Rate (BER). Thus, with a high S/N ratio in addition to losing power the number of errors will increase also. This will result in the loss of usable information.

Another example is rain fade. As the perception increases, the amount of data that can be transmitted over the link decreases. This means that the amount of bandwidth available to each user on that link will be reduced. If this happens to the backhaul channel, all access point associated with that back haul link will be affected. This results in a lowering of the bandwidth available to each subscriber.

A fixed wireless link will behave in a manner similar to an xDSL link. As the length of a xDSL link increases, the uplink and downlink speeds decrease. A wireless link will behave in a similar manner. This is due to the spreading of the pulses. Each pulsed in made up of a number of different frequencies that are centered on the center frequency. As the pulse propagates through a medium, (air or copper in this case) each frequency will travel as a slightly different velocity. As the distance gets longer, the pulses will spread until they begin to interfere with the pulses on either side. In addition to the spreading, the power of the pulse will also decrease. This results in an increase in the BER, resulting in the loss of usable information.

The performance for a wireless network can not be given in general terms, covering a large area. Each location needs to be evaluated on its own. Two subscribers using the same equipment and at the same distance from the access point can have very different levels of performance. The difference between the two can be as simple as a tree in the path that is intruding into the Fresnel zone.

The fixed wireless performance will be affected by changes during the seasons, the weather, new construction in the area, addition of new service providers located in the general area, and the stability of the power to the equipment. All will have an effect on the performance of the fixed wireless link.

APPENDIX C
THIRD-PARTY AFFIRMATIONS AND SUPPLEMENTAL EVIDENCE

July 28, 2021

Office of the Chief Information Officer of the State of Iowa
c/o Matt Behrens
200 E. Grand Avenue
Des Moines, IA 50309

BTWI Wireless Internet
Jeff Leerhoff
jeff@btwi.net

To whom it may concern:

This is a letter of inquiry concerning your firm's prior reporting to the State of Iowa Office of the Chief Information Officer ("OCIO" or "Office") regarding the availability of Broadband service in certain United States Census Block(s) within Iowa. Our Office received a formal notice of appeal challenging information reported on the Broadband Availability Map Version 4 ("V4") of the Statewide Broadband Availability Map ("Map"). The data reflected on V4 of the Map was either (1) provided by you to the Office's contractor ("Connected Nation") during the data collection window of April 15 through April 30, 2021, (2) gathered from other sources (such as FCC) that collected data from you, or (3) carried forward from prior reporting made to this Office by you under a previous Map version. Map V4 categorizes census blocks according to the facilitated speed offered within the block. The publication of V4 triggered a formal appeal window, as explained in more detail below, during which time we received this appeal. The appeal we received claims that the data reflected on V4 of the Map is inaccurate. This appeal can be found at <https://ocio.iowa.gov/broadband-availability-map-version-4-challenge-process> (see Docket Numbers 21-1011, 21-1013, 21-1030, 21-1037, 21-1038). **To resolve this matter, the Office requests that your firm provide information concerning your service in the affected Census Blocks as further identified and described below by August 11, 2021.**

On July 1, 2021, the Office officially published the final version of V4 of the Map, which identifies where Broadband service was offered or Facilitated at a tier 1, tier 2, or tier 3 speed as of July 1, 2021.¹ V4 of the Map is based primarily on data submitted to Connected Nation and/or FCC by Communication Service Providers concerning their service capabilities in the State of Iowa² and on informal comments/feedback supplied by interested parties as part of the informal comment/feedback process described above and in which your firm may have participated. V4 of the Map, and a detailed background of the same, can be found at: <https://ocio.iowa.gov/broadband-availability-map-version-4>. Overall, the new map reflects Targeted Service Areas defined as a census block within which no communications service provider offers or facilitates broadband service at or above the tier 1, tier 2, or tier 3 download and upload speeds. The tier speeds are defined as follows:

¹See Iowa Code §§ 8B.1(12), 8B.10. *See also* Iowa Admin. Code r. 129—20.1, 20.3, 20.4.

²See Iowa Admin. Code r. 129—20.3.

“**Tier 1**” means a maximum download speed of less than 25 Mbps and a maximum upload speed of less than three Mbps.

“**Tier 2**” means a minimum download speed of greater than or equal to 25 Mbps but less than 50 Mbps. No minimum upload speed is applicable for Tier 2.

“**Tier 3**” means a minimum download speed of greater than or equal to 50 Mbps but less than 80 Mbps. No minimum upload speed is applicable for Tier 3.

“**Non-TSA**” means a census block in which speeds are facilitated at greater than or equal to 80 Mbps.

Through the official publication of V4 of the Map, the Office triggered the challenge process it is required by law to administer.³ Pursuant to applicable administrative rules, within 20 days after the Office’s official publication of V4 of the Map, “any person or party aggrieved or adversely affected by such determination may challenge the office’s finding by filing a notice of appeal with the office” along with all evidence or information supporting their appeal. Iowa Admin. Code r. 129—20.5(1). Specifically, interested parties were permitted to provide the Office with evidence and information of the following: broadband is unavailable from a provider listed for the area (census block); or, that broadband speed is not as advertised.

V4 of the Map currently shows that service is Facilitated at either a tier 1, tier 2, or tier 3 speed per designated census block. As part of the above-outlined process, OCIO received a formal notice of appeal and supporting evidence or information from one or more Iowa residents or Communications Service Provider, claiming that Broadband service is not offered or Facilitated at that speed tier.

At this time, the Office requests your assistance in making an accurate determination as to whether your firm facilitates broadband service at the designated speed tier for 10% or more of the geographic area of each challenged census block as of July 1, 2021 to the Census Blocks identified in Exhibit A. To that end, the Office requests that you:

- 1) Complete and return the attached Affirmation of Service or Lack of Service in Census Blocks Broadband Grants Program Broadband Availability Map Challenge Process Form (see Exhibit A, Affirmation tab), by **August 11, 2021**. Pursuant to this form, OCIO requests that a representative with legal authority to bind your firm:
 - a) Confirm that your firm Facilitated Broadband service to the Census Blocks identified in Exhibit A as of July 1, 2021, and indicate the speeds at which your firm facilitated broadband service in those blocks. For purposes of this representation, “‘Facilitate’ means a communication service provider’s ability to provide broadband service at or above the download and upload speeds specified in the definition of targeted service area in this section to a home, farm, school, or business **within a commercially reasonable time and at a commercially reasonable price upon request by a consumer.**” Iowa Code § 8B.1(5) (emphasis added).
 - b) Fully complete all other aspects of the Form.
- 2) In addition to the form, please also submit any other evidence or information in your possession to the Office that supports your prior representations to the Office regarding the Census Blocks identified in Exhibit A. Examples of evidence and information the Office would consider particularly probative include “Bills or invoices provided to or received by customers in the

³See Iowa Code § 8B.10(2); Iowa Admin. Code r. 129—20.5.

applicable census block(s) which identify the specific download and upload speeds provided or received as of [July 1, 2021].” Iowa Admin. Code r. 129—20.5(8).

Please return the completed form and any supporting evidence or information to ociogrants@iowa.gov.

Please note that you are under no legal obligation to respond to this request for information. Generally, pursuant to applicable administrative rules, any affected person or party is free to submit evidence or information to the Office in support of or in opposition to an appeal within 20 days after the appeal has been posted to ocio.iowa.gov/broadband. Iowa Admin. Code r. 129—20.5(3). However, this Office is affirmatively reaching out to notify you of the appeal, of the circumstances surrounding the appeal, and to solicit your feedback and position. If this Office does not receive your response via Exhibit A of the Form by **August 11, 2021** (10 business days from the date of this letter), the Office will make a final decision based on the evidence and information currently available to it. Iowa Admin. Code r. 129—20.5(4), (5).

OCIO strives at all times to produce and disseminate accurate information. We appreciate your assistance in helping us achieve our statutory mandate.

Sincerely,

Office of the Chief Information Officer,
State of Iowa



EXHIBIT A

Affirmation of Service or Lack of Service in Census Blocks Broadband Grants Program Broadband Availability Map Challenge Process

A. RESPONDENT INFORMATION

Company Name	Bits of Technology Wireless Internet (dba:BTWI)
Address	1020 26th St
City	Perry
State	IA
Zip	50220

B. DESIGNATED CONTACT INFORMATION

Contact Name	Jeff Leerhoff
Contact Phone Number	515-465-3043
Contact Email	jeff@btwi.net

C. AFFIRMATION

In signing and submitting this form, the above-identified company, and its duly authorized representative signing on behalf thereof, hereby affirms under penalty of perjury that, as represented in its submission:

Company, consistent with the representations made in this form, and regardless of whether your company's prior reporting to the FCC or State of Iowa was correct or in error, meets one of the following criteria in each of the identified census blocks as of July 1, 2021:

1. Company Facilitated service at the indicated speeds on the Affirmation tab as of July 1, 2021 to more than 10% of the census block; or
2. Company did NOT offer or Facilitate material Broadband service.

Please indicate the speeds offered for each census block on the Affirmation tab.

D. ADDITIONAL EXPLANATION(To the extent you believe additional explanation is required to ensure that you are communicating full and accurate information, please use the below space to further explain, qualify, or substantiate your above affirmation. To the extent necessary, please feel free to upload additional explanations/supporting documentation.

Please see the attached response pages for each appeal that was filed, along with supporting documentation. Note: please see attached response pages for explanation of columns added to the Affirmation spreadsheet.

E. SIGNATURE* By typing your full name you are affixing your signature to this form and attesting to the accuracy of the information submitted herein.

Authorized Signature:	Jeff Leerhoff
Title:	Co-Owner and General Manager
Date:	8/10/2021

***PLEASE READ BEFORE SIGNING:** By signing and submitting this form, I, on my own behalf or as a representative of the company identified above, as applicable, expressly represent that I am authorized to make the above factual representation on behalf of said company and/or myself, as applicable, and under penalty of perjury as authorized by Iowa Code section 622.1 and pursuant to the laws of the state of Iowa, certify the following with respect to this form submitted on behalf of said company and/or myself: any statements, representations, warranties, certifications, or attestations made in this form, including any attachments or enclosures associated therewith, are true and accurate; I, on behalf of said company and/or myself, have not knowingly made any false statements or representations in this form. In addition to any criminal penalties authorized by Iowa Code section 720.2 that may result from any false statements of material fact made herein or any other remedies available at law, equity, or otherwise, if it is subsequently determined that I have made a statement, representation, warranty, certification, or attestation in this form, or any attachments or enclosures associated herewith, that is later proven untrue in any material respect, the company on which I submitted this form on behalf of may be disqualified from current incentive programs administered by the Office or may be ordered to repay the Office the entire amount of any funds previously distributed by the Office to said company in connection with any current incentive programs administered by the Office. OCIO makes no guarantees as to whether the information supplied by you will result in any change to the Broadband Availability Map V4 or the way any incentive decisions are reviewed, scored, or decided. This form, as completed, any attachments hereto, and any other information or materials submitted to the Office in connection with this form or related inquiry, shall be considered public records and shall be made available for public examination and/or disseminated upon request by third parties as required by Iowa Code chapter 22. The Office reserves the right to reject this form and relatedly consider any information communicated through this form as neither credible nor probative if this form is not fully and properly filled out.

Please familiarize yourself with the following terms prior to determining whether broadband service is being Facilitated to the census block.

Facilitate

A communication service provider's ability to provide broadband service at or above the download and upload speeds defined above to a home, farm, school, or business within a commercially reasonable time and at a commercially reasonable price upon request by a consumer. This does *not* pertain to the Broadband Infrastructure used to facilitate said service; Broadband Infrastructure is *not* a basis for appeal.

CENSUS BLOCK ID	Do you Facilitate service to more than 10% of the geographic area of the Census Block?	Download Speed	Upload Speed
-----------------	--	----------------	--------------

APPEALANT	NOTES:
-----------	--------

190130026031091	Yes	50	16	CFU	Decommissioned tower and equipment caused change in status
190130026031092	Yes	50	16	CFU	Decommissioned tower and equipment caused change in status
190130026031093	Yes	50	16	CFU	Decommissioned tower and equipment caused change in status
190130026031094	No	----	----	CFU	Decommissioned tower and equipment caused change in status
190130026031095	No	----	----	CFU	Decommissioned tower and equipment caused change in status
190130026031096	No	----	----	CFU	Decommissioned tower and equipment caused change in status
190130026031097	Yes	50	16	CFU	Decommissioned tower and equipment caused change in status
190130026031098	Yes	50	16	CFU	Decommissioned tower and equipment caused change in status
190130026031099	Yes	50	16	CFU	Decommissioned tower and equipment caused change in status
190130026031100	Yes	50	16	CFU	Decommissioned tower and equipment caused change in status
190130026031101	Yes	50	16	CFU	Decommissioned tower and equipment caused change in status
190130026031102	Yes	50	16	CFU	Decommissioned tower and equipment caused change in status
190130026034016	Yes	50	16	CFU	Decommissioned tower and equipment caused change in status
190130026034037	No	----	----	CFU	Decommissioned tower and equipment caused change in status
190130026034047	No	----	----	CFU	Decommissioned tower and equipment caused change in status
190130030021028	No	----	----	CFU	Decommissioned tower and equipment caused change in status

190130030021033	No	----	----	CFU	Decommissioned tower and equipment caused change in status
190130030021034	No	----	----	CFU	Decommissioned tower and equipment caused change in status
190230705002058	Yes	50	16	CFU	Decommissioned tower and equipment caused change in status
190230705002059	Yes	50	16	CFU	Decommissioned tower and equipment caused change in status
190230705002066	No	----	----	CFU	Decommissioned tower and equipment caused change in status
190230705002067	Yes	50	16	CFU	Decommissioned tower and equipment caused change in status
190230705002068	No	----	----	CFU	Decommissioned tower and equipment caused change in status
190230705002071	Yes	50	16	CFU	Decommissioned tower and equipment caused change in status
190230705003000	Yes	50	16	CFU	Decommissioned tower and equipment caused change in status
190230705003010	Yes	50	16	CFU	Decommissioned tower and equipment caused change in status
190230705003011	Yes	50	16	CFU	Decommissioned tower and equipment caused change in status
190230705003012	Yes	50	16	CFU	Decommissioned tower and equipment caused change in status
190230705003059	No	----	----	CFU	Decommissioned tower and equipment caused change in status
190759601002001	Yes	50	16	CFU	Decommissioned tower and equipment caused change in status
190759601002002	Yes	50	16	CFU	Decommissioned tower and equipment caused change in status
190759601002007	Yes	50	16	CFU	Decommissioned tower and equipment caused change in status
190759601002008	Yes	50	16	CFU	Decommissioned tower and equipment caused change in status
190759601002009	Yes	50	16	CFU	Decommissioned tower and equipment caused change in status
190759601002010	Yes	50	16	CFU	Decommissioned tower and equipment caused change in status
190759601002012	Yes	50	16	CFU	Decommissioned tower and equipment caused change in status
190759601002013	Yes	50	16	CFU	Decommissioned tower and equipment caused change in status
190759601002018	Yes	50	16	CFU	Decommissioned tower and equipment caused change in status
190759601002020	Yes	50	16	CFU	Decommissioned tower and equipment caused change in status
190759601002021	Yes	50	16	CFU	Decommissioned tower and equipment caused change in status
190759601002022	Yes	50	16	CFU	Decommissioned tower and equipment caused change in status
190759601002023	Yes	50	16	CFU	Decommissioned tower and equipment caused change in status
190759601002027	No	----	----	CFU	Decommissioned tower and equipment caused change in status
190759601002028	No	----	----	CFU	Decommissioned tower and equipment caused change in status
190759601002029	No	----	----	CFU	Decommissioned tower and equipment caused change in status
190759601002038	No	----	----	CFU	Decommissioned tower and equipment caused change in status
190759601002041	No	----	----	CFU	Decommissioned tower and equipment caused change in status
190759601002044	No	----	----	CFU	Decommissioned tower and equipment caused change in status
190759601002045	No	----	----	CFU	Decommissioned tower and equipment caused change in status
190759601002047	No	----	----	CFU	Decommissioned tower and equipment caused change in status
190759601002057	No	----	----	CFU	Decommissioned tower and equipment caused change in status
190490505002023	Yes	100Mbps	50Mbps	Panora	Per OCIO Map v4, Panora has 50M & Windstream has 100M service
190490505002079	Yes	100Mbps	50Mbps	Panora	Per OCIO Map v4, Panora has 50M & Windstream has 100M service
190490505002080	Yes	100Mbps	50Mbps	Panora	Per OCIO Map v4, Panora has 50M & Windstream has 100M service
190490505002081	No	----	----	Panora	Per OCIO Map v4, Panora has 50M & Windstream has 100M service

190490505002085	Yes	100Mbps	50Mbps	Panora	Per OCIO Map v4, Panora has 50M & Windstream has 100M service		
190490505002088	No	----	----	Panora	Per OCIO Map v4, Panora has 50M & Windstream has 100M service		
190490505002089	Yes	100Mbps	50Mbps	Panora	Per OCIO Map v4, Panora has 50M & Windstream has 100M service		
190490505002090	No	----	----	Panora	Per OCIO Map v4, Panora has 50M & Windstream has 100M service		
190490505002091	No	----	----	Panora	Per OCIO Map v4, Panora has 50M & Windstream has 100M service		
190490505002093	Yes	100Mbps	50Mbps	Panora	Per OCIO Map v4, Panora has 50M & Windstream has 100M service		
190490505002094	No	----	----	Panora	Per OCIO Map v4, Panora has 50M & Windstream has 100M service		
190490505002124	No	----	----	Panora	Per OCIO Map v4, Panora has 50M & Windstream has 100M service		
190490505002129	No	----	----	Panora	Per OCIO Map v4, Panora has 50M & Windstream has 100M service		
190490505002130	No	----	----	Panora	Per OCIO Map v4, Panora has 50M & Windstream has 100M service		
190779501001094	Yes	100Mbps	50Mbps	Panora	Per OCIO Map v4, Panora has 50M, Windstream has 100M, & Minburn has 1G service		
190779501001095	Yes	100Mbps	50Mbps	Panora	Per OCIO Map v4, Panora has 50M & Windstream has 100M service		
190779501001096	No	----	----	Panora	Per OCIO Map v4, Panora has 50M & Windstream has 100M service		
190779501001104	Yes	100Mbps	50Mbps	Panora	Per OCIO Map v4, Panora has 50M, Windstream has 100M, & Minburn has 1G service		
190779501001105	No	----	----	Panora	Per OCIO Map v4, Panora has 50M & Windstream has 100M service		
190779501001106	No	----	----	Panora	Per OCIO Map v4, Panora has 50M & Windstream has 100M service		
190779501001108	No	----	----	Panora	Per OCIO Map v4, Panora has 50M & Windstream has 100M service		
190779501001109	Yes	100Mbps	50Mbps	Panora	Per OCIO Map v4, Panora has 50M & Windstream has 100M service		
190779501001110	No	----	----	Panora	Per OCIO Map v4, Panora has 50M & Windstream has 100M service		
190779501001112	Yes	100Mbps	50Mbps	Panora	Per OCIO Map v4, Panora has 50M & Windstream has 100M service		
190779501001116	No	----	----	Panora	Per OCIO Map v4, Panora has 50M & Windstream has 100M service		
190779501001117	No	----	----	Panora	Per OCIO Map v4, Panora has 50M & Windstream has 100M service		
190779501001142	No	----	----	Panora	Per OCIO Map v4, Panora has 50M & Windstream has 100M service		
190779501001143	No	----	----	Panora	Per OCIO Map v4, Panora has 50M & Windstream has 100M service		
190693601002009	Yes	100Mbps	50Mbps	Dumont			
190693601002010	Yes	100Mbps	50Mbps	Dumont			
190693601002025	Yes	100Mbps	50Mbps	Dumont			
190693601002031	Yes	100Mbps	50Mbps	Dumont			
190693601002034	Yes	100Mbps	50Mbps	Dumont			
190693601002036	Yes	100Mbps	50Mbps	Dumont			
190693601002038	Yes	100Mbps	50Mbps	Dumont			
190693601002039	Yes	100Mbps	50Mbps	Dumont			
190693601002053	Yes	100Mbps	50Mbps	Dumont			
190693601002054	Yes	100Mbps	50Mbps	Dumont			
190693601002068	Yes	100Mbps	50Mbps	Dumont			
190693601002071	Yes	100Mbps	50Mbps	Dumont			
190693601002072	Yes	100Mbps	50Mbps	Dumont			
190693601002073	Yes	100Mbps	50Mbps	Dumont			
190693601002074	Yes	100Mbps	50Mbps	Dumont			

190693601002076	Yes	100Mbps	50Mbps	Dumont			
190693601002079	Yes	100Mbps	50Mbps	Dumont			
190693601002080	Yes	100Mbps	50Mbps	Dumont			
190693601002082	Yes	100Mbps	50Mbps	Dumont			
190693601002084	Yes	100Mbps	50Mbps	Dumont			
190693601002088	Yes	100Mbps	50Mbps	Dumont			
190693601002096	Yes	100Mbps	50Mbps	Dumont			
190693601002097	Yes	100Mbps	50Mbps	Dumont			
190693601002098	Yes	100Mbps	50Mbps	Dumont			
190693601002099	Yes	100Mbps	50Mbps	Dumont			
190693601002110	Yes	100Mbps	50Mbps	Dumont			
190693601002112	Yes	100Mbps	50Mbps	Dumont			
190693601002116	Yes	100Mbps	50Mbps	Dumont			
190693601002118	Yes	100Mbps	50Mbps	Dumont			
190693601002119	Yes	100Mbps	50Mbps	Dumont			
190693601002122	Yes	100Mbps	50Mbps	Dumont			
190693601002124	Yes	100Mbps	50Mbps	Dumont			
190693601002127	Yes	100Mbps	50Mbps	Dumont			
190693601002128	Yes	100Mbps	50Mbps	Dumont			
190693601002131	Yes	100Mbps	50Mbps	Dumont			
190693601002138	Yes	100Mbps	50Mbps	Dumont			
190693601002139	Yes	100Mbps	50Mbps	Dumont			
190693601002140	Yes	100Mbps	50Mbps	Dumont			
190693601002142	Yes	100Mbps	50Mbps	Dumont			
190693601002144	Yes	100Mbps	50Mbps	Dumont			
190693601002151	Yes	100Mbps	50Mbps	Dumont			
190693601002153	Yes	100Mbps	50Mbps	Dumont			
190693601002159	Yes	100Mbps	50Mbps	Dumont			
190693601003017	Yes	100Mbps	50Mbps	Dumont			
190693601003018	Yes	100Mbps	50Mbps	Dumont			
190693601003019	Yes	100Mbps	50Mbps	Dumont			
190693601003020	Yes	100Mbps	50Mbps	Dumont			
190693601003024	Yes	100Mbps	50Mbps	Dumont			
190693601003026	Yes	100Mbps	50Mbps	Dumont			
190693601003028	Yes	100Mbps	50Mbps	Dumont			
190693601003030	Yes	100Mbps	50Mbps	Dumont			
190693601003033	Yes	100Mbps	50Mbps	Dumont			
190693601003292	Yes	100Mbps	50Mbps	Dumont			
190693601003293	Yes	100Mbps	50Mbps	Dumont			

