

Clarke County

BROADBAND IMPLEMENTATION COMMITTEE MEETING MINUTES MONDAY, DECEMBER 2, 2019



A meeting of the Broadband Implementation Committee was held at the Berryville/Clarke County Government Center, Berryville, Virginia, on Monday, December 2, 2019.

ATTENDANCE

Present: Robina Bouffault, Mary Daniel, Douglas Kruhm, Bev McKay

Absent: None

Staff Present: Brandon Stidham, Planning Director; Cathy Kuehner, Public Information Director

CALLED TO ORDER

Mr. Stidham called the meeting to order at 2:00PM.

AGENDA

Committee members approved the agenda by consensus.

APPROVAL OF MINUTES

The Committee approved the May 14, 2019 meeting minutes as presented.

Yes: Bouffault (moved), Daniel, (seconded), Kruhm, McKay

No: none

Mr. Kruhm said that resident Dick Drake is in attendance to hear today's presentation.

NEW BUSINESS

Appearance by Mark Bayliss (Visual Link)

Mr. Stidham introduced Mark Bayliss from Visual Link. Mr. Bayliss stated that in addition to his role with Visual Link he is also entering his tenth year as a member of the Federal Communications Commission's (FCC) technological advisory council. He said that the council's charter is to identify new and cutting-edge technologies, remove barriers to get those technologies to move forward, and to promote global dependence on U.S. technology. He said the council has been working on advanced antenna systems, 5G, and internet of things (IOT) technology. He noted that T-Mobile is expected to roll out 5G service on December 6 and said that 5G technology is in a controlled shared spectrum. He said that a controlled shared spectrum is the same concept that he has proposed the internet service providers (ISPs) to collaborate on developing but added that the WISPs are not interested in working together. He said that in a controlled shared spectrum, all providers would be allowed to

operate in the spectrum and that controllers would be used to manage when the ISPs would be broadcasting. He said that the shared spectrum would allow providers to have access to a greater amount of broadcast frequency than they currently have operating within their assigned frequencies. He explained that this would be accomplished by making frequency guard bands available for use and the controllers would manage how the frequencies are used by the ISPs. Ms. Bouffault asked if there are capacity limits. Mr. Bayliss responded yes but the capacity would be greater because the frequency guard bands are used.

Mr. Bayliss stated that there is a finite amount of spectrum that can be used for broadband and that the FCC is currently working to reallocate spectrum. He discussed the latency issues associated with satellite broadband and noted that new technology proposed to use low earth orbit satellites to address latency would require 66,000 satellites in orbit for the system to function. He added that there are currently 1,700 satellites in orbit. He said that we look at valuing spectrum in a completely different way than in the past and instead look for groups that can provide the most megabits of capacity per megahertz of spectrum. Ms. Bouffault asked if this is all separate from fiber optic and Mr. Bayliss replied yes. Mr. McKay asked if you can do 5G backhaul with microwave and Mr. Bayliss replied yes but you will not be able to meet the 5G capacities. Ms. Bouffault said that you need to have fiber backhaul for 5G and Mr. Bayliss agreed. Mr. Bayliss noted that most 5G service will be available only in cities as the range of the 5G antennas is limited. He also said that there are expected to be over 40 billion internet-connected devices worldwide in homes, vehicles, and structures within the next three years accounting for one-third of the global gross domestic product (GDP). He said that these devices only send out small bits of information so it would not be a good use of 5G service to convey it. He said that conveying this information over a narrower frequency band would allow it to be sent over much greater distances.

Mr. Bayliss said that he has applied this work to develop a new Visual Link service. He said instead of broadcasting broadband internet on one set of contiguous channels, it would be broadcast on multiple channels across the spectrum to provide greater distance and greater capacity. He then demonstrated his new tabletop "Tower Beam" device that provides internet connectivity without an external antenna. He noted that the device can be used with an external antenna if there are problems with connectivity. Ms. Bouffault asked if the tabletop device is the only equipment providing internet connectivity and Mr. Bayliss replied yes. Ms. Bouffault asked if this would work if you are in Shenandoah Retreat with lots of trees. Mr. Bayliss replied that the external antenna would probably be needed. Mr. Stidham asked which tower the device is connected to and Mr. Bayliss replied that it is connected to the Mt. Weather tower. Mr. Stidham then asked for confirmation that the connection is made through the building to the broadcast tower on the ridge and Mr. Bayliss replied yes. Mr. McKay asked if you can use your existing antenna with this device and Mr. Bayliss replied that you would have to replace it. Ms. Bouffault asked what is the maximum distance from a broadcast tower that the Tower Beam device can receive signals and Mr. Bayliss replied about 25 miles. Mr. Stidham asked if the external antenna needs to have line of sight and Mr. Bayliss replied no and that it only has to be aimed well at the broadcast tower. Mr. Bayliss also said that this product will help provide internet access in areas that could not previously be served, adding that if you already have a good signal with a line of sight system then the Tower Beam product will probably not be an improvement. Mr. Stidham asked if it no longer matters if you have a wooded lot. Mr. Bayliss replied not really although you will have some signal degradation. Ms. Bouffault asked about