190693602001086	Yes	100Mbps	50Mbps	Dumont			
190693602001092	Yes	100Mbps	50Mbps	Dumont			
					BTWI subscribers per reported census H/S/B	Range of DL speeds subscribed through BTWI	
190150206001212	Yes	100Mbps	50Mbps	Minburn	0 of 3	-	
190150206001215	Yes	100Mbps	50Mbps	Minburn	4 of 9	20M-50M	
190150206001218	Yes	100Mbps	50Mbps	Minburn	0 of 1	-	
190150206001233	Yes	100Mbps	50Mbps	Minburn	1 of 1	10M	
190150206001239	Yes	100Mbps	50Mbps	Minburn	1 of 1	30M	
190150206001240	Yes	100Mbps	50Mbps	Minburn	3 of 5	30M-50M	
190150206001241	Yes	100Mbps	50Mbps	Minburn	0 of 0	N/A	
190150206001242	Yes	100Mbps	50Mbps	Minburn	4 of 5	20M-50M	
190150206001245	Yes	100Mbps	50Mbps	Minburn	1 of 9	20M	
190150206001247	Yes	100Mbps	50Mbps	Minburn	0 of 1	-	
190150206001249	Yes	100Mbps	50Mbps	Minburn	0 of 6	-	
190150206001250	Yes	100Mbps	50Mbps	Minburn	2 of 8	10M-20M	
190150206001251	Yes	100Mbps	50Mbps	Minburn	0 of 1	-	
190150206001252	Yes	100Mbps	50Mbps	Minburn	1 of 2	10M	
190150206001253	Yes	100Mbps	50Mbps	Minburn	3 of 6	10M-30M	
190150206001255	Yes	100Mbps	50Mbps	Minburn	3 of 4	20M-50M	
190150206001256	Yes	100Mbps	50Mbps	Minburn	0 of 2	-	
190150206001257	Yes	100Mbps	50Mbps	Minburn	1 of 3	100M	
190150206001258	Yes	100Mbps	50Mbps	Minburn	0 of 0	N/A	
190150206001259	Yes	100Mbps	50Mbps	Minburn	1 of 2	20M	
190150206001278	Yes	100Mbps	50Mbps	Minburn	2 of 3	50M	
190150206001279	Yes	100Mbps	50Mbps	Minburn	2 of 3	50M	
190150206001280	Yes	100Mbps	50Mbps	Minburn	0 of 0	N/A	
190150206001281	Yes	100Mbps	50Mbps	Minburn	1 of 1	50M	
190150206001282	Yes	100Mbps	50Mbps	Minburn	1 of 2	15M	
190150206001283	Yes	100Mbps	50Mbps	Minburn	3 of 10	4M-20M	
190150206001284	Yes	100Mbps	50Mbps	Minburn	0 of 0	N/A	
190150206001285	Yes	100Mbps	50Mbps	Minburn	7 of 14	10M-50M	
190150206001286	Yes	100Mbps	50Mbps	Minburn	35 of 41	4M-200M	
190150206001287	Yes	100Mbps	50Mbps	Minburn	0 of 0	N/A	
190150206001288	Yes	100Mbps	50Mbps	Minburn	2 of 6	15M-50M	
190150206001289	Yes	100Mbps	50Mbps	Minburn	3 of 3	15M-50M	
190150206001290	Yes	100Mbps	50Mbps	Minburn	5 of 9	10M-50M	
190150206001291	Yes	100Mbps	50Mbps	Minburn	1 of 1	30M	

190150206001292	Yes	100Mbps	50Mbps	Minburn	0 of 0	N/A	
190150206001293	Yes	100Mbps	50Mbps	Minburn	1 of 2	10M	
190150206001294	Yes	100Mbps	50Mbps	Minburn	3 of 3	10M-50M	
190150206001295	Yes	100Mbps	50Mbps	Minburn	3 of 5	10M-15M	
190150206001296	Yes	100Mbps	50Mbps	Minburn	3 of 3	30M-50M	
190150206001332	Yes	100Mbps	50Mbps	Minburn	2 of 3	10M-50M	
190490502002009	Yes	100Mbps	50Mbps	Minburn	0 of 3	-	
190490502002010	Yes	100Mbps	50Mbps	Minburn	4 of 6	15M-30M	
190490502002011	Yes	100Mbps	50Mbps	Minburn	2 of 3	15M-20M	
190490502002012	Yes	100Mbps	50Mbps	Minburn	1 of 2	20M	
190490502002013	Yes	100Mbps	50Mbps	Minburn	5 of 18	20M-50M	
190490502002014	Yes	100Mbps	50Mbps	Minburn	1 of 1	20M	
190490502002015	Yes	100Mbps	50Mbps	Minburn	0 of 1	-	
190490502002016	Yes	100Mbps	50Mbps	Minburn	1 of 4	50M	
190490502002039	Yes	100Mbps	50Mbps	Minburn	4 of 8	20M-50M	
190490502002040	Yes	100Mbps	50Mbps	Minburn	0 of 0	N/A	
190490502002041	Yes	100Mbps	50Mbps	Minburn	0 of 0	N/A	
190490502002042	Yes	100Mbps	50Mbps	Minburn	1 of 1	50M	
190490502002043	Yes	100Mbps	50Mbps	Minburn	10 of 11	10M-50M	
190490502002044	Yes	100Mbps	50Mbps	Minburn	0 of 6	-	
190490502002046	Yes	100Mbps	50Mbps	Minburn	0 of 5	-	
190490502002047	Yes	100Mbps	50Mbps	Minburn	2 of 3	50M	
190490502002048	Yes	100Mbps	50Mbps	Minburn	0 of 2	-	
190490502002049	Yes	100Mbps	50Mbps	Minburn	2 of 10	15M-20M	
190490502002050	Yes	100Mbps	50Mbps	Minburn	0 of 0	N/A	
190490502002081	Yes	100Mbps	50Mbps	Minburn	0 of 2	-	
190490502002082	Yes	100Mbps	50Mbps	Minburn	0 of 1	-	
190490502002090	Yes	100Mbps	50Mbps	Minburn	1 of 3	50M	
190490503001035	Yes	100Mbps	50Mbps	Minburn	0 of 0	N/A	
190490503003001	Yes	100Mbps	50Mbps	Minburn	0 if 1	-	
190490503003007	Yes	100Mbps	50Mbps	Minburn	0 of 0	N/A	
190490504001025	Yes	100Mbps	50Mbps	Minburn	1 of 2	50M	
190490504001029	Yes	100Mbps	50Mbps	Minburn	0 of 0	N/A	
190490504001060	Yes	100Mbps	50Mbps	Minburn	1 of 1	10M	(Note: census data is incorrect)
190490504001061	Yes	100Mbps	50Mbps	Minburn	0 of 1	-	
190490504003004	Yes	100Mbps	50Mbps	Minburn	0 of 0	N/A	
190490504003005	Yes	100Mbps	50Mbps	Minburn	0 of 2	-	
190490505001000	Yes	100Mbps	50Mbps	Minburn	4 of 7	10M-50M	
190490505001001	Yes	100Mbps	50Mbps	Minburn	2 of 10	30M	

190490505001002	Yes	100Mbps	50Mbps	Minburn	4 of 8	10M-50M	
190490505001003	Yes	100Mbps	50Mbps	Minburn	0 of 2	-	
190490505001004	Yes	100Mbps	50Mbps	Minburn	0 of 0	N/A	
190490505001006	Yes	100Mbps	50Mbps	Minburn	5 of 11	10M-50M	
190490505001009	Yes	100Mbps	50Mbps	Minburn	1 of 1	15M	
190490505001020	Yes	100Mbps	50Mbps	Minburn	0 of 0	N/A	
190490505001021	Yes	100Mbps	50Mbps	Minburn	1 of 3	20M	
190490505001024	Yes	100Mbps	50Mbps	Minburn	0 of 1	-	
190490505001027	Yes	100Mbps	50Mbps	Minburn	0 of 0	N/A	
190490505001028	Yes	100Mbps	50Mbps	Minburn	2 of 5	20M-100M	
190490505001029	Yes	100Mbps	50Mbps	Minburn	1 of 1	4M	
190490505001030	Yes	100Mbps	50Mbps	Minburn	3 of 5	10M-50M	
190490505001031	Yes	100Mbps	50Mbps	Minburn	10 of 20	10M-50M	
190490505001032	Yes	100Mbps	50Mbps	Minburn	1 of 2	10M	
190490505001033	Yes	100Mbps	50Mbps	Minburn	4 of 9	15M-30M	
190490505001034	Yes	100Mbps	50Mbps	Minburn	1 of 6	20M	
190490505001045	Yes	100Mbps	50Mbps	Minburn	1 of 3	4M	
190490505001046	Yes	100Mbps	50Mbps	Minburn	3 of 3	20M-50M	
190490505001047	Yes	100Mbps	50Mbps	Minburn	2 of 4	50M	
190490505001048	Yes	100Mbps	50Mbps	Minburn	1 of 2	50M	
190490505001049	Yes	100Mbps	50Mbps	Minburn	1 of 1	10M	
190490505001050	Yes	100Mbps	50Mbps	Minburn	2 of 2	50M	
190490505001051	Yes	100Mbps	50Mbps	Minburn	4 of 7	30M-50M	
190490505001052	Yes	100Mbps	50Mbps	Minburn	5 of 6	15M-50M	
190490505001053	Yes	100Mbps	50Mbps	Minburn	4 of 10	10M-20M	
190490505001054	Yes	100Mbps	50Mbps	Minburn	2 of 7	50M	
190490505001055	Yes	100Mbps	50Mbps	Minburn	1 of 2	15M	
190490505001057	Yes	100Mbps	50Mbps	Minburn	0 of 9	-	
190490505001058	Yes	100Mbps	50Mbps	Minburn	0 of 6	-	
190490505001059	Yes	100Mbps	50Mbps	Minburn	1 of 16	15M	
190490505001060	Yes	100Mbps	50Mbps	Minburn	1 of 11	50M	
190490505001062	Yes	100Mbps	50Mbps	Minburn	0 of 1	-	
190490505001065	Yes	100Mbps	50Mbps	Minburn	1 of 18	50M	
190490505001069	Yes	100Mbps	50Mbps	Minburn	6 of 11	20M-50M	
190490505001071	Yes	100Mbps	50Mbps	Minburn	0 of 0	N/A	
190490505001073	Yes	100Mbps	50Mbps	Minburn	0 of 1	-	
190490505001074	Yes	100Mbps	50Mbps	Minburn	0 of 3	-	
190490505001075	Yes	100Mbps	50Mbps	Minburn	1 of 2	15M	
190490505001076	Yes	100Mbps	50Mbps	Minburn	3 of 3	10M-50M	

190490505001077	Yes	100Mbps	50Mbps	Minburn	0 of 1	-	
190490505001078	Yes	100Mbps	50Mbps	Minburn	0 of 1	-	
190490505001079	Yes	100Mbps	50Mbps	Minburn	0 of 2	-	
190490505001080	Yes	100Mbps	50Mbps	Minburn	1 of 7	20M	
190490505001081	Yes	100Mbps	50Mbps	Minburn	2 of 3	10M-15M	(Note: census data is incorrect)
190490505001082	Yes	100Mbps	50Mbps	Minburn	1 of 2	10M	(Note: census data is incorrect)
190490505001083	Yes	100Mbps	50Mbps	Minburn	1 of 3	50M	
190490505001089	Yes	100Mbps	50Mbps	Minburn	2 of 4	10M	
190490505001098	Yes	100Mbps	50Mbps	Minburn	0 of 2	-	
190490505001099	Yes	100Mbps	50Mbps	Minburn	0 of 2	-	
190490505001104	Yes	100Mbps	50Mbps	Minburn	0 of 2	-	
190490505001105	Yes	100Mbps	50Mbps	Minburn	1 of 3	20M	
190490505001110	Yes	100Mbps	50Mbps	Minburn	3 of 5	4M-100M	
190490505001111	Yes	100Mbps	50Mbps	Minburn	0 of 1	-	
190490505001112	Yes	100Mbps	50Mbps	Minburn	1 of 3	4M	
190490505001113	Yes	100Mbps	50Mbps	Minburn	2 of 3	10M-20M	
190490505001114	Yes	100Mbps	50Mbps	Minburn	0 of 1	-	
190490505001115	Yes	100Mbps	50Mbps	Minburn	1 of 4	10M	
190490505001116	Yes	100Mbps	50Mbps	Minburn	0 of 4	-	
190490505001118	Yes	100Mbps	50Mbps	Minburn	0 of 4	-	
190490505001119	Yes	100Mbps	50Mbps	Minburn	0 of 2	-	
190490505001120	Yes	100Mbps	50Mbps	Minburn	0 of 5	-	
190490505001121	Yes	100Mbps	50Mbps	Minburn	3 of 6	30M-50M	
190490505001122	Yes	100Mbps	50Mbps	Minburn	0 of 5	-	
190490505001127	Yes	100Mbps	50Mbps	Minburn	2 of 5	30M-50M	
190490505001128	Yes	100Mbps	50Mbps	Minburn	0 of 2	-	
190490505001129	Yes	100Mbps	50Mbps	Minburn	1 of 1	20M	
190490505001130	Yes	100Mbps	50Mbps	Minburn	3 of 3	10M-30M	
190490505001134	Yes	100Mbps	50Mbps	Minburn	1 of 2	10M	
190490505001135	Yes	100Mbps	50Mbps	Minburn	0 of 3	-	
190490505001145	Yes	100Mbps	50Mbps	Minburn	0 of 2	-	
190490505001146	Yes	100Mbps	50Mbps	Minburn	0 of 0	N/A	
190490505001147	Yes	100Mbps	50Mbps	Minburn	0 of 0	N/A	
190490505001148	Yes	100Mbps	50Mbps	Minburn	0 of 2	-	
190490505001149	Yes	100Mbps	50Mbps	Minburn	1 of 2	4M	
190490505001150	Yes	100Mbps	50Mbps	Minburn	0 of 0	N/A	
190490505001168	Yes	100Mbps	50Mbps	Minburn	1 of 2	15M	
190490505001169	Yes	100Mbps	50Mbps	Minburn	2 of 4	30M	
190490505001208	Yes	100Mbps	50Mbps	Minburn	3 of 13	15M-50M	

190730801001117	Yes	100Mbps	50Mbps	Minburn	1 of 1	50M	
190730801001119	Yes	100Mbps	50Mbps	Minburn	1 of 2	10M	
190730801001120	Yes	100Mbps	50Mbps	Minburn	0 of 0	N/A	
190730801001153	Yes	100Mbps	50Mbps	Minburn	1 of 1	15M	
190730801001155	Yes	100Mbps	50Mbps	Minburn	0 of 1	-	
190730801001159	Yes	100Mbps	50Mbps	Minburn	1 of 2	20M	
190730801001161	Yes	100Mbps	50Mbps	Minburn	0 of 0	N/A	
190730801001167	Yes	100Mbps	50Mbps	Minburn	0 of 5	-	
190490501003037	Yes	100Mbps	50Mbps	Minburn	2 of 6	50M	
190490501003038	Yes	100Mbps	50Mbps	Minburn	0 of 9	-	
190490501003055	Yes	100Mbps	50Mbps	Minburn	0 of 9	-	
190490501003061	Yes	100Mbps	50Mbps	Minburn	0 of 3	-	
190490501003062	Yes	100Mbps	50Mbps	Minburn	0 of 1	-	
190490501004031	Yes	100Mbps	50Mbps	Minburn	1 of 32	20M	
190490501004032	Yes	100Mbps	50Mbps	Minburn	0 of 19	-	
190490501004034	Yes	100Mbps	50Mbps	Minburn	0 of 13	-	
190490501004035	Yes	100Mbps	50Mbps	Minburn	1 of 11	15M	
190490501004041	Yes	100Mbps	50Mbps	Minburn	6 of 16	20M-50M	
190490501004042	Yes	100Mbps	50Mbps	Minburn	1 of 3	10M	
190490501004043	Yes	100Mbps	50Mbps	Minburn	0 of 7	-	
190490502001000	Yes	100Mbps	50Mbps	Minburn	0 of 1	-	
190490502001002	Yes	100Mbps	50Mbps	Minburn	0 of 1	-	
190490502001003	Yes	100Mbps	50Mbps	Minburn	0 of 6	-	
190490502001004	Yes	100Mbps	50Mbps	Minburn	1 of 9	20M	
190490502001032	Yes	100Mbps	50Mbps	Minburn	0 of 0	N/A	
190490502001035	Yes	100Mbps	50Mbps	Minburn	0 of 3	-	
190490502001036	Yes	100Mbps	50Mbps	Minburn	0 of 6	-	
190490502001037	Yes	100Mbps	50Mbps	Minburn	0 of 3	-	
190490502001038	Yes	100Mbps	50Mbps	Minburn	0 of 3	-	
190490502001039	Yes	100Mbps	50Mbps	Minburn	0 of 1	-	
190490502001040	Yes	100Mbps	50Mbps	Minburn	0 of 5	-	
190490502001041	Yes	100Mbps	50Mbps	Minburn	0 of 2	-	
190490502001042	Yes	100Mbps	50Mbps	Minburn	0 of 2	-	
190490502001043	Yes	100Mbps	50Mbps	Minburn	0 of 1	-	
190490502001044	Yes	100Mbps	50Mbps	Minburn	0 of 5	-	
190490502001045	Yes	100Mbps	50Mbps	Minburn	0 of 7	-	
190490502001046	Yes	100Mbps	50Mbps	Minburn	1 of 1	10M	
190490502001047	Yes	100Mbps	50Mbps	Minburn	0 of 2	-	
190490502001048	Yes	100Mbps	50Mbps	Minburn	0 of 14	-	

190490502001051	Yes	100Mbps	50Mbps	Minburn	0 of 10	-	
190490502001056	Yes	100Mbps	50Mbps	Minburn	1 of 13	20M	
190490502001057	Yes	100Mbps	50Mbps	Minburn	1 of 1	20M	
190490502001064	Yes	100Mbps	50Mbps	Minburn	0 of 1	-	
190490502001065	Yes	100Mbps	50Mbps	Minburn	0 of 4	-	
190490502001066	Yes	100Mbps	50Mbps	Minburn	0 of 7	-	
190490502002093	Yes	100Mbps	50Mbps	Minburn	0 of 5	-	
190490502002094	Yes	100Mbps	50Mbps	Minburn	0 of 1	-	
190490502003000	Yes	100Mbps	50Mbps	Minburn	0 of 5	-	
190490502003002	Yes	100Mbps	50Mbps	Minburn	0 of 1	-	
190490502003003	Yes	100Mbps	50Mbps	Minburn	0 of 2	-	
190490505001170	Yes	100Mbps	50Mbps	Minburn	1 of 16	50M	
190490505001171	Yes	100Mbps	50Mbps	Minburn	0 of 2	-	
190490505001172	Yes	100Mbps	50Mbps	Minburn	0 of 4	-	
190490505001176	Yes	100Mbps	50Mbps	Minburn	1 of 4	15M	
190490505001177	Yes	100Mbps	50Mbps	Minburn	0 of 3	-	
190490505001178	Yes	100Mbps	50Mbps	Minburn	0 of 1	-	
190490505001179	Yes	100Mbps	50Mbps	Minburn	2 of 4	50M	
190490505001182	Yes	100Mbps	50Mbps	Minburn	0 of 4	-	
190490505002001	Yes	100Mbps	50Mbps	Minburn	0 of 1	-	
190490505002002	Yes	100Mbps	50Mbps	Minburn	3 of 9	10M-30M	
190490505002004	Yes	100Mbps	50Mbps	Minburn	2 of 4	20M	
190490505002005	Yes	100Mbps	50Mbps	Minburn	2 of 4	20M-50M	
190490505002006	Yes	100Mbps	50Mbps	Minburn	3 of 4	4M-50M	
190490505002007	Yes	100Mbps	50Mbps	Minburn	1 of 2	50M	
190490505002008	Yes	100Mbps	50Mbps	Minburn	5 of 9	20M-30M	
190490505002048	Yes	100Mbps	50Mbps	Minburn	2 of 2	15M	
190490505002049	Yes	100Mbps	50Mbps	Minburn	2 of 4	15M-50M	
190490505002051	Yes	100Mbps	50Mbps	Minburn	1 of 3	50M	
190490505002052	Yes	100Mbps	50Mbps	Minburn	1 of 1	4M	
190490505002053	Yes	100Mbps	50Mbps	Minburn	0 of 1	-	
190490505002057	Yes	100Mbps	50Mbps	Minburn	0 of 2	-	
190490505002058	Yes	100Mbps	50Mbps	Minburn	2 of 4	30M	
190490505002059	Yes	100Mbps	50Mbps	Minburn	1 of 2	30M	
190490505002060	Yes	100Mbps	50Mbps	Minburn	0 of 2	-	
190490505002061	Yes	100Mbps	50Mbps	Minburn	3 of 4	15M-30M	
190490505002062	Yes	100Mbps	50Mbps	Minburn	1 of 6	50M	
190490505002063	Yes	100Mbps	50Mbps	Minburn	0 of 7	-	
190490505002064	Yes	100Mbps	50Mbps	Minburn	0 of 5	-	

190490505002065	Yes	100Mbps	50Mbps	Minburn	0 of 3	-	
190490505002066	Yes	100Mbps	50Mbps	Minburn	0 of 3	-	
190490505002070	Yes	100Mbps	50Mbps	Minburn	1 of 6	20M	
190490505002071	Yes	100Mbps	50Mbps	Minburn	0 of 0	N/A	
190490505002072	Yes	100Mbps	50Mbps	Minburn	1 of 1	50M	
190490505002073	Yes	100Mbps	50Mbps	Minburn	0 of 0	N/A	
190490505002074	Yes	100Mbps	50Mbps	Minburn	0 of 0	N/A	
190490505002076	Yes	100Mbps	50Mbps	Minburn	0 of 4	-	
190490505002077	Yes	100Mbps	50Mbps	Minburn	1 of 4	15M	
190490505002119	Yes	100Mbps	50Mbps	Minburn	0 of 4	-	
190490505002120	Yes	100Mbps	50Mbps	Minburn	0 of 3	-	
190490505002122	Yes	100Mbps	50Mbps	Minburn	2 of 7	50M	
190490505002128	Yes	100Mbps	50Mbps	Minburn	0 of 0	N/A	
190490507001003	Yes	100Mbps	50Mbps	Minburn	1 of 10	50M	

BTWI

Response to Appeals Regarding OCIO Broadband Availability Map v4

Regarding Cedar Falls Utilities appeal:

Cedar Falls Utilities questioned the ability of our company to provide broadband service in the census blocks which they challenged. To an extent, they are correct.

Within the last few months (after submitting information for Map v4), the reliability of a tower structure became a concern and it was decided to decommission its use as an access point for our fixed wireless broadband.

This affected many of the census blocks that are in CFU's appeal. Others are still serviced by other broadcast point locations, however at a lesser speed level.

BTWI has made modifications on the Affirmation Form reflecting these changes.

BTWI

Response to Appeals Regarding OCIO Broadband Availability Map v4

Regarding Panora Telephone appeal:

Panora Telephone challenged 28 census blocks concerning BTWI. These census blocks were on the outside fringes of our coverage territory near their area of concern.

BTWI utilizes an industry leading propagation map service to determine the fixed wireless footprint from each of our 70+ tower/broadcast locations. I personally reviewed these propagation maps in detail pertaining to these census blocks.

Upon review, there were some census blocks that may have reduced fixed wireless coverage due to in-town obstructions.

BTWI has made modifications on the Affirmation Form reflecting these changes.

Special Note:

All of the census blocks that Panora Telephone listed on our challenge form (and they believe should be at a Tier 1 level) are listed on the OCIO Map v4 as being served by themselves (Panora Communications Fixed Wireless) at a Tier 3 level (50M/15M).

All of them also show Windstream fixed wireless offered at 100M/8M. I believe this was through a Windstream service deployment using CAFII funds. A few of these census blocks even show Panora Telecommunications Fiber at 1000M/250M and/or Minburn Telephone Fiber at 1000M/1000M.

BTWI

Response to Appeals Regarding OCIO Broadband Availability Map v4

Regarding Dumont Telephone appeal:

Dumont Telephone Company presented a detailed 16-page Fixed Wireless Challenge which outlines the challenges faced in providing fixed wireless broadband. Every type of broadband infrastructure faces numerous challenges, even FTTP. This Fixed Wireless Challenge attempts to use a broad paintbrush for all wireless communication to address a very complex technology.

Even the documentation which they provided from Everett Kingery P.E. of HunTel Engineering has disclaimers. As stated on page 6 of the document: "NOTE: This configuration does not represent the actual configuration for these locations, but is being used for demonstration purposes only." And on page 16: "The performance for a wireless network can not be given in general terms, covering a large area. Each location needs to be evaluated on its own."

Fixed wireless has been used successfully for many years to bring broadband efficiently and effectively to rural locations and communities. Even today, much larger companies such as Google, Microsoft, Windstream, AT&T, and others are deploying fixed wireless technology to help bridge the digital divide.

A properly designed and managed fixed wireless network can (and does) provide the speed offerings reported to the OCIO in a reliable, consistent manner.

Dumont Telephone Company fails to provide any direct, substantiated evidence that the speeds claimed to be offered in these census blocks are not available to the consumer. Their challenge is simply an attack on a form of technology which differs from theirs.

And as OCIO clearly states: "Broadband Infrastructure is NOT a basis for appeal."

BTWI stands by the information as reported.

BTWI

Response to Appeals Regarding OCIO Broadband Availability Map v4

Regarding Minburn Telephone appeal:

BTWI was challenged by Minburn Telephone on 243 census blocks. Of those challenged blocks, 11% (27 of the 243) had Households/Businesses/Schools listed as "0" on the OCIO Map v4, so are effectively irrelevant.

As noted in their challenge, "Mediacom, CenturyLink, and Windstream are also claiming to provide broadband services in the area with each covering less than 5% and 48% respectively." I will note that BTWI provides broadband service to 100% of these census blocks as we reported to Connected Nation for the OCIO Map v4, in addition to FCC 477 filings. I assume this is the reason for targeting BTWI in their challenge documents.

Minburn Telephone is using inaccurate, outdated, and manipulated information in an attempt to support their own agenda to get funding to overrun areas which are already adequately served with high-speed broadband, and have been for years.

I will address each portion of their documents in the order presented:

Dallas County Information: Information provided by HR Green and the Greater Des Moines Partnership

This is data collected from consumers performing their own speed tests at home. The information presented here is highly flawed because, at best, it could only consider the reported speeds that consumers are subscribed to, not what they are capable of receiving. In addition to that:

- 1) there are potential home wifi router issues
- 2) tests taken by devices with a poor wifi signal from their home router report poor results
- 3) there may be other online applications using bandwidth running in the background on the device performing the test
- 4) other devices (other than the device running the test) could be simultaneously running applications using bandwidth on the home network being tested
- 5) there is possible internet congestion after leaving their internet service provider's own network
- 6) there may be problems with the online speed test website's own servers which can report erroneous results.

All of these considerations and vulnerabilities render their information as highly flawed at the very least, and potentially extremely inaccurate.

I have included a transcript of a portion of a Zoom meeting that I attended which was presented by HR Green and the Greater Des Moines Partnership concerning the information that they collected (which Minburn Telephone referenced as supporting material for their claim). In it, a representative from HR Green was questioned about the accuracy and fallibility of their information. The representative skirted the question and struggled to come up with a sufficient response. A direct answer was never given. (I have not included the actual video clip of this due to potential privacy concerns. I will make it available to OCIO at their specific request.)

Perry Rural Research: Information provided by CheckPoint Solutions

Minburn's data mining process (conducted by CheckPoint Solutions) provides absolutely no information as to how it was performed or what qualifications and parameters were used to ensure the accuracy of the reported information. And there is no explanation of the "data collected from Minburn's the crowd sourcing tool." or how it was collected.

At a minimum, the data does not take into account **predetermined speed limitations** based on the customer's **subscribed** package with their internet service provider. In addition to that:

(please see the 6 items listed previously)

All of these considerations and vulnerabilities render their information as highly flawed at the very least, and potentially extremely inaccurate.

Also, **if** the CheckPoint Solutions data happened to be mined from online speed test servers, consumers typically only run speed tests when they are periodically having a performance issue (no matter what the source of the issue), which would cause a misrepresentation of their typical performance and speeds.

Bits of Technology Wireless Internet Challenge: Analysis of marketing, offering claims, and technical arguments

Minburn Telephone took it upon themselves to photograph and document BTWI's wireless equipment at a site at which they also broadcast fixed wireless. The author proceeds to explain assumptions regarding the limitations of total subscribers (4-6 or 2-3) of each of our access point broadcast equipment (even though they are using similar equipment with more subscribers per access point than they are indicating in this text).

It all boils down to two simple words that they use: "**if dedicated**". In a nutshell, "Dedicated internet" means each household has a dedicated, direct connection out to the internet through their service provider, so that 100% of the customers can receive 100% of their subscribed speed 100% of the time. Your service provider would need to purchase an internet feed with high enough committed capacity to handle this, along with having a dedicated connection for your use only.

No residential internet service provider that I'm aware of provides "dedicated" internet service across their entire network, including FTTP providers. It would be extremely expensive and is usually reserved for large businesses, large metro hospitals, etc.

Because no one uses 100% of their subscribed bandwidth 24 hours a day, 7 days a week, residential internet providers rely on a calculation called "Oversubscription Ratio". A well-managed internet provider (such as BTWI) monitors overall bandwidth usage per customer and patterns in daily usage. This assures that there is always enough bandwidth for all customers when they need it. And with faster speeds available, users are also on and back off the internet quicker.

In the equipment example that Minburn Telephone used, the number of **actual** typical subscribers per access point is 30-35 **in a real-life scenario**. If the threshold is reached where more access points are needed, they are added if/when that happens. BTWI currently has one tower site with 14 wireless access points.

Concerning BTWI's Part 90 license, Minburn Telephone is correct that we have multiple locations properly registered with the FCC. They are also correct that these licenses will be expiring in early 2022. What they do not have at their disposal is knowing that BTWI has been working for over a year to convert these locations to other equipment. With only 3 subscribers left to go, this process should be completed in the next 30-45 days, well ahead of any deadlines.

Regarding the direct mail postcard that was presented, this is an outdated marketing piece that is no longer used.

Residential Affidavits: (please read the notes below)

Eileen Splendore (affidavit regarding CenturyLink): Per a BTWI site survey, this address is serviceable by BTWI, however our records (dating back to January 1, 2018) show that this declarant has never inquired about getting service with us.

Cindy Sohn (affidavit regarding CenturyLink): This is a current customer of BTWI subscribed to a 50M/16M plan.

Daniel Spellman (affidavit regarding CenturyLink): Has contacted us about service. When a technician stopped in June of 2021 to do a site survey, they were turned away.

Cliff Fagen (affidavit regarding BTWI): This address is serviceable by BTWI. Per our phone records of the call, he was offered all plan levels however was recommended the two that he has listed due to his acknowledging limited usage. He also declined a free, no obligation site survey.

Kent Scheib (affidavit regarding CenturyLink): This is a current BTWI customer subscribed to a 50M/16M plan.

David Wambold (affidavit regarding Minburn Comm.): Unknown

Eric Ash (affidavit regarding CenturyLink): This is a current BTWI customer subscribed to a 20M/6M plan.

John Cavanaugh (affidavit regarding BTWI): This is a current customer of BTWI subscribed to a 50M/16M plan. Unknown at this time if he can receive the 100M/50M plan if he so desires, however it is available in other parts of the same census block.

Ray Knapp (affidavit regarding Mediacom): **Does not reside in a census block that is part of this challenge.**

David/Terri Redig (affidavit regarding Minburn Comm.): This address is serviceable by BTWI, however our records (dating back to January 1, 2018) show that this declarant has never inquired about getting service with us.

Amy Peterson (affidavit regarding Viasat): **Does not reside in a census block that is part of this challenge.**

Robert D Davis (affidavit regarding Johnston Com.): **Does not reside in a census block that is part of this challenge.**

Jerry/Kelly Bossard (affidavit regarding Minburn Comm.): This address is serviceable by BTWI, however our records (dating back to January 1, 2018) show that this declarant has never inquired about getting service with us.

Tim Bryte (affidavit regarding Minburn Comm.): **Does not reside in a census block that is part of this challenge.**

IN SUMMARY:

I have completed the Affirmation Form affirming 100M/50M service offered to more than 10% of the geographic area of each census block challenged by Minburn Telephone. BTWI utilizes an industry leading propagation map service to determine fixed wireless footprint from each tower/broadcast locations. I have personally reviewed our propagation maps in detail pertaining to these census blocks.

To help substantiate BTWI's response, I have added columns to the Affirmation spreadsheet showing:

- 1) The number of BTWI subscribers per Map v4 Household/School/Business reported in that block.
- 2) The range of download speeds that are subscribed to by our customers in that block.

My intent is to show the large market share that BTWI has in these challenged census blocks along with demonstrating that our subscribers choose a variety of speed plans (from as low as 4Mbps up to 100Mbps). You will likely note that some areas show a higher market penetration than others due to offering internet service there for over 10 years, while others are more recently served as our company has grown and expanded.

To further substantiate our offerings, I have included a sampling of subscriber invoices (with name and street number removed for privacy). With a grand total of 378 census blocks challenged, it was not practical to obtain invoices throughout all those areas.

Also included are screenshots of various speed test results with notes as to which plan that customer was subscribed to. You will notice that the speed exceeds the plan that's noted. It's BTWI's standard practice to regulate a customer's speed at approximately 20% higher than their selected speed plan to assure they receive the

speed that they're subscribed to. (This does not apply to the 100M/50M or above plans.) Also, I would like to point out the stability of the lines on the speed test.

Even though we offer 100M download service, we have had very few subscribers choose that option due to lack of want/need for that speed. We provide free consultation with our customers to assist them in determining their internet needs, which helps them avoid needless overspending to purchase more speed than they really need.

BTWI has been providing quality high-speed fixed wireless broadband to most of this challenged area for 9-12 years. It is the heart of our coverage territory, and our employees live in these same areas. We are fortunate to have a highly qualified network engineer/designer who also gleans assistance from outside industry professionals. When starting out, we were on the cutting edge with offering 5Mbps when no one else was. Now we're proud to maintain that cutting edge position by offering 100Mbps for those who need it.

Fixed wireless has been used successfully for many years to bring broadband efficiently and effectively to rural locations and communities. Even today, much larger companies such as Google, Microsoft, Windstream, AT&T, and others are deploying fixed wireless technology to bridge the digital divide.

Over the past number of years, a lot of small town/local telephone companies tried to jump on the bandwagon and expand their coverage footprint by experimenting with fixed wireless deployments. Many eventually realized that they lacked the appropriate knowledge, education, and training to be successful. In simple terms, it was out of their normal wheelhouse of operations. Many failed to properly upgrade their equipment with the latest technologies and/or discontinued the fixed wireless portion of their business leaving those customers struggling for reliable internet service.

Now they are downplaying, and sometimes even belittling, the efforts and effectiveness of the fixed wireless providers who specialize in this area of broadband deployment. In the case of Minburn Communications (from information that we've been able to ascertain), they currently have fixed wireless deployed at 3 broadcast locations. In comparison, BTWI expertly maintains a complex fixed wireless network with over 70 broadcast locations.

In fact, BTWI currently provides fixed wireless service to over 10% of a small rural community where FTTP has been in place for over 10 years. A testimonial letter is included for your review.

Over the past number of months, Minburn Communications has executed a highly publicized media, web, and door-to-door campaign soliciting responses from consumers of underserved internet needs. It appears that they only received (or at least submitted) 10 responses out of 945 household/schools/businesses in the census blocks which they challenged. This alone should provide evidence that these areas are adequately served. This is also a testament of BTWI's abilities to serve these areas.

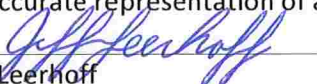
As noted in my introduction, Minburn Telephone is using inaccurate, outdated, and manipulated information in an attempt to support their own agenda to get funding to overrun areas which are already adequately served with high-speed broadband, and have been for years. Unfortunately, this illustrates a poorly orchestrated attempt to attack BTWI for the commitment and effort we've made over the past 12 years to bring high-speed broadband to unserved/underserved areas.

Respectfully Submitted,



Jeff Leerhoff, Co-Owner and General Manager

Transcript from Zoom meeting hosted by Greater Des Moines Partnership and HR Green. I certify that this transcript is an accurate representation of a short unedited clip at the end of the meeting held at 3pm on July 9th, 2021.


Jeff Leerhoff

Speaker 1 (representative from Greater Des Moines Partnership)

Great any....any other...any other thoughts for us, we won't keep everybody if we don't need to, but we appreciate people jumping up quickly for this call. And is...

Speaker 2 (participant of meeting)

Hey (name)....

Speaker 1 (representative from Greater Des Moines Partnership)

(name), do you have a question?

Speaker 2 (participant of meeting)

Yeah I got...I got a question 'cause I find it...um...curious when I look at some of the details I can tell you that there's a lot of market there that I can guarantee it has one gig service where you've got down as basically non-service under 25 megs so what I'm assuming is those...is that data from somebody using a cell phone or somebody choosing a much lower level of broadband speed and doin' the testing versus what's actual available in the market? 'Cause it is what's available in the market, not what people are subscribing to.

Speaker 3 (representative from HR Green)

(name), great question and I appreciate that. (unintelligible)

Um...there...the...um...(long pause)...you know it...it.... (name), these are just...ah...so...so...there...how...how I.....I really appreciate your question because it really does...it is part of this grant process.

So one...ah...we...we do encourage...ah, and we've..... I've said this in several different forums, but I don't think I said it here, so that's another reason I appreciate your question (name).

Um.....it is...um...it is good to look for the...ah...the...the reason why we did this cluster map is because it's...it's good to look at the...ah.....not just the one off's or not just the...um...the...areas...um....you know, that there's five green and then one red 'cause I mean that speaks to your point. I mean, that could be that they took it from their cell phone or it could be that they need to check their router, right? I mean...you know...we all know there's different things that can happen with that. (chuckles)

This is meant mainly to say, if...if there's...you know...clusters where it's not showing...ah...what we're...and...and this is just actual speed data, so if there's clusters where actual speed data is showing a certain way, then it...it...then that's information that could be used to kind of dig into and whoever would want to look at that and do that to dig into. OK, so...is... and (name) it could be the point of...ah...is it there's good speed on one side of the street but not on the other? You know? Or is it...is it...you know...it that there's speed that's out at the end of a certain...you know...DSL line or somethin' and gets passed that, and...you know...because that's what...that's what the state will look at to say....oh OK. So yes, there is a street here...um...and there could be gray all around it, but there's a street here.

Um and...and then they'll look at...is there a reason why that street isn't served...is there...is...is it truly not served, or was it just...you know...that they'll look at those things to say is that...um...you know...is...is that really an area that for whatever reason...ah...didn't get served.

So (name), I think the...the...answer to your question is in the granularity of the data. Um and...that's...that's what the state will look at. Great question.

BTWI
1020 26TH ST
PERRY, IA 50220



Service Period
Aug 1, 2021 - Aug 31, 2021

Due Date
Aug 1, 2021

Total amount due
\$0.00

Invoice
30606

[REDACTED]
[REDACTED] V AVE
DALLAS CENTER, IA 50063

Account number 1247206

Current Charges	\$100.00
Taxes/Fees	\$0.00
Credits	\$0.00
Payments Applied	\$100.00

SEE BACK OF PAGE FOR DETAILS

Total due on Aug 1, 2021 **\$0.00**

Customer Service

Call us at (515) 465-3043

Visit us at <http://www.btwi.net>

A fee of \$5.00 will be applied 7 days after the due date to any unpaid invoices.

Current Charges

Up to 50.0Mbps **\$100.00**

Payments Applied

Payment on Aug 1, 2021 **\$100.00**

Total Amount Due

\$0.00

BTWI
1020 26TH ST
PERRY, IA 50220



Service Period
Aug 1, 2021 - Aug 31, 2021

Due Date
Aug 1, 2021

Total amount due
\$0.00

Invoice
30635

[REDACTED]
[REDACTED] 200TH ST
DALLAS CENTER, IA 50063

Account number 1247326

Current Charges	\$102.00
Taxes/Fees	\$0.00
Credits	\$0.00
Payments Applied	\$102.00

SEE BACK OF PAGE FOR DETAILS

Total due on Aug 1, 2021 \$0.00

Customer Service

Call us at (515) 465-3043

Visit us at <http://www.btwi.net>

A fee of \$5.00 will be applied 7 days after the due date to any unpaid invoices.

Current Charges

Up to 50.0Mbps	\$100.00
Printed Invoice	\$2.00

Payments Applied

Payment on Jul 10, 2021	\$102.00
-------------------------	----------

Total Amount Due

\$0.00

BTWI
1020 26TH ST
PERRY, IA 50220



Service Period
Aug 1, 2021 - Aug 31, 2021

Due Date
Aug 1, 2021

Total amount due
\$0.00

Invoice
29731

[REDACTED]
[REDACTED] 332ND PL
PERRY, IA 50220

Account number 841439

Current Charges	\$245.00
Taxes/Fees	\$0.00
Credits	\$0.00
Payments Applied	\$245.00

SEE BACK OF PAGE FOR DETAILS

Total due on Aug 1, 2021 **\$0.00**

Customer Service

Call us at (515) 465-3043

Visit us at <http://www.btwi.net>

A fee of \$5.00 will be applied 7 days after the due date to any unpaid invoices.

Current Charges

Business Pricing-200Mbps/100Mbps (Includes 1 Static IP) **\$245.00**

Payments Applied

Payment on Aug 9, 2021 **\$245.00**

Total Amount Due

\$0.00

BTWI
1020 26TH ST
PERRY, IA 50220



Service Period
Aug 1, 2021 - Aug 31, 2021

Due Date
Aug 1, 2021

Total amount due
\$0.00

Invoice
29968

[REDACTED]
[REDACTED] 329TH PL
PERRY, IA 50220

Account number 1171066

Current Charges	\$110.00
Taxes/Fees	\$0.00
Credits	\$0.00
Payments Applied	\$110.00

SEE BACK OF PAGE FOR DETAILS

Total due on Aug 1, 2021 **\$0.00**

Customer Service

Call us at (515) 465-3043

Visit us at <http://www.btwi.net>

A fee of \$5.00 will be applied 7 days after the due date to any unpaid invoices.

Current Charges

Up to 50.0Mbps	\$100.00
Static IP Address	\$10.00

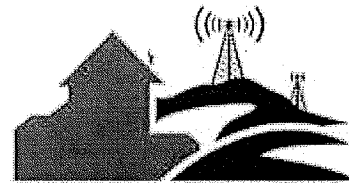
Payments Applied

Payment on Aug 1, 2021	\$110.00
------------------------	----------

Total Amount Due

\$0.00

BTWI
1020 26TH ST
PERRY, IA 50220



Service Period
Aug 1, 2021 - Aug 31, 2021

Due Date
Aug 1, 2021

Total amount due
\$0.00

Invoice
29943

[REDACTED]
[REDACTED] J AVE
ADEL, IA 50003

Account number 1136817

Current Charges	\$105.00
Taxes/Fees	\$0.00
Credits	\$0.00
Payments Applied	\$105.00

SEE BACK OF PAGE FOR DETAILS

Total due on Aug 1, 2021 **\$0.00**

Customer Service

Call us at (515) 465-3043

Visit us at <http://www.btwi.net>

A fee of \$5.00 will be applied 7 days after the due date to any unpaid invoices.

Current Charges

Monthly Router Service Plan (Standard)	\$5.00
Up to 50.0Mbps	\$100.00

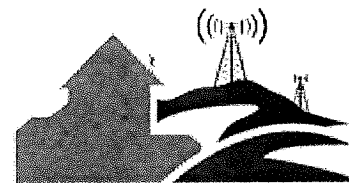
Payments Applied

Payment on Aug 3, 2021	\$105.00
------------------------	----------

Total Amount Due

\$0.00

BTWI
1020 26TH ST
PERRY, IA 50220



Service Period
Aug 1, 2021 - Aug 31, 2021

Due Date
Aug 1, 2021

Total amount due
\$0.00

Invoice
30512

[REDACTED]
[REDACTED] 280TH STREET
ADEL, IA 50003

Account number 1246884

Current Charges	\$105.00
Taxes/Fees	\$0.00
Credits	\$0.00
Payments Applied	\$105.00

SEE BACK OF PAGE FOR DETAILS

Total due on Aug 1, 2021 **\$0.00**

Customer Service

Call us at (515) 465-3043

Visit us at <http://www.btwi.net>

A fee of \$5.00 will be applied 7 days after the due date to any unpaid invoices.

Current Charges

Up to 50.0Mbps	\$100.00
Monthly Router Service Plan (Standard)	\$5.00

Payments Applied

Payment on Aug 1, 2021	\$105.00
------------------------	----------

Total Amount Due

\$0.00

BTWI
1020 26TH ST
PERRY, IA 50220



Service Period
Sep 1, 2021 - Sep 30, 2021

Due Date
Sep 1, 2021

Total amount due
\$105.00

Invoice
31862

[REDACTED]
[REDACTED] 170TH ST
[REDACTED]
GRANGER, IA 50109

Account number 1247375

Current Charges	\$105.00
Taxes/Fees	\$0.00
Credits	\$0.00
Payments Applied	\$0.00

SEE BACK OF PAGE FOR DETAILS

Total due on Sep 1, 2021 \$105.00

Customer Service

Call us at (515) 465-3043

Visit us at <http://www.btwi.net>

A fee of \$5.00 will be applied 7 days after the due date to any unpaid invoices.

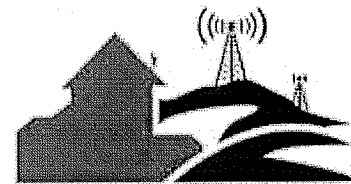
Current Charges

Monthly Router Service Plan (Standard)	\$5.00
Up to 50.0Mbps	\$100.00

Total Amount Due

\$105.00

BTWI
1020 26TH ST
PERRY, IA 50220



Service Period
Aug 1, 2021 - Aug 31, 2021

Due Date
Aug 1, 2021

Total amount due
\$0.00

Invoice
30372

[REDACTED]
[REDACTED] U AVE
WOODWARD, IA 50276

Account number 1246392

Current Charges	\$100.00
Taxes/Fees	\$0.00
Credits	\$0.00
Payments Applied	\$100.00

SEE BACK OF PAGE FOR DETAILS

Total due on Aug 1, 2021 **\$0.00**

Customer Service

Call us at (515) 465-3043

Visit us at <http://www.btwi.net>

A fee of \$5.00 will be applied 7 days after the due date to any unpaid invoices.