topography and Mr. Bayliss replied that the product cannot go through dirt and rock. Ms. Bouffault asked if it would not work in a hollow and Mr. Bayliss replied that it depends on the site. Mr. Stidham asked if it depends on your angle to the broadcast tower if you are located on the mountain and Mr. Bayliss replied yes. Ms. Bouffault asked if small-scale antenna support structures which are now allowed under our Zoning Ordinance would help and Mr. Bayliss replied yes. Mr. Stidham added that with this product, you may not need to build as tall of a tower to get a signal as you just need to get the antenna above the obstructing terrain. Mr. Bayliss noted that pine trees can cause the significant signal degradation. Mr. McKay asked if this product can be moved around to achieve a better signal and Mr. Bayliss replied yes. Mr. Bayliss added that one of the biggest business advantages with this product is that there will potentially be no installation required. He said customers would be given a unit to take home and if a satisfactory signal cannot be found, then they would go onsite and install an external antenna. Ms. Bouffault asked if they will be generating more literature on where the product will work and Mr. Bayliss said that they plan to do more mapping. Mr. McKay asked if this product would work with neighborhood repeaters. Mr. Stidham asked if this product would actually do away with some neighborhood repeaters and Mr. Bayliss replied yes. Mr. Bayliss also said that they can now carry wired internet access over a greater distance with ethernet cable which would reduce the cost of some build-outs because it costs a lot less to bury ethernet cable than it does to bury fiber optic cable. Ms. Daniel asked what the price of the service would be and Mr. Bayliss said that it would be the same cost as their current service. Ms. Bouffault asked if this would be an improvement for current Visual Link customers who feel like their speeds are being choked in the evening and Mr. Bayliss replied yes. She also asked if there would be a new equipment fee and Mr. Bayliss replied yes. Mr. Bayliss added that there would be more capacity but the challenge for his company is in maintaining the broadcast equipment on the mountain due to the environmental conditions. He noted that there are a lot of dead trees that can fall or explode at any point in time creating a hazardous situation. He said that ice storms can cause the biggest problems for broadcast towers.

Mr. Kruhm asked what internet speeds Visual Link is pushing out now with current technology. Mr. Bayliss replied that they are on capacity caps and that current technology is at about 50 MB per second. Mr. McKay said that his internet speeds slow down at peak use periods. Mr. Bayliss said that capacity of backhaul to the broadcast towers is an issue and that they are always working on ways to get more capacity. Mr. Kruhm asked what the speed of the Tower Beam product is and Mr. Bayliss replied that it is the same as current technology. Mr. Bayliss noted that they offer a 50MB burst for the first 30 seconds of downloads for customers at all speeds and Mr. Stidham replied that the burst makes a huge difference for streaming. Mr. Bayliss also explained how AT&T now offers DirecTV streaming service and demonstrated how it works with the Tower Beam product. He said that wireless internet will never be able to compete with wired broadband speeds but that it works well enough to support streaming. Mr. Drake asked if the service is true unlimited data and Mr. Bayliss replied yes but that there will likely be speed reductions during peak periods due to capacity limits of the technology. Mr. Drake asked if Visual Link will have to do site surveys to determine whether a property can be served. Mr. Bayliss replies that he intends to start by having customers take a Tower Beam device home to see if they can get it to work first before going to the properties. Mr. Bayliss then discussed the security measures and remote access features that Visual Link has for customers.

Ms. Bouffault asked what information we can provide to citizens about Visual Link's services. Mr. Bayliss replied that for anyone who had a site survey in the past and were told they could not be served, there is now a 90% chance that they can be served with the new Tower Beam product. Mr. Drake asked when the product will be available. Mr. Bayliss replied probably by second or third week of December. Mr. Stidham replied to Mr. Bayliss that Staff can post his information to the County Facebook page and the broadband website to help get word out to citizens. Ms. Daniel added that we offer this to all businesses.

The meeting was adjourned by consensus at 2:57PM.

Brandon Stidham, Planning Director