Current Charges

Up to 50.0Mbps **\$100.00**

Payments Applied

Payment on Jul 29, 2021 **\$100.00**

Total Amount Due

\$0.00

BTWI
1020 26TH ST
PERRY, IA 50220



Service Period
Aug 1, 2021 - Aug 31, 2021

Due Date
Aug 1, 2021

Total amount due
\$0.00

Invoice
30636

██████████
██████████ MADISON ST.
WINTERSET, IA 50273

Account number 1247328

Current Charges	\$185.00
Taxes/Fees	\$0.00
Credits	\$0.00
Payments Applied	\$185.00

SEE BACK OF PAGE FOR DETAILS

Total due on Aug 1, 2021 **\$0.00**

Customer Service

Call us at (515) 465-3043

Visit us at <http://www.btwi.net>

A fee of \$5.00 will be applied 7 days after the due date to any unpaid invoices.

Current Charges

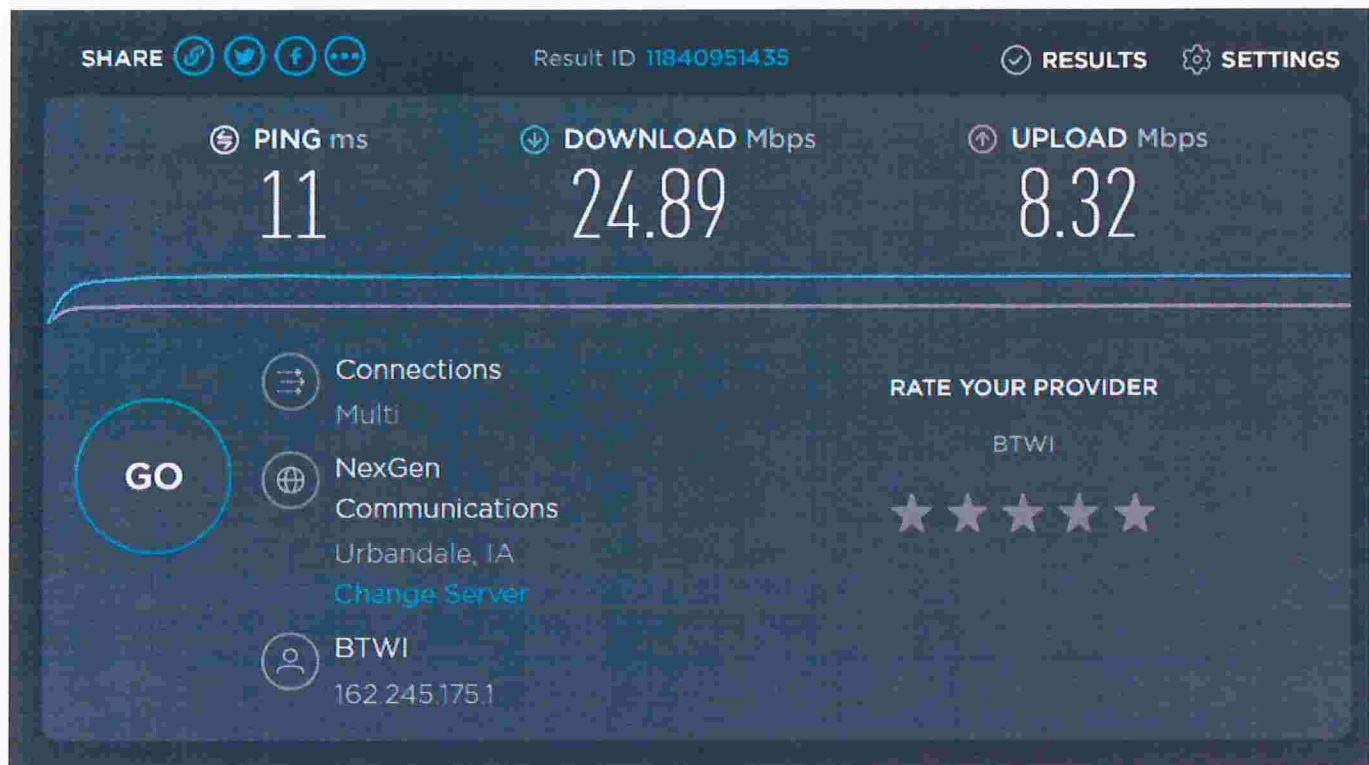
Business Pricing-100Mbps/50Mbps (Includes 1 Static IP)	\$185.00
--	----------

Payments Applied

Payment on Aug 9, 2021	\$185.00
------------------------	----------

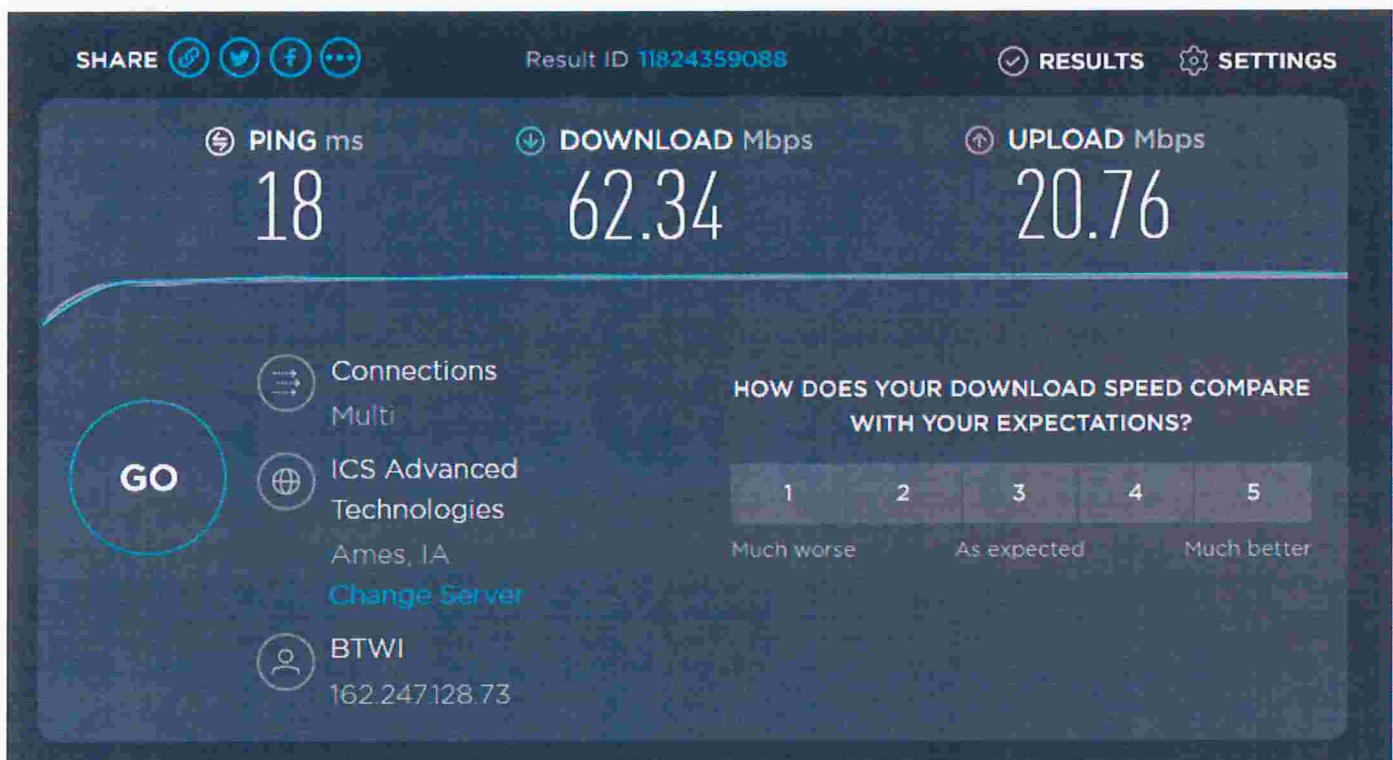
Total Amount Due

\$0.00



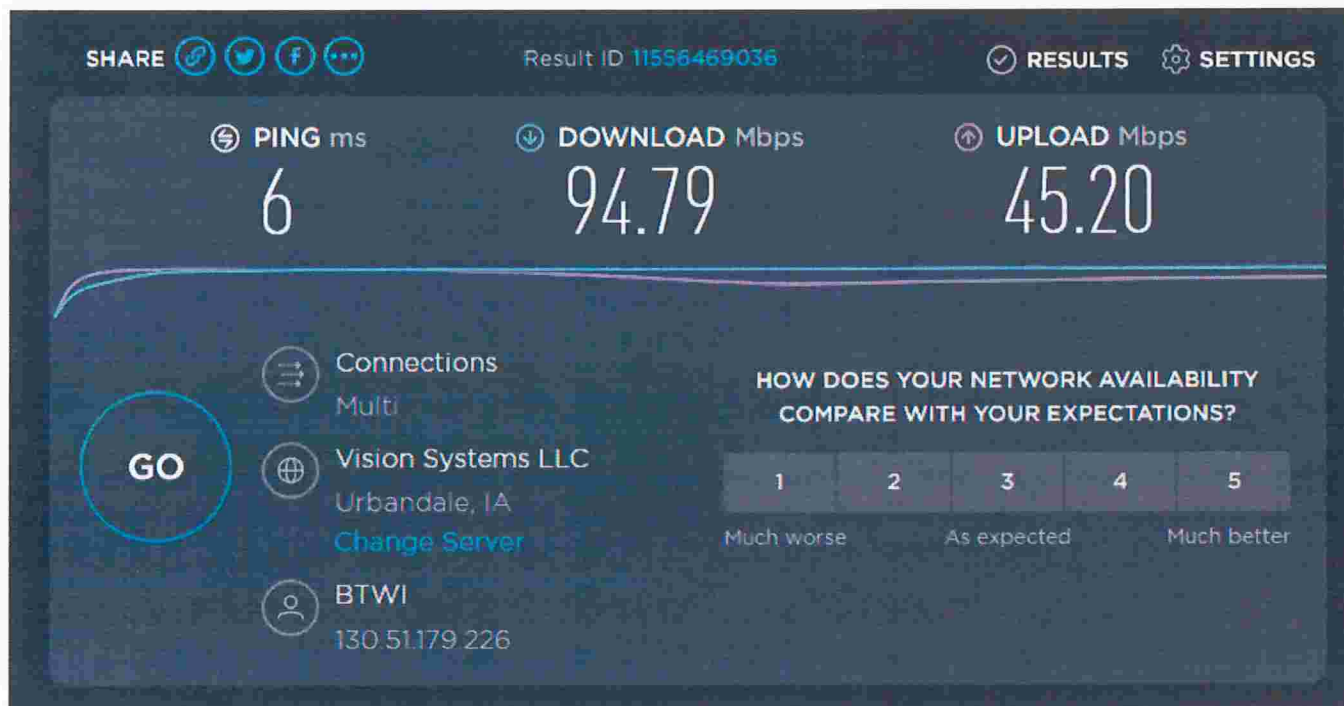
I certify that these results are from an actual speed test across BTWI's network taken from a subscriber's equipment who was subscribed to a 20Mbps plan.

Jeff Henhoff



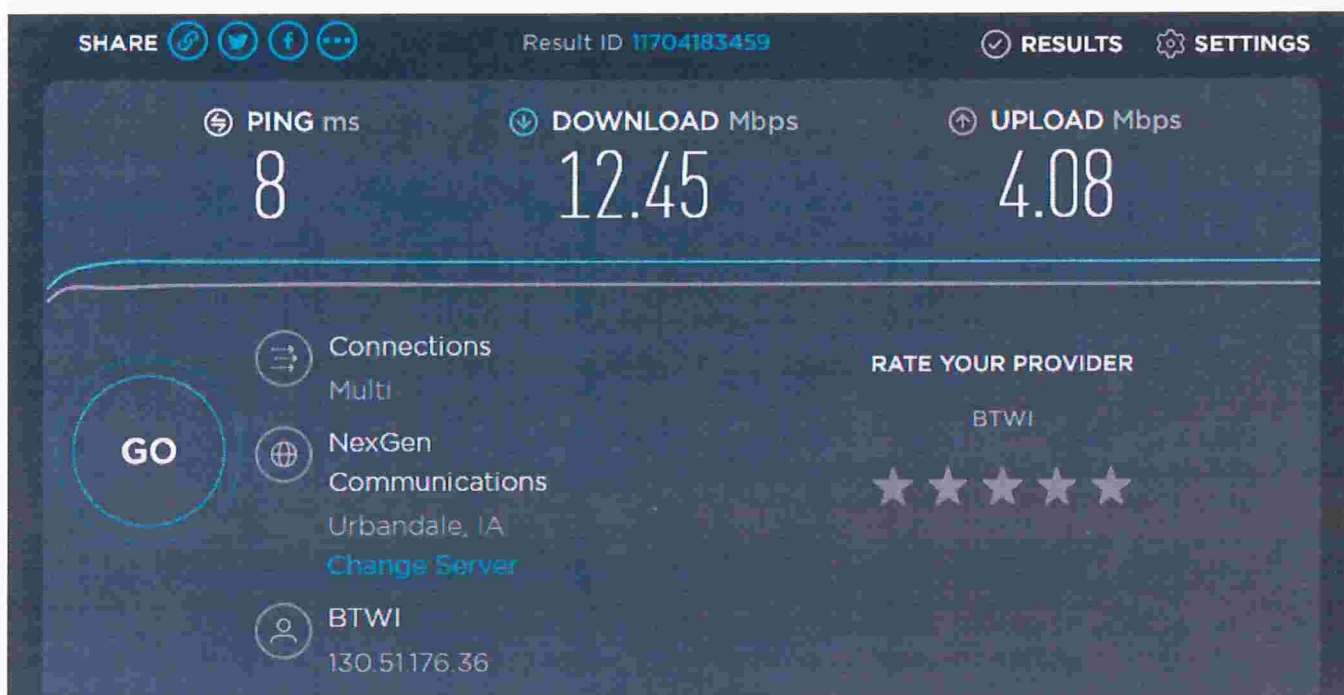
I certify that these results are from an actual speed test across BTWI's network taken from a subscriber's equipment who was subscribed to a 50Mbps plan.

Jeff Henhoff



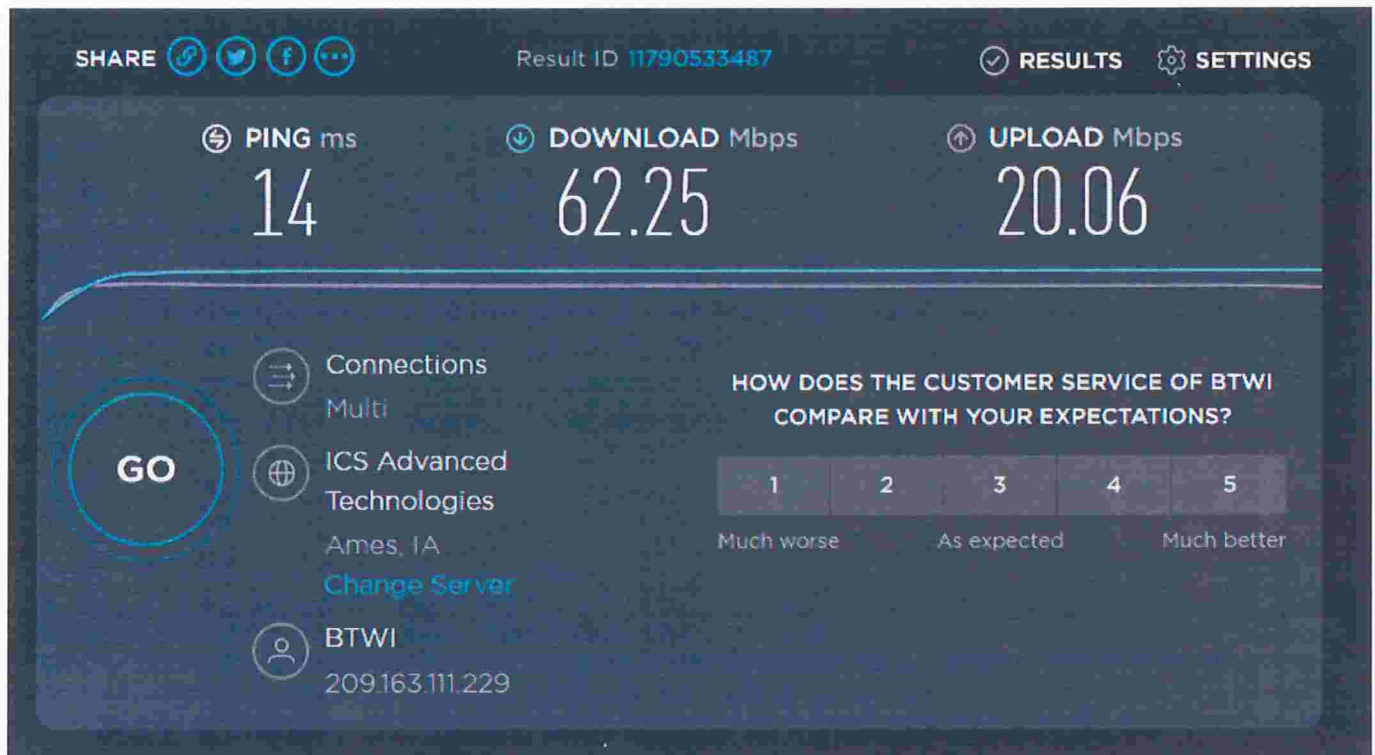
I certify that these results are from an actual speed test across BTWI's network taken from a subscriber's equipment who was subscribed to a 100Mbps plan.

Giff Seerhoff



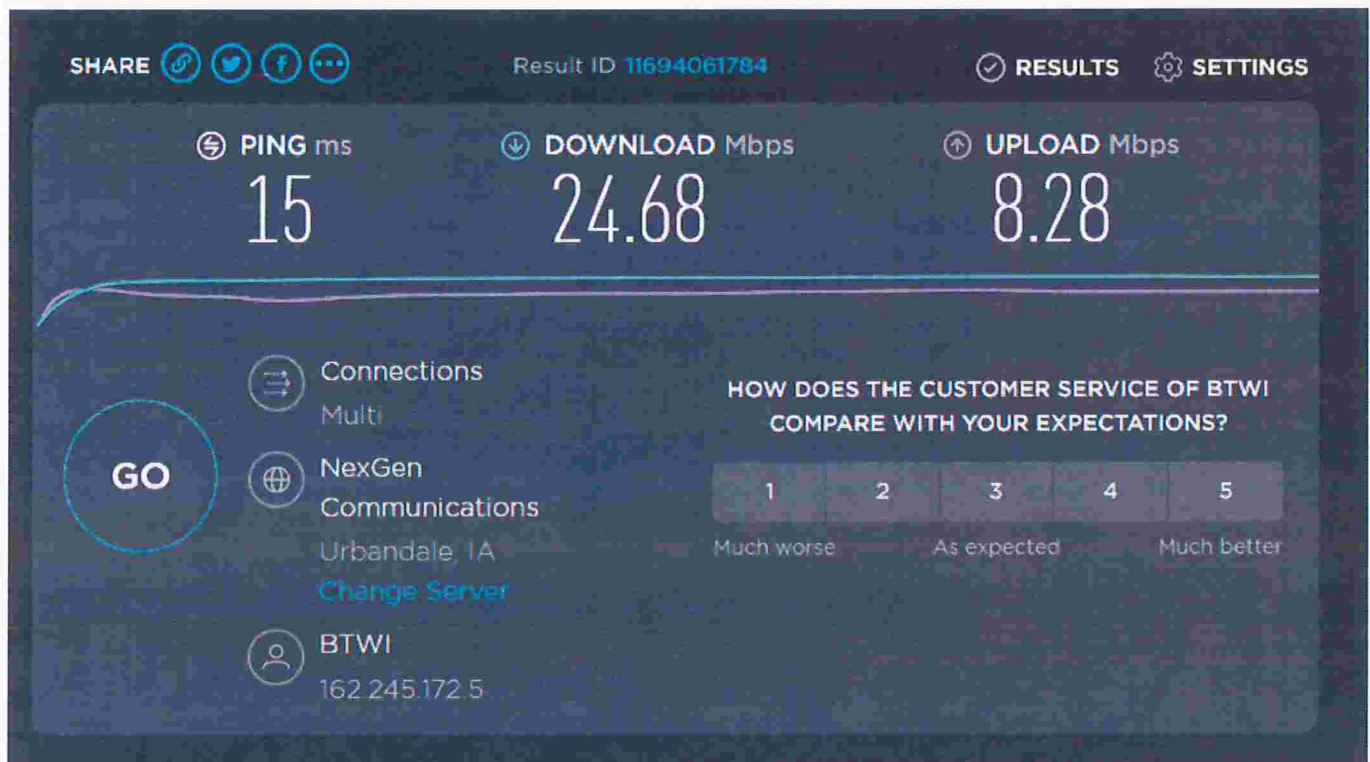
I certify that these results are from an actual speed test across BTWI's network taken from a subscriber's equipment who was subscribed to a 10Mbps plan.

Giff Seerhoff



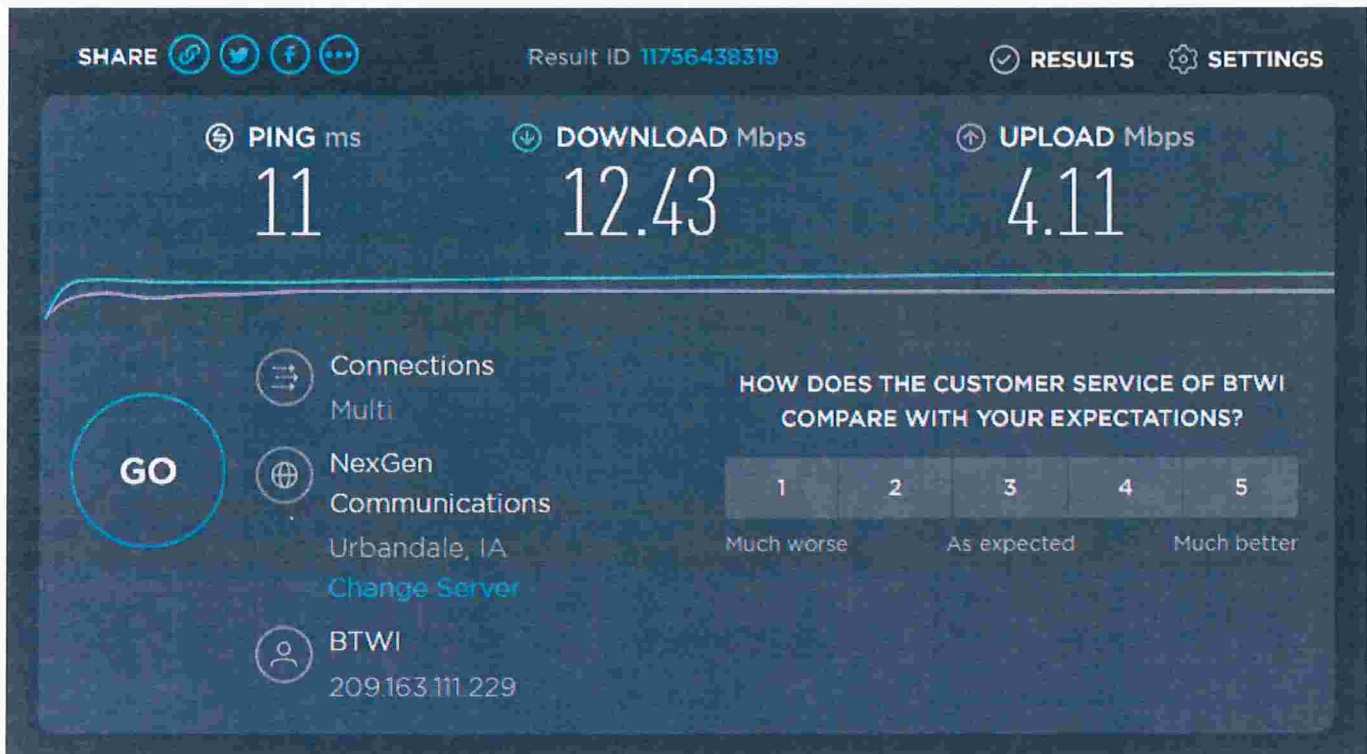
I certify that these results are from an actual speed test across BTWI's network taken from a subscriber's equipment who was subscribed to a 50Mbps plan.

Jeffeenhoff

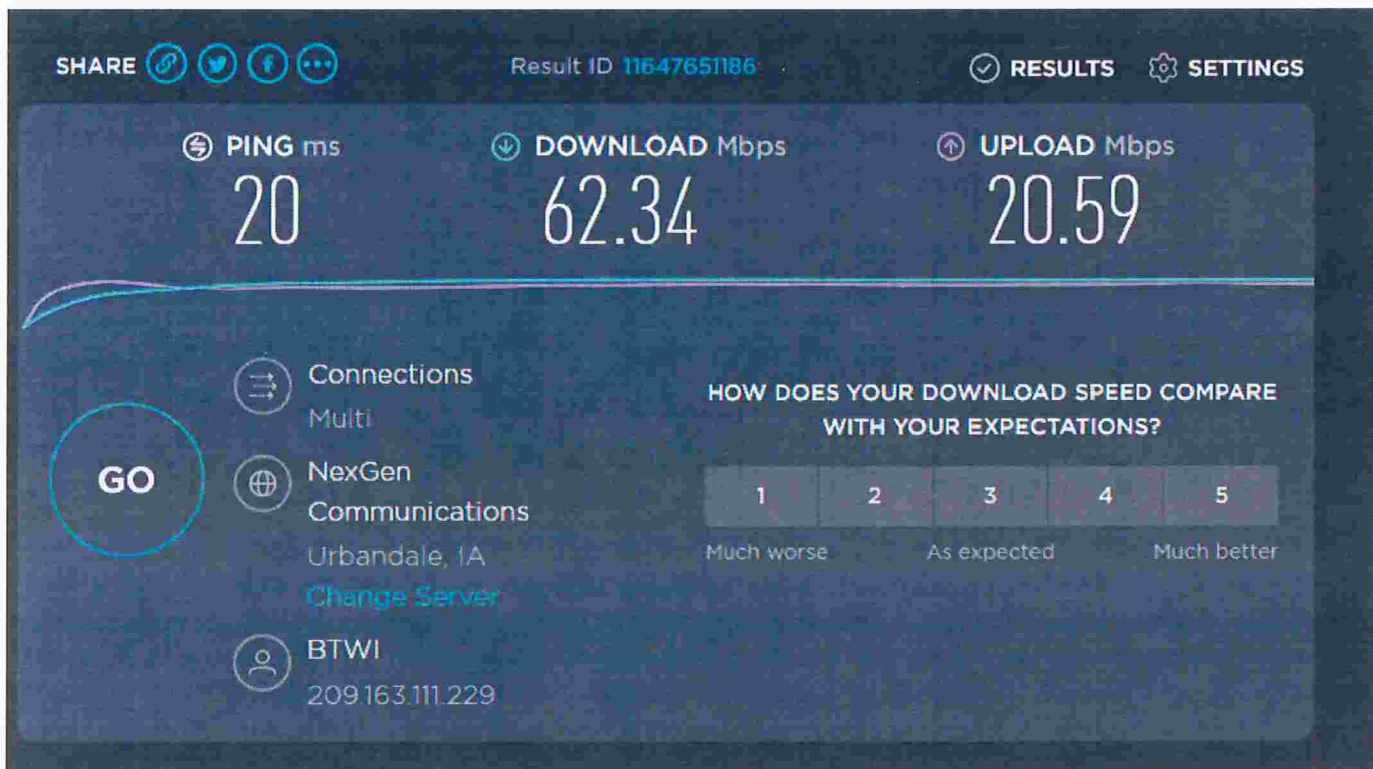


I certify that these results are from an actual speed test across BTWI's network taken from a subscriber's equipment who was subscribed to a 20Mbps plan.

Jeffeenhoff



I certify that these results are from an actual speed test across BTWI's network taken from a subscriber's equipment who was subscribed to a 10Mbps plan. *Jeff Henkoff*



I certify that these results are from an actual speed test across BTWI's network taken from a subscriber's equipment who was subscribed to a 50Mbps plan. *Jeff Henkoff*

City of Minburn

315 Baker St.
P.O. Box 213
Minburn, IA 50167

August 9, 2021

To Whom it May Concern,

Bits of Technology Wireless Internet (BTWI) contacted the City of Minburn early in 2016 with the offer to supply the city office with complementary internet. They are a fixed wireless company that had recently erected a tower just outside of Minburn. They were going to be supplying the library as well as a way to give back to a small community.

Minburn is a small city of 365 residents north and west of Des Moines. There are a handful of businesses, we lean on each other for support. The city was spending \$1300 a year on internet and phone. Any expenses we could trim meant more funds for roads, community events, cemetery expenses...things of that nature.

The City of Minburn has greatly appreciated the generosity of BTWI. Their locally owned family business values are what it means to be part of a small town. The City Clerk can complete reports, council information, email, and reply to customer inquiries easily. The Public Works Director can complete One Calls, respond to email inquiries and take online classes with fast, reliable internet.

BTWI is an asset to Minburn and rural areas around Minburn. Whether it was complimentary or not BTWI is the choice of our City Council and our employees. The customer service is top notch. Any time we have a question or a concern it is immediately addressed. We are not treated like our service is donated. We are treated with respect and just the same as a paying customer. The library has since moved to a different location and the donation of our services has not changed. The piece of mind having the extra funds provides makes an extreme difference in budgets as small as ours.

A handwritten signature in black ink, appearing to read "Janon Douglas", with a stylized, flowing script.

Janon Douglas

Acting City Clerk

July 28, 2021

Office of the Chief Information Officer of the State of Iowa
c/o Matt Behrens
200 E. Grand Avenue
Des Moines, IA 50309

CNS Internet Services
Stan Siems
ssiems@mycns.net

OCIO did not receive a response from this provider.

To whom it may concern:

This is a letter of inquiry concerning your firm's prior reporting to the State of Iowa Office of the Chief Information Officer ("OCIO" or "Office") regarding the availability of Broadband service in certain United States Census Block(s) within Iowa. Our Office received a formal notice of appeal challenging information reported on the Broadband Availability Map Version 4 ("V4") of the Statewide Broadband Availability Map ("Map"). The data reflected on V4 of the Map was either (1) provided by you to the Office's contractor ("Connected Nation") during the data collection window of April 15 through April 30, 2021, (2) gathered from other sources (such as FCC) that collected data from you, or (3) carried forward from prior reporting made to this Office by you under a previous Map version. Map V4 categorizes census blocks according to the facilitated speed offered within the block. The publication of V4 triggered a formal appeal window, as explained in more detail below, during which time we received this appeal. The appeal we received claims that the data reflected on V4 of the Map is inaccurate. This appeal can be found at <https://ocio.iowa.gov/broadband-availability-map-version-4-challenge-process> (see Docket Numbers 21-1030). **To resolve this matter, the Office requests that your firm provide information concerning your service in the affected Census Blocks as further identified and described below by August 11, 2021.**

On July 1, 2021, the Office officially published the final version of V4 of the Map, which identifies where Broadband service was offered or Facilitated at a tier 1, tier 2, or tier 3 speed as of July 1, 2021.¹ V4 of the Map is based primarily on data submitted to Connected Nation and/or FCC by Communication Service Providers concerning their service capabilities in the State of Iowa² and on informal comments/feedback supplied by interested parties as part of the informal comment/feedback process described above and in which your firm may have participated. V4 of the Map, and a detailed background of the same, can be found at: <https://ocio.iowa.gov/broadband-availability-map-version-4>. Overall, the new map reflects Targeted Service Areas defined as a census block within which no communications service provider offers or facilitates broadband service at or above the tier 1, tier 2, or tier 3 download and upload speeds. The tier speeds are defined as follows:

"Tier 1" means a maximum download speed of less than 25 Mbps and a maximum upload speed of less

¹See Iowa Code §§ 8B.1(12), 8B.10. *See also* Iowa Admin. Code r. 129—20.1, 20.3, 20.4.

²See Iowa Admin. Code r. 129—20.3.

than three Mbps.

“**Tier 2**” means a minimum download speed of greater than or equal to 25 Mbps but less than 50 Mbps. No minimum upload speed is applicable for Tier 2.

“**Tier 3**” means a minimum download speed of greater than or equal to 50 Mbps but less than 80 Mbps. No minimum upload speed is applicable for Tier 3.

“**Non-TSA**” means a census block in which speeds are facilitated at greater than or equal to 80 Mbps.

Through the official publication of V4 of the Map, the Office triggered the challenge process it is required by law to administer.³ Pursuant to applicable administrative rules, within 20 days after the Office’s official publication of V4 of the Map, “any person or party aggrieved or adversely affected by such determination may challenge the office’s finding by filing a notice of appeal with the office” along with all evidence or information supporting their appeal. Iowa Admin. Code r. 129—20.5(1). Specifically, interested parties were permitted to provide the Office with evidence and information of the following: broadband is unavailable from a provider listed for the area (census block); or, that broadband speed is not as advertised.

V4 of the Map currently shows that service is Facilitated at either a tier 1, tier 2, or tier 3 speed per designated census block. As part of the above-outlined process, OCIO received a formal notice of appeal and supporting evidence or information from one or more Iowa residents or Communications Service Provider, claiming that Broadband service is not offered or Facilitated at that speed tier.

At this time, the Office requests your assistance in making an accurate determination as to whether your firm facilitates broadband service at the designated speed tier for 10% or more of the geographic area of each challenged census block as of July 1, 2021 to the Census Blocks identified in Exhibit A. To that end, the Office requests that you:

- 1) Complete and return the attached Affirmation of Service or Lack of Service in Census Blocks Broadband Grants Program Broadband Availability Map Challenge Process Form (see Exhibit A, Affirmation tab), by **August 11, 2021**. Pursuant to this form, OCIO requests that a representative with legal authority to bind your firm:
 - a) Confirm that your firm Facilitated Broadband service to the Census Blocks identified in Exhibit A as of July 1, 2021, and indicate the speeds at which your firm facilitated broadband service in those blocks. For purposes of this representation, “‘Facilitate’ means a communication service provider’s ability to provide broadband service at or above the download and upload speeds specified in the definition of targeted service area in this section to a home, farm, school, or business **within a commercially reasonable time and at a commercially reasonable price upon request by a consumer.**” Iowa Code § 8B.1(5) (emphasis added).
 - b) Fully complete all other aspects of the Form.
- 2) In addition to the form, please also submit any other evidence or information in your possession to the Office that supports your prior representations to the Office regarding the Census Blocks identified in Exhibit A. Examples of evidence and information the Office would consider particularly probative include “Bills or invoices provided to or received by customers in the

³See Iowa Code § 8B.10(2); Iowa Admin. Code r. 129—20.5.

applicable census block(s) which identify the specific download and upload speeds provided or received as of [July 1, 2021].” Iowa Admin. Code r. 129—20.5(8).

Please return the completed form and any supporting evidence or information to ociogrants@iowa.gov.

Please note that you are under no legal obligation to respond to this request for information. Generally, pursuant to applicable administrative rules, any affected person or party is free to submit evidence or information to the Office in support of or in opposition to an appeal within 20 days after the appeal has been posted to ocio.iowa.gov/broadband. Iowa Admin. Code r. 129—20.5(3). However, this Office is affirmatively reaching out to notify you of the appeal, of the circumstances surrounding the appeal, and to solicit your feedback and position. If this Office does not receive your response via Exhibit A of the Form by **August 11, 2021** (10 business days from the date of this letter), the Office will make a final decision based on the evidence and information currently available to it. Iowa Admin. Code r. 129—20.5(4), (5).

OCIO strives at all times to produce and disseminate accurate information. We appreciate your assistance in helping us achieve our statutory mandate.

Sincerely,

Office of the Chief Information Officer,
State of Iowa

July 28, 2021

Office of the Chief Information Officer of the State of Iowa
c/o Matt Behrens
200 E. Grand Avenue
Des Moines, IA 50309

Dumont Telephone Company
Roger Kregel
rogerkr@netins.net

To whom it may concern:

This is a letter of inquiry concerning your firm's prior reporting to the State of Iowa Office of the Chief Information Officer ("OCIO" or "Office") regarding the availability of Broadband service in certain United States Census Block(s) within Iowa. Our Office received a formal notice of appeal challenging information reported on the Broadband Availability Map Version 4 ("V4") of the Statewide Broadband Availability Map ("Map"). The data reflected on V4 of the Map was either (1) provided by you to the Office's contractor ("Connected Nation") during the data collection window of April 15 through April 30, 2021, (2) gathered from other sources (such as FCC) that collected data from you, or (3) carried forward from prior reporting made to this Office by you under a previous Map version. Map V4 categorizes census blocks according to the facilitated speed offered within the block. The publication of V4 triggered a formal appeal window, as explained in more detail below, during which time we received this appeal. The appeal we received claims that the data reflected on V4 of the Map is inaccurate. This appeal can be found at <https://ocio.iowa.gov/broadband-availability-map-version-4-challenge-process> (see Docket Numbers 21-1030). **To resolve this matter, the Office requests that your firm provide information concerning your service in the affected Census Blocks as further identified and described below by August 11, 2021.**

On July 1, 2021, the Office officially published the final version of V4 of the Map, which identifies where Broadband service was offered or Facilitated at a tier 1, tier 2, or tier 3 speed as of July 1, 2021.¹ V4 of the Map is based primarily on data submitted to Connected Nation and/or FCC by Communication Service Providers concerning their service capabilities in the State of Iowa² and on informal comments/feedback supplied by interested parties as part of the informal comment/feedback process described above and in which your firm may have participated. V4 of the Map, and a detailed background of the same, can be found at: <https://ocio.iowa.gov/broadband-availability-map-version-4>. Overall, the new map reflects Targeted Service Areas defined as a census block within which no communications service provider offers or facilitates broadband service at or above the tier 1, tier 2, or tier 3 download and upload speeds. The tier speeds are defined as follows:

"Tier 1" means a maximum download speed of less than 25 Mbps and a maximum upload speed of less

¹See Iowa Code §§ 8B.1(12), 8B.10. *See also* Iowa Admin. Code r. 129—20.1, 20.3, 20.4.

²See Iowa Admin. Code r. 129—20.3.

than three Mbps.

“**Tier 2**” means a minimum download speed of greater than or equal to 25 Mbps but less than 50 Mbps. No minimum upload speed is applicable for Tier 2.

“**Tier 3**” means a minimum download speed of greater than or equal to 50 Mbps but less than 80 Mbps. No minimum upload speed is applicable for Tier 3.

“**Non-TSA**” means a census block in which speeds are facilitated at greater than or equal to 80 Mbps.

Through the official publication of V4 of the Map, the Office triggered the challenge process it is required by law to administer.³ Pursuant to applicable administrative rules, within 20 days after the Office’s official publication of V4 of the Map, “any person or party aggrieved or adversely affected by such determination may challenge the office’s finding by filing a notice of appeal with the office” along with all evidence or information supporting their appeal. Iowa Admin. Code r. 129—20.5(1). Specifically, interested parties were permitted to provide the Office with evidence and information of the following: broadband is unavailable from a provider listed for the area (census block); or, that broadband speed is not as advertised.

V4 of the Map currently shows that service is Facilitated at either a tier 1, tier 2, or tier 3 speed per designated census block. As part of the above-outlined process, OCIO received a formal notice of appeal and supporting evidence or information from one or more Iowa residents or Communications Service Provider, claiming that Broadband service is not offered or Facilitated at that speed tier.

At this time, the Office requests your assistance in making an accurate determination as to whether your firm facilitates broadband service at the designated speed tier for 10% or more of the geographic area of each challenged census block as of July 1, 2021 to the Census Blocks identified in Exhibit A. To that end, the Office requests that you:

- 1) Complete and return the attached Affirmation of Service or Lack of Service in Census Blocks Broadband Grants Program Broadband Availability Map Challenge Process Form (see Exhibit A, Affirmation tab), by **August 11, 2021**. Pursuant to this form, OCIO requests that a representative with legal authority to bind your firm:
 - a) Confirm that your firm Facilitated Broadband service to the Census Blocks identified in Exhibit A as of July 1, 2021, and indicate the speeds at which your firm facilitated broadband service in those blocks. For purposes of this representation, “‘Facilitate’ means a communication service provider’s ability to provide broadband service at or above the download and upload speeds specified in the definition of targeted service area in this section to a home, farm, school, or business **within a commercially reasonable time and at a commercially reasonable price upon request by a consumer.**” Iowa Code § 8B.1(5) (emphasis added).
 - b) Fully complete all other aspects of the Form.
- 2) In addition to the form, please also submit any other evidence or information in your possession to the Office that supports your prior representations to the Office regarding the Census Blocks identified in Exhibit A. Examples of evidence and information the Office would consider particularly probative include “Bills or invoices provided to or received by customers in the

³See Iowa Code § 8B.10(2); Iowa Admin. Code r. 129—20.5.

applicable census block(s) which identify the specific download and upload speeds provided or received as of [July 1, 2021].” Iowa Admin. Code r. 129—20.5(8).

Please return the completed form and any supporting evidence or information to ociogrants@iowa.gov.

Please note that you are under no legal obligation to respond to this request for information. Generally, pursuant to applicable administrative rules, any affected person or party is free to submit evidence or information to the Office in support of or in opposition to an appeal within 20 days after the appeal has been posted to ocio.iowa.gov/broadband. Iowa Admin. Code r. 129—20.5(3). However, this Office is affirmatively reaching out to notify you of the appeal, of the circumstances surrounding the appeal, and to solicit your feedback and position. If this Office does not receive your response via Exhibit A of the Form by **August 11, 2021** (10 business days from the date of this letter), the Office will make a final decision based on the evidence and information currently available to it. Iowa Admin. Code r. 129—20.5(4), (5).

OCIO strives at all times to produce and disseminate accurate information. We appreciate your assistance in helping us achieve our statutory mandate.

Sincerely,

Office of the Chief Information Officer,
State of Iowa



EXHIBIT A

Affirmation of Service or Lack of Service in Census Blocks Broadband Grants Program Broadband Availability Map Challenge Process

A. RESPONDENT INFORMATION

Company Name	Dumont Telephone Company
Address	506 Pine St
City	Dumont
State	Iowa
Zip	50625

B. DESIGNATED CONTACT INFORMATION

Contact Name	Roger Kregel
Contact Phone Number	641-857-3211
Contact Email	rogerkr@dumonttelephone.com

C. AFFIRMATION

In signing and submitting this form, the above-identified company, and its duly authorized representative signing on behalf thereof, hereby affirms under penalty of perjury that, as represented in its submission:

Company, consistent with the representations made in this form, and regardless of whether your company's prior reporting to the FCC or State of Iowa was correct or in error, meets one of the following criteria in each of the identified census blocks as of July 1, 2021:

1. Company Facilitated service at the indicated speeds on the Affirmation tab as of July 1, 2021 to more than 10% of the census block; or
2. Company did NOT offer or Facilitate material Broadband service.

Please indicate the speeds offered for each census block on the Affirmation tab.

D. ADDITIONAL EXPLANATION(To the extent you believe additional explanation is required to ensure that you are communicating full and accurate information, please use the below space to further explain, qualify, or substantiate your above affirmation. To the extent necessary, please feel free to upload additional explanations/supporting documentation.

CB 190693601002127 - we have fiber to one location but do not facilitate to more than 10% Geographic area. CB 190693601002128 - we have fiber and facilitate to 100% of that block. Existing locations are currently disconnected but we have attached copies of the former bills. CB 190693601002131 - we do not have any fiber or facilitate service here. CB 190693601002159 - we have fiber to one location but do not facilitate to more than 10% Geographic area. CB 190693601003030 - we have fiber here but do not facilitate to more than 10% Geographic area. CB 190693601003033 - we have fiber here but do not facilitate to more than 10% Geographic area.

E. SIGNATURE* By typing your full name you are affixing your signature to this form and attesting to the accuracy of the information submitted herein.

Authorized Signature:	Roger Kregel
Title:	General Manager
Date:	7/29/2021

***PLEASE READ BEFORE SIGNING:** By signing and submitting this form, I, on my own behalf or as a representative of the company identified above, as applicable, expressly represent that I am authorized to make the above factual representation on behalf of said company and/or myself, as applicable, and under penalty of perjury as authorized by Iowa Code section 622.1 and pursuant to the laws of the state of Iowa, certify the following with respect to this form submitted on behalf of said company and/or myself: any statements, representations, warranties, certifications, or attestations made in this form, including any attachments or enclosures associated therewith, are true and accurate; I, on behalf of said company and/or myself, have not knowingly made any false statements or representations in this form. In addition to any criminal penalties authorized by Iowa Code section 720.2 that may result from any false statements of material fact made herein or any other remedies available at law, equity, or otherwise, if it is subsequently determined that I have made a statement, representation, warranty, certification, or attestation in this form, or any attachments or enclosures associated herewith, that is later proven untrue in any material respect, the company on which I submitted this form on behalf of may be disqualified from current incentive programs administered by the Office or may be ordered to repay the Office the entire amount of any funds previously distributed by the Office to said company in connection with any current incentive programs administered by the Office. OCIO makes no guarantees as to whether the information supplied by you will result in any change to the Broadband Availability Map V4 or the way any incentive decisions are reviewed, scored, or decided. This form, as completed, any attachments hereto, and any other information or materials submitted to the Office in connection with this form or related inquiry, shall be considered public records and shall be made available for public examination and/or disseminated upon request by third parties as required by Iowa Code chapter 22. The Office reserves the right to reject this form and relatedly consider any information communicated through this form as neither credible nor probative if this form is not fully and properly filled out.

Please familiarize yourself with the following terms prior to determining whether broadband service is being Facilitated to the census block.

Facilitate	<p>A communication service provider's ability to provide broadband service at or above the download and upload speeds defined above to a home, farm, school, or business within a commercially reasonable time and at a commercially reasonable price upon request by a consumer. This does <i>not</i> pertain to the Broadband Infrastructure used to facilitate said service; Broadband Infrastructure is <i>not</i> a basis for appeal.</p>
------------	--

Facilitate	<p>A communication service provider's ability to provide broadband service at or above the download and upload speeds defined above to a home, farm, school, or business within a commercially reasonable time and at a commercially reasonable price upon request by a consumer. This does <i>not</i> pertain to the Broadband Infrastructure used to facilitate said service; Broadband Infrastructure is <i>not</i> a basis for appeal.</p>
------------	--

[illegible]

July 28, 2021

Office of the Chief Information Officer of the State of Iowa
c/o Matt Behrens
200 E. Grand Avenue
Des Moines, IA 50309

Iowa Connect, Inc.
Dave Severin
rockwell@netins.net

To whom it may concern:

This is a letter of inquiry concerning your firm's prior reporting to the State of Iowa Office of the Chief Information Officer ("OCIO" or "Office") regarding the availability of Broadband service in certain United States Census Block(s) within Iowa. Our Office received a formal notice of appeal challenging information reported on the Broadband Availability Map Version 4 ("V4") of the Statewide Broadband Availability Map ("Map"). The data reflected on V4 of the Map was either (1) provided by you to the Office's contractor ("Connected Nation") during the data collection window of April 15 through April 30, 2021, (2) gathered from other sources (such as FCC) that collected data from you, or (3) carried forward from prior reporting made to this Office by you under a previous Map version. Map V4 categorizes census blocks according to the facilitated speed offered within the block. The publication of V4 triggered a formal appeal window, as explained in more detail below, during which time we received this appeal. The appeal we received claims that the data reflected on V4 of the Map is inaccurate. This appeal can be found at <https://ocio.iowa.gov/broadband-availability-map-version-4-challenge-process> (see Docket Numbers 21-1030). **To resolve this matter, the Office requests that your firm provide information concerning your service in the affected Census Blocks as further identified and described below by August 11, 2021.**

On July 1, 2021, the Office officially published the final version of V4 of the Map, which identifies where Broadband service was offered or Facilitated at a tier 1, tier 2, or tier 3 speed as of July 1, 2021.¹ V4 of the Map is based primarily on data submitted to Connected Nation and/or FCC by Communication Service Providers concerning their service capabilities in the State of Iowa² and on informal comments/feedback supplied by interested parties as part of the informal comment/feedback process described above and in which your firm may have participated. V4 of the Map, and a detailed background of the same, can be found at: <https://ocio.iowa.gov/broadband-availability-map-version-4>. Overall, the new map reflects Targeted Service Areas defined as a census block within which no communications service provider offers or facilitates broadband service at or above the tier 1, tier 2, or tier 3 download and upload speeds. The tier speeds are defined as follows:

"Tier 1" means a maximum download speed of less than 25 Mbps and a maximum upload speed of less

¹See Iowa Code §§ 8B.1(12), 8B.10. *See also* Iowa Admin. Code r. 129—20.1, 20.3, 20.4.

²See Iowa Admin. Code r. 129—20.3.

than three Mbps.

“**Tier 2**” means a minimum download speed of greater than or equal to 25 Mbps but less than 50 Mbps. No minimum upload speed is applicable for Tier 2.

“**Tier 3**” means a minimum download speed of greater than or equal to 50 Mbps but less than 80 Mbps. No minimum upload speed is applicable for Tier 3.

“**Non-TSA**” means a census block in which speeds are facilitated at greater than or equal to 80 Mbps.

Through the official publication of V4 of the Map, the Office triggered the challenge process it is required by law to administer.³ Pursuant to applicable administrative rules, within 20 days after the Office’s official publication of V4 of the Map, “any person or party aggrieved or adversely affected by such determination may challenge the office’s finding by filing a notice of appeal with the office” along with all evidence or information supporting their appeal. Iowa Admin. Code r. 129—20.5(1). Specifically, interested parties were permitted to provide the Office with evidence and information of the following: broadband is unavailable from a provider listed for the area (census block); or, that broadband speed is not as advertised.

V4 of the Map currently shows that service is Facilitated at either a tier 1, tier 2, or tier 3 speed per designated census block. As part of the above-outlined process, OCIO received a formal notice of appeal and supporting evidence or information from one or more Iowa residents or Communications Service Provider, claiming that Broadband service is not offered or Facilitated at that speed tier.

At this time, the Office requests your assistance in making an accurate determination as to whether your firm facilitates broadband service at the designated speed tier for 10% or more of the geographic area of each challenged census block as of July 1, 2021 to the Census Blocks identified in Exhibit A. To that end, the Office requests that you:

- 1) Complete and return the attached Affirmation of Service or Lack of Service in Census Blocks Broadband Grants Program Broadband Availability Map Challenge Process Form (see Exhibit A, Affirmation tab), by **August 11, 2021**. Pursuant to this form, OCIO requests that a representative with legal authority to bind your firm:
 - a) Confirm that your firm Facilitated Broadband service to the Census Blocks identified in Exhibit A as of July 1, 2021, and indicate the speeds at which your firm facilitated broadband service in those blocks. For purposes of this representation, “‘Facilitate’ means a communication service provider’s ability to provide broadband service at or above the download and upload speeds specified in the definition of targeted service area in this section to a home, farm, school, or business **within a commercially reasonable time and at a commercially reasonable price upon request by a consumer.**” Iowa Code § 8B.1(5) (emphasis added).
 - b) Fully complete all other aspects of the Form.
- 2) In addition to the form, please also submit any other evidence or information in your possession to the Office that supports your prior representations to the Office regarding the Census Blocks identified in Exhibit A. Examples of evidence and information the Office would consider particularly probative include “Bills or invoices provided to or received by customers in the

³See Iowa Code § 8B.10(2); Iowa Admin. Code r. 129—20.5.

applicable census block(s) which identify the specific download and upload speeds provided or received as of [July 1, 2021].” Iowa Admin. Code r. 129—20.5(8).

Please return the completed form and any supporting evidence or information to ociogrants@iowa.gov.

Please note that you are under no legal obligation to respond to this request for information. Generally, pursuant to applicable administrative rules, any affected person or party is free to submit evidence or information to the Office in support of or in opposition to an appeal within 20 days after the appeal has been posted to ocio.iowa.gov/broadband. Iowa Admin. Code r. 129—20.5(3). However, this Office is affirmatively reaching out to notify you of the appeal, of the circumstances surrounding the appeal, and to solicit your feedback and position. If this Office does not receive your response via Exhibit A of the Form by **August 11, 2021** (10 business days from the date of this letter), the Office will make a final decision based on the evidence and information currently available to it. Iowa Admin. Code r. 129—20.5(4), (5).

OCIO strives at all times to produce and disseminate accurate information. We appreciate your assistance in helping us achieve our statutory mandate.

Sincerely,

Office of the Chief Information Officer,
State of Iowa

**EXHIBIT A****Affirmation of Service or Lack of Service in Census Blocks
Broadband Grants Program Broadband Availability Map Challenge Process****A. RESPONDENT INFORMATION**

Company Name	Iowa Connect, Inc.
Address	111 4th Street North
City	Rockwell
State	IA
Zip	50469

B. DESIGNATED CONTACT INFORMATION

Contact Name	David Severin
Contact Phone Number	641-822-3211
Contact Email	rockwell@netins.net

C. AFFIRMATION

In signing and submitting this form, the above-identified company, and its duly authorized representative signing on behalf thereof, hereby affirms under penalty of perjury that, as represented in its submission:

Company, consistent with the representations made in this form, and regardless of whether your company's prior reporting to the FCC or State of Iowa was correct or in error, meets one of the following criteria in each of the identified census blocks as of July 1, 2021:

1. Company Facilitated service at the indicated speeds on the Affirmation tab as of July 1, 2021 to more than 10% of the census block; or
2. Company did NOT offer or Facilitate material Broadband service.

Please indicate the speeds offered for each census block on the Affirmation tab.

D. ADDITIONAL EXPLANATION (To the extent you believe additional explanation is required to ensure that you are communicating full and accurate information, please use the below space to further explain, qualify, or substantiate your above affirmation. To the extent necessary, please feel free to upload additional explanations/supporting documentation.)

Iowa Connect offers a wireless product that is capable of providing speeds up to 25/3 meg. The service area of our wireless product is highlighted on our website.

E. SIGNATURE* By typing your full name you are affixing your signature to this form and attesting to the accuracy of the information submitted herein.

Authorized Signature:	David Severin
Title:	General Manager
Date:	8/11/2021

*PLEASE READ BEFORE SIGNING: By signing and submitting this form, I, on my own behalf or as a representative of the company identified above, as applicable, expressly represent that I am authorized to make the above factual representation on behalf of said company and/or myself, as applicable, and under penalty of perjury as authorized by Iowa Code section 622.1 and pursuant to the laws of the state of Iowa, certify the following with respect to this form submitted on behalf of said company and/or myself: any statements, representations, warranties, certifications, or attestations made in this form, including any attachments or enclosures associated therewith, are true and accurate; I, on behalf of said company and/or myself, have not knowingly made any false statements or representations in this form. In addition to any criminal penalties authorized by Iowa Code section 720.2 that may result from any false statements of material fact made herein or any other remedies available at law, equity, or otherwise, if it is subsequently determined that I have made a statement, representation, warranty, certification, or attestation in this form, or any attachments or enclosures associated herewith, that is later proven untrue in any material respect, the company on which I submitted this form on behalf of may be disqualified from current incentive programs administered by the Office or may be ordered to repay the Office the entire amount of any funds previously distributed by the Office to said company in connection with any current incentive programs administered by the Office. OCIO makes no guarantees as to whether the information supplied by you will result in any change to the Broadband Availability Map V4 or the way any incentive decisions are reviewed, scored, or decided. This form, as completed, any attachments hereto, and any other information or materials submitted to the Office in connection with this form or related inquiry, shall be considered public records and shall be made available for public examination and/or disseminated upon request by third parties as required by Iowa Code chapter 22. The Office reserves the right to reject this form and relatedly consider any information communicated through this form as neither credible nor probative if this form is not fully and properly filled out.

Please familiarize yourself with the following terms prior to determining whether broadband service is being Facilitated to the census block.

Facilitate

A communication service provider's ability to provide broadband service at or above the download and upload speeds defined above to a home, farm, school, or business within a commercially reasonable time and at a commercially reasonable price upon request by a consumer. This does *not* pertain to the Broadband Infrastructure used to facilitate said service; Broadband Infrastructure is *not* a basis for appeal.

CENSUS BLOCK ID	Do you Facilitate service to more than 10% of the geographic area of the Census Block?	Download Speed	Upload Speed
190693601001144	Yes	25	3
190693601001145	Yes	25	3
190693601001168	Yes	25	3
190693601001169	Yes	25	3
190693601001171	Yes	25	3
190693601001172	Yes	25	3
190693601001174	Yes	25	3
190693601002007	Yes	25	3
190693601002013	Yes	25	3
190693601002014	Yes	25	3
190693601002016	Yes	25	3
190693601002017	Yes	25	3
190693601002022	Yes	25	3

[illegible]

July 28, 2021

Office of the Chief Information Officer of the State of Iowa
c/o Matt Behrens
200 E. Grand Avenue
Des Moines, IA 50309

LTD Broadband LLC
Corey Hauer
coreyhauer@gmail.com

To whom it may concern:

This is a letter of inquiry concerning your firm's prior reporting to the State of Iowa Office of the Chief Information Officer ("OCIO" or "Office") regarding the availability of Broadband service in certain United States Census Block(s) within Iowa. Our Office received a formal notice of appeal challenging information reported on the Broadband Availability Map Version 4 ("V4") of the Statewide Broadband Availability Map ("Map"). The data reflected on V4 of the Map was either (1) provided by you to the Office's contractor ("Connected Nation") during the data collection window of April 15 through April 30, 2021, (2) gathered from other sources (such as FCC) that collected data from you, or (3) carried forward from prior reporting made to this Office by you under a previous Map version. Map V4 categorizes census blocks according to the facilitated speed offered within the block. The publication of V4 triggered a formal appeal window, as explained in more detail below, during which time we received this appeal. The appeal we received claims that the data reflected on V4 of the Map is inaccurate. This appeal can be found at <https://ocio.iowa.gov/broadband-availability-map-version-4-challenge-process> (see Docket Numbers 21-1011, 21-1031, 21-1032, 21-1033). **To resolve this matter, the Office requests that your firm provide information concerning your service in the affected Census Blocks as further identified and described below by August 11, 2021.**

On July 1, 2021, the Office officially published the final version of V4 of the Map, which identifies where Broadband service was offered or Facilitated at a tier 1, tier 2, or tier 3 speed as of July 1, 2021.¹ V4 of the Map is based primarily on data submitted to Connected Nation and/or FCC by Communication Service Providers concerning their service capabilities in the State of Iowa² and on informal comments/feedback supplied by interested parties as part of the informal comment/feedback process described above and in which your firm may have participated. V4 of the Map, and a detailed background of the same, can be found at: <https://ocio.iowa.gov/broadband-availability-map-version-4>. Overall, the new map reflects Targeted Service Areas defined as a census block within which no communications service provider offers or facilitates broadband service at or above the tier 1, tier 2, or tier 3 download and upload speeds. The tier speeds are defined as follows:

¹See Iowa Code §§ 8B.1(12), 8B.10. *See also* Iowa Admin. Code r. 129—20.1, 20.3, 20.4.

²See Iowa Admin. Code r. 129—20.3.

“**Tier 1**” means a maximum download speed of less than 25 Mbps and a maximum upload speed of less than three Mbps.

“**Tier 2**” means a minimum download speed of greater than or equal to 25 Mbps but less than 50 Mbps. No minimum upload speed is applicable for Tier 2.

“**Tier 3**” means a minimum download speed of greater than or equal to 50 Mbps but less than 80 Mbps. No minimum upload speed is applicable for Tier 3.

“**Non-TSA**” means a census block in which speeds are facilitated at greater than or equal to 80 Mbps.

Through the official publication of V4 of the Map, the Office triggered the challenge process it is required by law to administer.³ Pursuant to applicable administrative rules, within 20 days after the Office’s official publication of V4 of the Map, “any person or party aggrieved or adversely affected by such determination may challenge the office’s finding by filing a notice of appeal with the office” along with all evidence or information supporting their appeal. Iowa Admin. Code r. 129—20.5(1). Specifically, interested parties were permitted to provide the Office with evidence and information of the following: broadband is unavailable from a provider listed for the area (census block); or, that broadband speed is not as advertised.

V4 of the Map currently shows that service is Facilitated at either a tier 1, tier 2, or tier 3 speed per designated census block. As part of the above-outlined process, OCIO received a formal notice of appeal and supporting evidence or information from one or more Iowa residents or Communications Service Provider, claiming that Broadband service is not offered or Facilitated at that speed tier.

At this time, the Office requests your assistance in making an accurate determination as to whether your firm facilitates broadband service at the designated speed tier for 10% or more of the geographic area of each challenged census block as of July 1, 2021 to the Census Blocks identified in Exhibit A. To that end, the Office requests that you:

- 1) Complete and return the attached Affirmation of Service or Lack of Service in Census Blocks Broadband Grants Program Broadband Availability Map Challenge Process Form (see Exhibit A, Affirmation tab), by **August 11, 2021**. Pursuant to this form, OCIO requests that a representative with legal authority to bind your firm:
 - a) Confirm that your firm Facilitated Broadband service to the Census Blocks identified in Exhibit A as of July 1, 2021, and indicate the speeds at which your firm facilitated broadband service in those blocks. For purposes of this representation, “‘Facilitate’ means a communication service provider’s ability to provide broadband service at or above the download and upload speeds specified in the definition of targeted service area in this section to a home, farm, school, or business **within a commercially reasonable time and at a commercially reasonable price upon request by a consumer.**” Iowa Code § 8B.1(5) (emphasis added).
 - b) Fully complete all other aspects of the Form.
- 2) In addition to the form, please also submit any other evidence or information in your possession to the Office that supports your prior representations to the Office regarding the Census Blocks identified in Exhibit A. Examples of evidence and information the Office would consider particularly probative include “Bills or invoices provided to or received by customers in the

³See Iowa Code § 8B.10(2); Iowa Admin. Code r. 129—20.5.

applicable census block(s) which identify the specific download and upload speeds provided or received as of [July 1, 2021].” Iowa Admin. Code r. 129—20.5(8).

Please return the completed form and any supporting evidence or information to ociogrants@iowa.gov.

Please note that you are under no legal obligation to respond to this request for information. Generally, pursuant to applicable administrative rules, any affected person or party is free to submit evidence or information to the Office in support of or in opposition to an appeal within 20 days after the appeal has been posted to ocio.iowa.gov/broadband. Iowa Admin. Code r. 129—20.5(3). However, this Office is affirmatively reaching out to notify you of the appeal, of the circumstances surrounding the appeal, and to solicit your feedback and position. If this Office does not receive your response via Exhibit A of the Form by **August 11, 2021** (10 business days from the date of this letter), the Office will make a final decision based on the evidence and information currently available to it. Iowa Admin. Code r. 129—20.5(4), (5).

OCIO strives at all times to produce and disseminate accurate information. We appreciate your assistance in helping us achieve our statutory mandate.

Sincerely,

Office of the Chief Information Officer,
State of Iowa

**EXHIBIT A****Affirmation of Service or Lack of Service in Census Blocks
Broadband Grants Program Broadband Availability Map Challenge Process****A. RESPONDENT INFORMATION**

Company Name	LTD Broadband LLC
Address	69 Teahouse Street
City	Las Vegas
State	NV
Zip	89138

B. DESIGNATED CONTACT INFORMATION

Contact Name	Corey Hauer
Contact Phone Number	(507) 318-0143
Contact Email	coreyhauer@ltdbroadband.com

C. AFFIRMATION

In signing and submitting this form, the above-identified company, and its duly authorized representative signing on behalf thereof, hereby affirms under penalty of perjury that, as represented in its submission:

Company, consistent with the representations made in this form, and regardless of whether your company's prior reporting to the FCC or State of Iowa was correct or in error, meets one of the following criteria in each of the identified census blocks as of July 1, 2021:

1. Company Facilitated service at the indicated speeds on the Affirmation tab as of July 1, 2021 to more than 10% of the census block; or
2. Company did NOT offer or Facilitate material Broadband service.

Please indicate the speeds offered for each census block on the Affirmation tab.

D. ADDITIONAL EXPLANATION (To the extent you believe additional explanation is required to ensure that you are communicating full and accurate information, please use the below space to further explain, qualify, or substantiate your above affirmation. To the extent necessary, please feel free to upload additional explanations/supporting documentation.)

LTD Broadband is capable of more than 250/250 in most of our network. This is for dedicated commercial plans. Speeds of 1000/1000 are available to most locations but it is not uniformly available. Our 250/250 plans are uniformly available to at least 10% of every census block we report.

E. SIGNATURE* By typing your full name you are affixing your signature to this form and attesting to the accuracy of the information submitted herein.

Authorized Signature:	<i>Corey Hauer</i>
Title:	CEO
Date:	8/1/2021

*PLEASE READ BEFORE SIGNING: By signing and submitting this form, I, on my own behalf or as a representative of the company identified above, as applicable, expressly represent that I am authorized to make the above factual representation on behalf of said company and/or myself, as applicable, and under penalty of perjury as authorized by Iowa Code section 622.1 and pursuant to the laws of the state of Iowa, certify the following with respect to this form submitted on behalf of said company and/or myself: any statements, representations, warranties, certifications, or attestations made in this form, including any attachments or enclosures associated therewith, are true and accurate; I, on behalf of said company and/or myself, have not knowingly made any false statements or representations in this form. In addition to any criminal penalties authorized by Iowa Code section 720.2 that may result from any false statements of material fact made herein or any other remedies available at law, equity, or otherwise, if it is subsequently determined that I have made a statement, representation, warranty, certification, or attestation in this form, or any attachments or enclosures associated herewith, that is later proven untrue in any material respect, the company on which I submitted this form on behalf of may be disqualified from current incentive programs administered by the Office or may be ordered to repay the Office the entire amount of any funds previously distributed by the Office to said company in connection with any current incentive programs administered by the Office. OCIO makes no guarantees as to whether the information supplied by you will result in any change to the Broadband Availability Map V4 or the way any incentive decisions are reviewed, scored, or decided. This form, as completed, any attachments hereto, and any other information or materials submitted to the Office in connection with this form or related inquiry, shall be considered public records and shall be made available for public examination and/or disseminated upon request by third parties as required by Iowa Code chapter 22. The Office reserves the right to reject this form and relatedly consider any information communicated through this form as neither credible nor probative if this form is not fully and properly filled out.

Please familiarize yourself with the following terms prior to determining whether broadband service is being Facilitated to the census block.

Facilitate

A communication service provider's ability to provide broadband service at or above the download and upload speeds defined above to a home, farm, school, or business within a commercially reasonable time and at a commercially reasonable price upon request by a consumer. This does *not* pertain to the Broadband Infrastructure used to facilitate said service; Broadband Infrastructure is *not* a basis for appeal.

CENSUS BLOCK ID	Do you Facilitate service to more than 10% of the geographic area of the Census Block?	Download Speed	Upload Speed
190693601001144	Yes	250 Mbps	250 Mbps
190693601001145	Yes	250 Mbps	250 Mbps
190693601001168	Yes	250 Mbps	250 Mbps
190693601001169	Yes	250 Mbps	250 Mbps
190693601001171	Yes	250 Mbps	250 Mbps
190693601001172	Yes	250 Mbps	250 Mbps
190693601001174	Yes	250 Mbps	250 Mbps
190693601002002	Yes	250 Mbps	250 Mbps
190693601002007	Yes	250 Mbps	250 Mbps
190693601002009	Yes	250 Mbps	250 Mbps
190693601002010	Yes	250 Mbps	250 Mbps
190693601002013	Yes	250 Mbps	250 Mbps
190693601002014	Yes	250 Mbps	250 Mbps

190693601002016	Yes	250 Mbps	250 Mbps
190693601002017	Yes	250 Mbps	250 Mbps
190693601002022	Yes	250 Mbps	250 Mbps
190693601002025	Yes	250 Mbps	250 Mbps
190693601002031	Yes	250 Mbps	250 Mbps
190693601002034	Yes	250 Mbps	250 Mbps
190693601002036	Yes	250 Mbps	250 Mbps
190693601002038	Yes	250 Mbps	250 Mbps
190693601002039	Yes	250 Mbps	250 Mbps
190693601002053	Yes	250 Mbps	250 Mbps
190693601002054	Yes	250 Mbps	250 Mbps
190693601002068	Yes	250 Mbps	250 Mbps
190693601002071	Yes	250 Mbps	250 Mbps
190693601002072	Yes	250 Mbps	250 Mbps
190693601002073	Yes	250 Mbps	250 Mbps
190693601002074	Yes	250 Mbps	250 Mbps
190693601002076	Yes	250 Mbps	250 Mbps
190693601002079	Yes	250 Mbps	250 Mbps
190693601002080	Yes	250 Mbps	250 Mbps
190693601002082	Yes	250 Mbps	250 Mbps
190693601002084	Yes	250 Mbps	250 Mbps
190693601002088	Yes	250 Mbps	250 Mbps
190693601002096	Yes	250 Mbps	250 Mbps
190693601002097	Yes	250 Mbps	250 Mbps
190693601002098	Yes	250 Mbps	250 Mbps
190693601002099	Yes	250 Mbps	250 Mbps
190693601002110	Yes	250 Mbps	250 Mbps
190693601002112	Yes	250 Mbps	250 Mbps
190693601002116	Yes	250 Mbps	250 Mbps
190693601002118	Yes	250 Mbps	250 Mbps
190693601002119	Yes	250 Mbps	250 Mbps
190693601002122	Yes	250 Mbps	250 Mbps
190693601002124	Yes	250 Mbps	250 Mbps
190693601002127	Yes	250 Mbps	250 Mbps
190693601002128	Yes	250 Mbps	250 Mbps
190693601002131	Yes	250 Mbps	250 Mbps

190693601002138	Yes	250 Mbps	250 Mbps
190693601002139	Yes	250 Mbps	250 Mbps
190693601002140	Yes	250 Mbps	250 Mbps
190693601002142	Yes	250 Mbps	250 Mbps
190693601002144	Yes	250 Mbps	250 Mbps
190693601002151	Yes	250 Mbps	250 Mbps
190693601002153	Yes	250 Mbps	250 Mbps
190693601002159	Yes	250 Mbps	250 Mbps
190693601003017	Yes	250 Mbps	250 Mbps
190693601003018	Yes	250 Mbps	250 Mbps
190693601003019	Yes	250 Mbps	250 Mbps
190693601003020	Yes	250 Mbps	250 Mbps
190693601003024	Yes	250 Mbps	250 Mbps
190693601003026	Yes	250 Mbps	250 Mbps
190693601003028	Yes	250 Mbps	250 Mbps
190693601003030	Yes	250 Mbps	250 Mbps
190693601003033	Yes	250 Mbps	250 Mbps
190693601003292	Yes	250 Mbps	250 Mbps
190693601003293	Yes	250 Mbps	250 Mbps
190693602001086	Yes	250 Mbps	250 Mbps
190693602001092	Yes	250 Mbps	250 Mbps
190119606002006	Yes	250 Mbps	250 Mbps
190119606002007	Yes	250 Mbps	250 Mbps
190119606002008	Yes	250 Mbps	250 Mbps
190119606002009	Yes	250 Mbps	250 Mbps
190119606002012	Yes	250 Mbps	250 Mbps
190119606002014	Yes	250 Mbps	250 Mbps
190119606002015	Yes	250 Mbps	250 Mbps
190119606002016	Yes	250 Mbps	250 Mbps
190119606002017	Yes	250 Mbps	250 Mbps
190119606002018	Yes	250 Mbps	250 Mbps
190119606002020	Yes	250 Mbps	250 Mbps
190119606002029	Yes	250 Mbps	250 Mbps
190119606002032	Yes	250 Mbps	250 Mbps
190119606002039	Yes	250 Mbps	250 Mbps
190119606002084	Yes	250 Mbps	250 Mbps

190119606002085	Yes	250 Mbps	250 Mbps
190119606003105	Yes	250 Mbps	250 Mbps
190119606003106	Yes	250 Mbps	250 Mbps
190119606003110	Yes	250 Mbps	250 Mbps
190119606003111	Yes	250 Mbps	250 Mbps
190119606003112	Yes	250 Mbps	250 Mbps
190119606003114	Yes	250 Mbps	250 Mbps
190119606003115	Yes	250 Mbps	250 Mbps
190119606003117	Yes	250 Mbps	250 Mbps
190119606003118	Yes	250 Mbps	250 Mbps
190119606003120	Yes	250 Mbps	250 Mbps
190119607001000	Yes	250 Mbps	250 Mbps
190119607001001	Yes	250 Mbps	250 Mbps
190119607001002	Yes	250 Mbps	250 Mbps
190119607001003	Yes	250 Mbps	250 Mbps
190119607002000	Yes	250 Mbps	250 Mbps
190119607002001	Yes	250 Mbps	250 Mbps
190119607002002	Yes	250 Mbps	250 Mbps
190119607002006	Yes	250 Mbps	250 Mbps
190119607002007	Yes	250 Mbps	250 Mbps
190119607002009	Yes	250 Mbps	250 Mbps
191712906003001	Yes	250 Mbps	250 Mbps
191712906003002	Yes	250 Mbps	250 Mbps
191712906003011	Yes	250 Mbps	250 Mbps
191712906003013	Yes	250 Mbps	250 Mbps
191712906003018	Yes	250 Mbps	250 Mbps
191712906003020	Yes	250 Mbps	250 Mbps
191712906003021	Yes	250 Mbps	250 Mbps
191712906003031	Yes	250 Mbps	250 Mbps
191712906003067	Yes	250 Mbps	250 Mbps
191712906003071	Yes	250 Mbps	250 Mbps
191712906003072	Yes	250 Mbps	250 Mbps
191712906003085	Yes	250 Mbps	250 Mbps
191712906003086	Yes	250 Mbps	250 Mbps
191712906003088	Yes	250 Mbps	250 Mbps
191712906003089	Yes	250 Mbps	250 Mbps

191712906003090	Yes	250 Mbps	250 Mbps
191712906004080	Yes	250 Mbps	250 Mbps
191712906004081	Yes	250 Mbps	250 Mbps
191712906004142	Yes	250 Mbps	250 Mbps
191130102001014	Yes	250 Mbps	250 Mbps
191130102001026	Yes	250 Mbps	250 Mbps
191130102001027	Yes	250 Mbps	250 Mbps
191130102001040	Yes	250 Mbps	250 Mbps
190199506002169	Yes	250 Mbps	250 Mbps
190199506002172	Yes	250 Mbps	250 Mbps
190199506002173	Yes	250 Mbps	250 Mbps
190199506002174	Yes	250 Mbps	250 Mbps
190199506002175	Yes	250 Mbps	250 Mbps
190199506002203	Yes	250 Mbps	250 Mbps
191130102001001	Yes	250 Mbps	250 Mbps
191130102001002	Yes	250 Mbps	250 Mbps
191130102001006	Yes	250 Mbps	250 Mbps
191130102001007	Yes	250 Mbps	250 Mbps
191130102001008	Yes	250 Mbps	250 Mbps
191130102001010	Yes	250 Mbps	250 Mbps
191130102001012	Yes	250 Mbps	250 Mbps
191130102001041	Yes	250 Mbps	250 Mbps
191130102001044	Yes	250 Mbps	250 Mbps
191130102001046	Yes	250 Mbps	250 Mbps
191130102001048	Yes	250 Mbps	250 Mbps
191130102001049	Yes	250 Mbps	250 Mbps
191130102001050	Yes	250 Mbps	250 Mbps
191130102001051	Yes	250 Mbps	250 Mbps
191130102001052	Yes	250 Mbps	250 Mbps
191130102001058	Yes	250 Mbps	250 Mbps
191130102001062	Yes	250 Mbps	250 Mbps
191130102001063	Yes	250 Mbps	250 Mbps
191130102001071	Yes	250 Mbps	250 Mbps
191130102001072	Yes	250 Mbps	250 Mbps
191130102001075	Yes	250 Mbps	250 Mbps
191130102001080	Yes	250 Mbps	250 Mbps

191130102001088	Yes	250 Mbps	250 Mbps
190199506002019	Yes	250 Mbps	250 Mbps
190199506002056	Yes	250 Mbps	250 Mbps
190199506002060	Yes	250 Mbps	250 Mbps
190199506002094	Yes	250 Mbps	250 Mbps
190199506002095	Yes	250 Mbps	250 Mbps
190199506002106	Yes	250 Mbps	250 Mbps
190199506002110	Yes	250 Mbps	250 Mbps

July 28, 2021

Office of the Chief Information Officer of the State of Iowa
c/o Matt Behrens
200 E. Grand Avenue
Des Moines, IA 50309

Rise Broadband
Casey Arnold
carnold@risebroadband.com

OCIO did not receive a response from this provider.

To whom it may concern:

This is a letter of inquiry concerning your firm's prior reporting to the State of Iowa Office of the Chief Information Officer ("OCIO" or "Office") regarding the availability of Broadband service in certain United States Census Block(s) within Iowa. Our Office received a formal notice of appeal challenging information reported on the Broadband Availability Map Version 4 ("V4") of the Statewide Broadband Availability Map ("Map"). The data reflected on V4 of the Map was either (1) provided by you to the Office's contractor ("Connected Nation") during the data collection window of April 15 through April 30, 2021, (2) gathered from other sources (such as FCC) that collected data from you, or (3) carried forward from prior reporting made to this Office by you under a previous Map version. Map V4 categorizes census blocks according to the facilitated speed offered within the block. The publication of V4 triggered a formal appeal window, as explained in more detail below, during which time we received this appeal. The appeal we received claims that the data reflected on V4 of the Map is inaccurate. This appeal can be found at <https://ocio.iowa.gov/broadband-availability-map-version-4-challenge-process> (see Docket Numbers 21-1011, 21-1030, 21-1032, 21-1033, 21-1037, 21-1038). **To resolve this matter, the Office requests that your firm provide information concerning your service in the affected Census Blocks as further identified and described below by August 11, 2021.**

On July 1, 2021, the Office officially published the final version of V4 of the Map, which identifies where Broadband service was offered or Facilitated at a tier 1, tier 2, or tier 3 speed as of July 1, 2021.¹ V4 of the Map is based primarily on data submitted to Connected Nation and/or FCC by Communication Service Providers concerning their service capabilities in the State of Iowa² and on informal comments/feedback supplied by interested parties as part of the informal comment/feedback process described above and in which your firm may have participated. V4 of the Map, and a detailed background of the same, can be found at: <https://ocio.iowa.gov/broadband-availability-map-version-4>. Overall, the new map reflects Targeted Service Areas defined as a census block within which no communications service provider offers or facilitates broadband service at or above the tier 1, tier 2, or tier 3 download and upload speeds. The tier speeds are defined as follows:

¹See Iowa Code §§ 8B.1(12), 8B.10. See also Iowa Admin. Code r. 129—20.1, 20.3, 20.4.

²See Iowa Admin. Code r. 129—20.3.

“**Tier 1**” means a maximum download speed of less than 25 Mbps and a maximum upload speed of less than three Mbps.

“**Tier 2**” means a minimum download speed of greater than or equal to 25 Mbps but less than 50 Mbps. No minimum upload speed is applicable for Tier 2.

“**Tier 3**” means a minimum download speed of greater than or equal to 50 Mbps but less than 80 Mbps. No minimum upload speed is applicable for Tier 3.

“**Non-TSA**” means a census block in which speeds are facilitated at greater than or equal to 80 Mbps.

Through the official publication of V4 of the Map, the Office triggered the challenge process it is required by law to administer.³ Pursuant to applicable administrative rules, within 20 days after the Office’s official publication of V4 of the Map, “any person or party aggrieved or adversely affected by such determination may challenge the office’s finding by filing a notice of appeal with the office” along with all evidence or information supporting their appeal. Iowa Admin. Code r. 129—20.5(1). Specifically, interested parties were permitted to provide the Office with evidence and information of the following: broadband is unavailable from a provider listed for the area (census block); or, that broadband speed is not as advertised.

V4 of the Map currently shows that service is Facilitated at either a tier 1, tier 2, or tier 3 speed per designated census block. As part of the above-outlined process, OCIO received a formal notice of appeal and supporting evidence or information from one or more Iowa residents or Communications Service Provider, claiming that Broadband service is not offered or Facilitated at that speed tier.

At this time, the Office requests your assistance in making an accurate determination as to whether your firm facilitates broadband service at the designated speed tier for 10% or more of the geographic area of each challenged census block as of July 1, 2021 to the Census Blocks identified in Exhibit A. To that end, the Office requests that you:

- 1) Complete and return the attached Affirmation of Service or Lack of Service in Census Blocks Broadband Grants Program Broadband Availability Map Challenge Process Form (see Exhibit A, Affirmation tab), by **August 11, 2021**. Pursuant to this form, OCIO requests that a representative with legal authority to bind your firm:
 - a) Confirm that your firm Facilitated Broadband service to the Census Blocks identified in Exhibit A as of July 1, 2021, and indicate the speeds at which your firm facilitated broadband service in those blocks. For purposes of this representation, “‘Facilitate’ means a communication service provider’s ability to provide broadband service at or above the download and upload speeds specified in the definition of targeted service area in this section to a home, farm, school, or business **within a commercially reasonable time and at a commercially reasonable price upon request by a consumer.**” Iowa Code § 8B.1(5) (emphasis added).
 - b) Fully complete all other aspects of the Form.
- 2) In addition to the form, please also submit any other evidence or information in your possession to the Office that supports your prior representations to the Office regarding the Census Blocks identified in Exhibit A. Examples of evidence and information the Office would consider particularly probative include “Bills or invoices provided to or received by customers in the

³See Iowa Code § 8B.10(2); Iowa Admin. Code r. 129—20.5.

applicable census block(s) which identify the specific download and upload speeds provided or received as of [July 1, 2021].” Iowa Admin. Code r. 129—20.5(8).

Please return the completed form and any supporting evidence or information to ociogrants@iowa.gov.

Please note that you are under no legal obligation to respond to this request for information. Generally, pursuant to applicable administrative rules, any affected person or party is free to submit evidence or information to the Office in support of or in opposition to an appeal within 20 days after the appeal has been posted to ocio.iowa.gov/broadband. Iowa Admin. Code r. 129—20.5(3). However, this Office is affirmatively reaching out to notify you of the appeal, of the circumstances surrounding the appeal, and to solicit your feedback and position. If this Office does not receive your response via Exhibit A of the Form by **August 11, 2021** (10 business days from the date of this letter), the Office will make a final decision based on the evidence and information currently available to it. Iowa Admin. Code r. 129—20.5(4), (5).

OCIO strives at all times to produce and disseminate accurate information. We appreciate your assistance in helping us achieve our statutory mandate.

Sincerely,

Office of the Chief Information Officer,
State of Iowa

July 28, 2021

Office of the Chief Information Officer of the State of Iowa
c/o Matt Behrens
200 E. Grand Avenue
Des Moines, IA 50309

Router12 Networks
Ryan Malek
rmalek@router12.net

To whom it may concern:

This is a letter of inquiry concerning your firm's prior reporting to the State of Iowa Office of the Chief Information Officer ("OCIO" or "Office") regarding the availability of Broadband service in certain United States Census Block(s) within Iowa. Our Office received a formal notice of appeal challenging information reported on the Broadband Availability Map Version 4 ("V4") of the Statewide Broadband Availability Map ("Map"). The data reflected on V4 of the Map was either (1) provided by you to the Office's contractor ("Connected Nation") during the data collection window of April 15 through April 30, 2021, (2) gathered from other sources (such as FCC) that collected data from you, or (3) carried forward from prior reporting made to this Office by you under a previous Map version. Map V4 categorizes census blocks according to the facilitated speed offered within the block. The publication of V4 triggered a formal appeal window, as explained in more detail below, during which time we received this appeal. The appeal we received claims that the data reflected on V4 of the Map is inaccurate. This appeal can be found at <https://ocio.iowa.gov/broadband-availability-map-version-4-challenge-process> (see Docket Numbers 21-1030). **To resolve this matter, the Office requests that your firm provide information concerning your service in the affected Census Blocks as further identified and described below by August 11, 2021.**

On July 1, 2021, the Office officially published the final version of V4 of the Map, which identifies where Broadband service was offered or Facilitated at a tier 1, tier 2, or tier 3 speed as of July 1, 2021.¹ V4 of the Map is based primarily on data submitted to Connected Nation and/or FCC by Communication Service Providers concerning their service capabilities in the State of Iowa² and on informal comments/feedback supplied by interested parties as part of the informal comment/feedback process described above and in which your firm may have participated. V4 of the Map, and a detailed background of the same, can be found at: <https://ocio.iowa.gov/broadband-availability-map-version-4>. Overall, the new map reflects Targeted Service Areas defined as a census block within which no communications service provider offers or facilitates broadband service at or above the tier 1, tier 2, or tier 3 download and upload speeds. The tier speeds are defined as follows:

"Tier 1" means a maximum download speed of less than 25 Mbps and a maximum upload speed of less

¹See Iowa Code §§ 8B.1(12), 8B.10. *See also* Iowa Admin. Code r. 129—20.1, 20.3, 20.4.

²See Iowa Admin. Code r. 129—20.3.

than three Mbps.

“**Tier 2**” means a minimum download speed of greater than or equal to 25 Mbps but less than 50 Mbps. No minimum upload speed is applicable for Tier 2.

“**Tier 3**” means a minimum download speed of greater than or equal to 50 Mbps but less than 80 Mbps. No minimum upload speed is applicable for Tier 3.

“**Non-TSA**” means a census block in which speeds are facilitated at greater than or equal to 80 Mbps.

Through the official publication of V4 of the Map, the Office triggered the challenge process it is required by law to administer.³ Pursuant to applicable administrative rules, within 20 days after the Office’s official publication of V4 of the Map, “any person or party aggrieved or adversely affected by such determination may challenge the office’s finding by filing a notice of appeal with the office” along with all evidence or information supporting their appeal. Iowa Admin. Code r. 129—20.5(1). Specifically, interested parties were permitted to provide the Office with evidence and information of the following: broadband is unavailable from a provider listed for the area (census block); or, that broadband speed is not as advertised.

V4 of the Map currently shows that service is Facilitated at either a tier 1, tier 2, or tier 3 speed per designated census block. As part of the above-outlined process, OCIO received a formal notice of appeal and supporting evidence or information from one or more Iowa residents or Communications Service Provider, claiming that Broadband service is not offered or Facilitated at that speed tier.

At this time, the Office requests your assistance in making an accurate determination as to whether your firm facilitates broadband service at the designated speed tier for 10% or more of the geographic area of each challenged census block as of July 1, 2021 to the Census Blocks identified in Exhibit A. To that end, the Office requests that you:

- 1) Complete and return the attached Affirmation of Service or Lack of Service in Census Blocks Broadband Grants Program Broadband Availability Map Challenge Process Form (see Exhibit A, Affirmation tab), by **August 11, 2021**. Pursuant to this form, OCIO requests that a representative with legal authority to bind your firm:
 - a) Confirm that your firm Facilitated Broadband service to the Census Blocks identified in Exhibit A as of July 1, 2021, and indicate the speeds at which your firm facilitated broadband service in those blocks. For purposes of this representation, “‘Facilitate’ means a communication service provider’s ability to provide broadband service at or above the download and upload speeds specified in the definition of targeted service area in this section to a home, farm, school, or business **within a commercially reasonable time and at a commercially reasonable price upon request by a consumer.**” Iowa Code § 8B.1(5) (emphasis added).
 - b) Fully complete all other aspects of the Form.
- 2) In addition to the form, please also submit any other evidence or information in your possession to the Office that supports your prior representations to the Office regarding the Census Blocks identified in Exhibit A. Examples of evidence and information the Office would consider particularly probative include “Bills or invoices provided to or received by customers in the

³See Iowa Code § 8B.10(2); Iowa Admin. Code r. 129—20.5.

applicable census block(s) which identify the specific download and upload speeds provided or received as of [July 1, 2021].” Iowa Admin. Code r. 129—20.5(8).

Please return the completed form and any supporting evidence or information to ociogrants@iowa.gov.

Please note that you are under no legal obligation to respond to this request for information. Generally, pursuant to applicable administrative rules, any affected person or party is free to submit evidence or information to the Office in support of or in opposition to an appeal within 20 days after the appeal has been posted to ocio.iowa.gov/broadband. Iowa Admin. Code r. 129—20.5(3). However, this Office is affirmatively reaching out to notify you of the appeal, of the circumstances surrounding the appeal, and to solicit your feedback and position. If this Office does not receive your response via Exhibit A of the Form by **August 11, 2021** (10 business days from the date of this letter), the Office will make a final decision based on the evidence and information currently available to it. Iowa Admin. Code r. 129—20.5(4), (5).

OCIO strives at all times to produce and disseminate accurate information. We appreciate your assistance in helping us achieve our statutory mandate.

Sincerely,

Office of the Chief Information Officer,
State of Iowa



EXHIBIT A

Affirmation of Service or Lack of Service in Census Blocks Broadband Grants Program Broadband Availability Map Challenge Process

A. RESPONDENT INFORMATION

Company Name	Router12 Networks
Address	402 19th St SW, STE B
City	Mason City
State	Iowa
Zip	50401

B. DESIGNATED CONTACT INFORMATION

Contact Name	Ryan Malek
Contact Phone Number	641-420-7180
Contact Email	rmalek@router12.net

C. AFFIRMATION

In signing and submitting this form, the above-identified company, and its duly authorized representative signing on behalf thereof, hereby affirms under penalty of perjury that, as represented in its submission:

Company, consistent with the representations made in this form, and regardless of whether your company's prior reporting to the FCC or State of Iowa was correct or in error, meets one of the following criteria in each of the identified census blocks as of July 1, 2021:

1. Company Facilitated service at the indicated speeds on the Affirmation tab as of July 1, 2021 to more than 10% of the census block; or
2. Company did NOT offer or Facilitate material Broadband service.

Please indicate the speeds offered for each census block on the Affirmation tab.

D. ADDITIONAL EXPLANATION (To the extent you believe additional explanation is required to ensure that you are communicating full and accurate information, please use the below space to further explain, qualify, or substantiate your above affirmation. To the extent necessary, please feel free to upload additional explanations/supporting documentation.)

It is Router12 Networks stance that the information provided to the OCIO via Connected Nation and the FCC's 477 report is an accurate of our capabilities in these disputed census blocks. The outdated report provided by Dumont Telephone Company and prepared by Huntel Engineering does not account for the vast improvements in wireless technology in recent years. The report has several disclaimers indicating it is for demonstration purposes. As the report itself states "The performance for a wireless network can not be given in general terms, covering a large area. Each location needs to be evaluated on its own." Router12 Networks specifically tests and monitors every location it installs to verify that the advertised speeds are available.

Further, we excel at finding solutions for every item listed in their "challenges for fixed wireless".

Distance - Using a cpe with proper gain

E. SIGNATURE* By typing your full name you are affixing your signature to this form and attesting to the accuracy of the information submitted herein.

Authorized Signature:	Ryan Malek
Title:	CEO
Date:	8/10/2021

***PLEASE READ BEFORE SIGNING:** By signing and submitting this form, I, on my own behalf or as a representative of the company identified above, as applicable, expressly represent that I am authorized to make the above factual representation on behalf of said company and/or myself, as applicable, and under penalty of perjury as authorized by Iowa Code section 622.1 and pursuant to the laws of the state of Iowa, certify the following with respect to this form submitted on behalf of said company and/or myself: any statements, representations, warranties, certifications, or attestations made in this form, including any attachments or enclosures associated therewith, are true and accurate; I, on behalf of said company and/or myself, have not knowingly made any false statements or representations in this form. In addition to any criminal penalties authorized by Iowa Code section 720.2 that may result from any false statements of material fact made herein or any other remedies available at law, equity, or otherwise, if it is subsequently determined that I have made a statement, representation, warranty, certification, or attestation in this form, or any attachments or enclosures associated herewith, that is later proven untrue in any material respect, the company on which I submitted this form on behalf of may be disqualified from current incentive programs administered by the Office or may be ordered to repay the Office the entire amount of any funds previously distributed by the Office to said company in connection with any current incentive programs administered by the Office. OCIO makes no guarantees as to whether the information supplied by you will result in any change to the Broadband Availability Map V4 or the way any incentive decisions are reviewed, scored, or decided. This form, as completed, any attachments hereto, and any other information or materials submitted to the Office in connection with this form or related inquiry, shall be considered public records and shall be made available for public examination and/or disseminated upon request by third parties as required by Iowa Code chapter 22. The Office reserves the right to reject this form and relatedly consider any information communicated through this form as neither credible nor probative if this form is not fully and properly filled out.

Please familiarize yourself with the following terms prior to determining whether broadband service is being Facilitated to the census block.

Facilitate

A communication service provider's ability to provide broadband service at or above the download and upload speeds defined above to a home, farm, school, or business within a commercially reasonable time and at a commercially reasonable price upon request by a consumer. This does *not* pertain to the Broadband Infrastructure used to facilitate said service; Broadband Infrastructure is *not* a basis for appeal.

CENSUS BLOCK ID	Do you Facilitate service to more than 10% of the geographic area of the Census Block?	Download Speed	Upload Speed
190693601001144	Yes	100 Mbps	20 Mbps
190693601001145	Yes	100 Mbps	20 Mbps
190693601001168	Yes	100 Mbps	20 Mbps
190693601001169	Yes	100 Mbps	20 Mbps
190693601001171	Yes	100 Mbps	20 Mbps
190693601001172	Yes	100 Mbps	20 Mbps
190693601001174	Yes	100 Mbps	20 Mbps
190693601002007	Yes	100 Mbps	20 Mbps
190693601002009	Yes	100 Mbps	20 Mbps
190693601002013	Yes	100 Mbps	20 Mbps
190693601002014	Yes	100 Mbps	20 Mbps
190693601002016	Yes	100 Mbps	20 Mbps
190693601002017	Yes	100 Mbps	20 Mbps

[illegible]

July 28, 2021

Office of the Chief Information Officer of the State of Iowa
c/o Matt Behrens
200 E. Grand Avenue
Des Moines, IA 50309

United States Cellular Corporation
Kathy Hust
kathy.hust@uscellular.com

To whom it may concern:

This is a letter of inquiry concerning your firm's prior reporting to the State of Iowa Office of the Chief Information Officer ("OCIO" or "Office") regarding the availability of Broadband service in certain United States Census Block(s) within Iowa. Our Office received a formal notice of appeal challenging information reported on the Broadband Availability Map Version 4 ("V4") of the Statewide Broadband Availability Map ("Map"). The data reflected on V4 of the Map was either (1) provided by you to the Office's contractor ("Connected Nation") during the data collection window of April 15 through April 30, 2021, (2) gathered from other sources (such as FCC) that collected data from you, or (3) carried forward from prior reporting made to this Office by you under a previous Map version. Map V4 categorizes census blocks according to the facilitated speed offered within the block. The publication of V4 triggered a formal appeal window, as explained in more detail below, during which time we received this appeal. The appeal we received claims that the data reflected on V4 of the Map is inaccurate. This appeal can be found at <https://ocio.iowa.gov/broadband-availability-map-version-4-challenge-process> (see Docket Numbers 21-1021, 21-1030, 21-1031, 21-1032, 21-1033, 21-1034, 21-1037, 21-1038). **To resolve this matter, the Office requests that your firm provide information concerning your service in the affected Census Blocks as further identified and described below by August 11, 2021.**

On July 1, 2021, the Office officially published the final version of V4 of the Map, which identifies where Broadband service was offered or Facilitated at a tier 1, tier 2, or tier 3 speed as of July 1, 2021.¹ V4 of the Map is based primarily on data submitted to Connected Nation and/or FCC by Communication Service Providers concerning their service capabilities in the State of Iowa² and on informal comments/feedback supplied by interested parties as part of the informal comment/feedback process described above and in which your firm may have participated. V4 of the Map, and a detailed background of the same, can be found at: <https://ocio.iowa.gov/broadband-availability-map-version-4>. Overall, the new map reflects Targeted Service Areas defined as a census block within which no communications service provider offers or facilitates broadband service at or above the tier 1, tier 2, or tier 3 download and upload speeds. The tier speeds are defined as follows:

¹See Iowa Code §§ 8B.1(12), 8B.10. See also Iowa Admin. Code r. 129—20.1, 20.3, 20.4.

²See Iowa Admin. Code r. 129—20.3.

“**Tier 1**” means a maximum download speed of less than 25 Mbps and a maximum upload speed of less than three Mbps.

“**Tier 2**” means a minimum download speed of greater than or equal to 25 Mbps but less than 50 Mbps. No minimum upload speed is applicable for Tier 2.

“**Tier 3**” means a minimum download speed of greater than or equal to 50 Mbps but less than 80 Mbps. No minimum upload speed is applicable for Tier 3.

“**Non-TSA**” means a census block in which speeds are facilitated at greater than or equal to 80 Mbps.

Through the official publication of V4 of the Map, the Office triggered the challenge process it is required by law to administer.³ Pursuant to applicable administrative rules, within 20 days after the Office’s official publication of V4 of the Map, “any person or party aggrieved or adversely affected by such determination may challenge the office’s finding by filing a notice of appeal with the office” along with all evidence or information supporting their appeal. Iowa Admin. Code r. 129—20.5(1). Specifically, interested parties were permitted to provide the Office with evidence and information of the following: broadband is unavailable from a provider listed for the area (census block); or, that broadband speed is not as advertised.

V4 of the Map currently shows that service is Facilitated at either a tier 1, tier 2, or tier 3 speed per designated census block. As part of the above-outlined process, OCIO received a formal notice of appeal and supporting evidence or information from one or more Iowa residents or Communications Service Provider, claiming that Broadband service is not offered or Facilitated at that speed tier.

At this time, the Office requests your assistance in making an accurate determination as to whether your firm facilitates broadband service at the designated speed tier for 10% or more of the geographic area of each challenged census block as of July 1, 2021 to the Census Blocks identified in Exhibit A. To that end, the Office requests that you:

- 1) Complete and return the attached Affirmation of Service or Lack of Service in Census Blocks Broadband Grants Program Broadband Availability Map Challenge Process Form (see Exhibit A, Affirmation tab), by **August 11, 2021**. Pursuant to this form, OCIO requests that a representative with legal authority to bind your firm:
 - a) Confirm that your firm Facilitated Broadband service to the Census Blocks identified in Exhibit A as of July 1, 2021, and indicate the speeds at which your firm facilitated broadband service in those blocks. For purposes of this representation, “‘Facilitate’ means a communication service provider’s ability to provide broadband service at or above the download and upload speeds specified in the definition of targeted service area in this section to a home, farm, school, or business **within a commercially reasonable time and at a commercially reasonable price upon request by a consumer.**” Iowa Code § 8B.1(5) (emphasis added).
 - b) Fully complete all other aspects of the Form.
- 2) In addition to the form, please also submit any other evidence or information in your possession to the Office that supports your prior representations to the Office regarding the Census Blocks identified in Exhibit A. Examples of evidence and information the Office would consider particularly probative include “Bills or invoices provided to or received by customers in the

³See Iowa Code § 8B.10(2); Iowa Admin. Code r. 129—20.5.

applicable census block(s) which identify the specific download and upload speeds provided or received as of [July 1, 2021].” Iowa Admin. Code r. 129—20.5(8).

Please return the completed form and any supporting evidence or information to ociogrants@iowa.gov.

Please note that you are under no legal obligation to respond to this request for information. Generally, pursuant to applicable administrative rules, any affected person or party is free to submit evidence or information to the Office in support of or in opposition to an appeal within 20 days after the appeal has been posted to ocio.iowa.gov/broadband. Iowa Admin. Code r. 129—20.5(3). However, this Office is affirmatively reaching out to notify you of the appeal, of the circumstances surrounding the appeal, and to solicit your feedback and position. If this Office does not receive your response via Exhibit A of the Form by **August 11, 2021** (10 business days from the date of this letter), the Office will make a final decision based on the evidence and information currently available to it. Iowa Admin. Code r. 129—20.5(4), (5).

OCIO strives at all times to produce and disseminate accurate information. We appreciate your assistance in helping us achieve our statutory mandate.

Sincerely,

Office of the Chief Information Officer,
State of Iowa



EXHIBIT A

**Affirmation of Service or Lack of Service in Census Blocks
Broadband Grants Program Broadband Availability Map Challenge Process**

A. RESPONDENT INFORMATION

Company Name	United States Cellular Corporation
Address	8410 W. Bryn Mawr
City	Chicago
State	Illinois
Zip	60631

B. DESIGNATED CONTACT INFORMATION

Contact Name	Thomas Hulings
Contact Phone Number	773-355-3625
Contact Email	thomas.hulings@uscellular.com

C. AFFIRMATION

In signing and submitting this form, the above-identified company, and its duly authorized representative signing on behalf thereof, hereby affirms under penalty of perjury that, as represented in its submission:

Company, consistent with the representations made in this form, and regardless of whether your company's prior reporting to the FCC or State of Iowa was correct or in error, meets one of the following criteria in each of the identified census blocks as of July 1, 2021:

1. Company Facilitated service at the indicated speeds on the Affirmation tab as of July 1, 2021 to more than 10% of the census block; or
2. Company did NOT offer or Facilitate material Broadband service.

Please indicate the speeds offered for each census block on the Affirmation tab.

D. ADDITIONAL EXPLANATION (To the extent you believe additional explanation is required to ensure that you are communicating full and accurate information, please use the below space to further explain, qualify, or substantiate your above affirmation. To the extent necessary, please feel free to upload additional explanations/supporting documentation.)

UScellular attests to facilitating service at a minimum of 25/3 Mbps in 31 of the census blocks identified in the OCIO's July 28 letter. These blocks were upgraded to 25/3 Mbps Broadband as part of USCC's NOFA #003 submission and were in service on July 1, 2021. The challengers to these census blocks appear to be unfamiliar with UScellular's service offerings, which is understandable given the recency of these deployments. Some challengers, while not mentioning UScellular, appear to have conflated existing WISP offerings with UScellular's 3GPP 5G FWA product. Such offerings are not comparable in performance, reliability, or scalability.

E. SIGNATURE* By typing your full name you are affixing your signature to this form and attesting to the accuracy of the information submitted herein.

Authorized Signature:	Thomas C. Hulings
Title:	Dir. Business Development & Partnerships
Date:	8/11/2021

*PLEASE READ BEFORE SIGNING: By signing and submitting this form, I, on my own behalf or as a representative of the company identified above, as applicable, expressly represent that I am authorized to make the above factual representation on behalf of said company and/or myself, as applicable, and under penalty of perjury as authorized by Iowa Code section 622.1 and pursuant to the laws of the state of Iowa, certify the following with respect to this form submitted on behalf of said company and/or myself: any statements, representations, warranties, certifications, or attestations made in this form, including any attachments or enclosures associated therewith, are true and accurate; I, on behalf of said company and/or myself, have not knowingly made any false statements or representations in this form. In addition to any criminal penalties authorized by Iowa Code section 720.2 that may result from any false statements of material fact made herein or any other remedies available at law, equity, or otherwise, if it is subsequently determined that I have made a statement, representation, warranty, certification, or attestation in this form, or any attachments or enclosures associated herewith, that is later proven untrue in any material respect, the company on which I submitted this form on behalf of may be disqualified from current incentive programs administered by the Office or may be ordered to repay the Office the entire amount of any funds previously distributed by the Office to said company in connection with any current incentive programs administered by the Office. OCIO makes no guarantees as to whether the information supplied by you will result in any change to the Broadband Availability Map V4 or the way any incentive decisions are reviewed, scored, or decided. This form, as completed, any attachments hereto, and any other information or materials submitted to the Office in connection with this form or related inquiry, shall be considered public records and shall be made available for public examination and/or disseminated upon request by third parties as required by Iowa Code chapter 22. The Office reserves the right to reject this form and relatedly consider any information communicated through this form as neither credible nor probative if this form is not fully and properly filled out.

Please familiarize yourself with the following terms prior to determining whether broadband service is being Facilitated to the census block.

Facilitate

A communication service provider's ability to provide broadband service at or above the download and upload speeds defined above to a home, farm, school, or business within a commercially reasonable time and at a commercially reasonable price upon request by a consumer. This does *not* pertain to the Broadband Infrastructure used to facilitate said service; Broadband Infrastructure is *not* a basis for appeal.

CENSUS BLOCK ID	Do you Facilitate service to more than 10% of the geographic area of the Census Block?	Download Speed	Upload Speed
190019602002020	Yes	25	3
190019602002021	Yes	25	3
190019602002022	Yes	25	3
190019602002027	Yes	25	3
190019602002028	Yes	25	3
190019602002029	Yes	25	3
190019602002030	Yes	25	3
190019602002032	Yes	25	3
190019602002035	Yes	25	3
190019602002049	No		
190019602002054	Yes	25	3
190019602002060	Yes	25	3
190019602002067	Yes	25	3

190019602002077	Yes	25	3
190019602002079	Yes	25	3
190019602002083	No		
190019602002109	No		
190019602002210	Yes	25	3
190019602002305	Yes	25	3
190019603004000	No		
190019603004003	No		
190019603004004	Yes	25	3
190019603004005	No		
190019603004007	No		
190019603004014	Yes	25	3
190019603004016	Yes	25	3
190019603004017	No		
190019603004019	No		
190019603004053	No		
190019603004073	No		
190019603004074	No		
190019603004080	No		
190019603004083	No		
190019603004085	Yes	25	3
190019603004087	No		
190019603004089	No		
190019603004110	Yes	25	3
190019603004114	Yes	25	3
190019603004138	Yes	25	3
190019603004164	No		
190019603004174	Yes	25	3
190019603004175	No		
190693601001144	No		
190693601001145	No		
190693601001168	No		
190693601001169	No		
190693601001172	No		
190693601001174	No		
190693601002118	No		

190693601002119	No		
190693601002122	No		
190693601002138	No		
190693601002142	No		
190693601002144	No		
190693601002151	No		
190693601002153	No		
190693601002159	No		
190693601003017	No		
190693601003018	No		
190693601003019	No		
190693601003020	No		
190693601003024	No		
190693601003026	No		
190693601003028	No		
190693601003030	No		
190693601003033	No		
190693601003292	No		
190693601003293	No		
190693602001086	No		
190693602001092	No		
190119606002006	No		
190119606002007	No		
190119606002008	No		
190119606002009	No		
190119606002012	No		
190119606002013	No		
190119606002014	No		
190119606002015	No		
190119606002016	No		
190119606002017	No		
190119606002018	No		
190119606002020	No		
190119606002029	No		
190119606002032	No		
190119606002039	No		

190119606002083	No
190119606002084	No
190119606002085	No
190119606002087	No
190119606003105	No
190119606003106	No
190119606003109	No
190119606003110	No
190119606003111	No
190119606003112	No
190119606003114	No
190119606003115	No
190119606003117	No
190119606003118	No
190119606003120	No
190119607001000	No
190119607001001	No
190119607001002	No
190119607001003	No
190119607002000	No
190119607002001	No
190119607002002	No
190119607002006	No
190119607002007	No
190119607002009	No
190119607003065	No
190959601002040	No
190959601003028	No
190959601003029	No
190959601003030	Yes
190959601003032	No
190959601003033	No
190959601003035	No
190959601003058	No
190959601003060	No
190959602001084	No

25

3

190959602001085	No
190959602001086	No
190959602001087	No
190959602001089	No
190959602001095	No
190959602001096	No
190959602001097	No
190959602001098	No
190959602001099	No
190959602002000	No
190959602002001	No
190959602002002	No
190959602002003	No
190959602002004	No
190959602002005	No
190959602002006	No
190959602002007	No
190959602002008	No
190959602002009	No
190959602002010	No
190959602002011	No
190959602002012	No
190959602002013	No
190959602002014	No
190959602002015	No
190959602002016	No
190959602002017	No
190959602002018	No
190959602002019	No
190959602002020	No
190959602002021	No
190959602002022	No
190959602002023	No
190959602002024	No
190959602002025	No
190959602002026	No

190959602002027	No		
190959602002028	No		
190959602002029	No		
190959602002030	No		
190959602002032	No		
190959602002033	No		
190959602002034	No		
190959602002035	No		
190959602002036	No		
190959602002037	No		
190959602002038	No		
190959602002039	No		
190959602002070	No		
190959602002071	No		
190959602002103	No		
190959602002104	No		
190959602003000	No		
190959602003001	No		
190959602003026	No		
190959602003028	No		
190959602004000	Yes	25	3
190959602004001	Yes	25	3
190959602004012	No		
190959602004017	No		
190959602004018	No		
190959602004019	No		
190959602004020	No		
190959602004021	No		
190959602004024	No		
190959602004025	No		
190959602004026	Yes	25	3
190959602004142	No		
190959602004143	No		
190959602004145	No		
190959602004147	No		
190959602004148	No		

190959602004150	No	25	3
190959602004154	No		
190959602004159	Yes		
190959602004160	No		
191573701002000	No		
191573701002001	No		
191573701002002	No		
191573701002003	No		
191573701002004	No		
191573701002054	No		
191573701002055	No		
191573701002056	No		
191573701002057	No		
191573701002058	No		
191573701002059	No		
191573701002060	No		
191573701002061	No		
191573701002062	No		
191573701002063	No		
191573701002076	No		
191573701002077	No		
191712906003001	No		
191712906003002	No		
191712906003011	No		
191712906003013	No		
191712906003018	No		
191712906003020	No		
191712906003021	No		
191712906003031	No		
191712906003067	No		
191712906003071	No		
191712906003072	No		
191712906003082	No		
191712906003085	No		
191712906003086	No		
191712906003088	No		

191712906003089	No
191712906003090	No
191712906004044	No
191712906004080	No
191712906004081	No
191712906004084	No
191712906004142	No
191130102001014	No
191130102001016	No
191130102001017	No
191130102001025	No
191130102001026	No
191130102001027	No
191130102001028	No
191130102001029	No
191130102001031	No
191130102001033	No
191130102001034	No
191130102001035	No
191130102001036	No
191130102001038	No
191130102001040	No
190199506002169	No
190199506002172	No
190199506002173	No
190199506002174	No
190199506002175	No
190199506002203	No
191130102001001	No
191130102001002	No
191130102001008	No
191130102001010	No
191130102001012	No
191130102001037	No
191130102001039	No
191130102001041	No

191130102001044	No		
191130102001045	No		
191130102001046	No		
191130102001048	No		
191130102001049	No		
191130102001050	No		
191130102001051	No		
191130102001052	No		
191130102001062	No		
191130102001063	No		
191130102001071	No		
191130102001072	No		
191130102001075	No		
191130102001088	No		
190199501001150	No		
190199506002017	No		
190199506002018	No		
190199506002019	No		
190199506002040	Yes	25	3
190199506002041	No		
190199506002056	No		
190199506002057	No		
190199506002060	No		
190199506002094	No		
190199506002095	No		
190199506002106	No		
190199506002110	No		
190150206001212	No		
190150206001215	No		
190150206001218	No		
190150206001242	No		
190150206001247	No		
190150206001249	No		
190150206001250	No		
190150206001251	No		
190150206001252	No		

190150206001253	No
190150206001255	No
190150206001256	No
190150206001257	No
190150206001258	No
190150206001259	No
190150206001283	No
190150206001284	No
190150206001288	No
190150206001289	No
190150206001290	No
190150206001291	No
190150206001292	No
190150206001293	No
190150206001332	No
190490502002090	No
190490504001025	No
190490504001029	No
190490504001060	No
190490504001061	No
190490504003004	No
190490504003005	No
190490505001000	No
190490505001001	No
190490505001002	No
190490505001003	No
190490505001004	No
190490505001006	No
190490505001009	No
190490505001020	No
190490505001021	No
190490505001024	No
190490505001027	No
190490505001028	No
190490505001029	No
190490505001030	No

190490505001031	No		
190490505001032	No		
190490505001033	No		
190490505001034	No		
190490505001045	No		
190490505001046	No		
190490505001047	No		
190490505001048	No		
190490505001049	No		
190490505001050	No		
190490505001051	No		
190490505001052	No		
190490505001053	No		
190490505001054	No		
190490505001055	Yes	25	3
190490505001057	No		
190490505001058	No		
190490505001059	No		
190490505001060	No		
190490505001065	No		
190490505001069	No		
190490505001071	No		
190490505001073	No		
190490505001074	No		
190490505001075	No		
190490505001076	No		
190490505001077	No		
190490505001078	No		
190490505001079	No		
190490505001080	No		
190490505001081	No		
190490505001082	No		
190490505001083	No		
190490505001089	No		
190490505001098	No		
190490505001099	No		

190490505001104	No
190490505001105	No
190490505001112	No
190490505001113	No
190490505001114	No
190490505001115	No
190490505001116	No
190490505001118	No
190490505001208	No
190730801001117	No
190730801001119	No
190730801001120	No
190730801001153	No
190730801001155	No
190730801001159	No
190730801001161	No
190730801001167	No
190490501003038	No
190490501004034	No
190490501004035	No
190490501004041	No
190490501004042	No
190490502001000	No
190490502001002	No
190490502001003	No
190490502001004	No
190490502001032	No
190490502001035	No
190490502001036	No
190490502001037	No
190490502001038	No
190490502001039	No
190490502001041	No
190490502001042	No
190490502001043	No
190490502001044	No

190490502001045	No
190490502001046	No
190490502001048	No
190490502001051	No
190490502001056	No
190490502001057	No
190490502001060	No
190490502002093	No
190490502002094	No
190490502003000	No
190490505001170	No
190490505001172	No
190490505002001	No
190490505002002	No
190490505002048	No
190490505002049	No
190490505002057	No
190490505002058	No
190490505002063	No
190490505002065	No
190490505002066	No
190490505002070	No
190490505002119	No
190490505002120	No
190490505002128	No
190490507001003	No



Grants, OCIO <ociogrants@iowa.gov>

UScellular response - V4 Map Challenges

Hulings, Thomas C <Thomas.Hulings@uscellular.com>

Wed, Aug 11, 2021 at 7:22 PM

To: "ociogrants@iowa.gov" <ociogrants@iowa.gov>

Cc: "Frakes, Justin C" <Justin.Frakes@uscellular.com>

Hello,

Attached please find UScellular's response to The OCIO's Letter of Inquiry dated July 28, 2021. We will be responding to the August 11 letter very shortly.

Regards

UScellular attests to facilitating service at a minimum of 25/3 Mbps in 31 of the census blocks identified in the OCIO's July 28 letter.

These blocks were upgraded to 25/3 Mbps Broadband as part of USCC's NOFA #003 submission and were in service on July 1, 2021.

The challengers to these census blocks appear to be unfamiliar with UScellular's service offerings, which is understandable given the recency of these deployments. Some challengers, while not mentioning UScellular, appear to have conflated existing WISP offerings with UScellular's 3GPP 5G FWA product. Such offerings are not comparable in performance, reliability, or scalability.

Thomas Hulings
Director of Business Development & Partnerships

UScellular**Desk: 773-355-3265****Mobile: (773) 450-6045****US Cellular Response - V4 Appeal Notice to Respondent 8-11-2021.xlsx**

232K