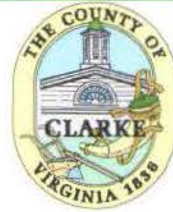


# Clarke County

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## BROADBAND IMPLEMENTATION COMMITTEE MEETING MINUTES MONDAY, SEPTEMBER 18, 2017



A meeting of the Broadband Implementation Committee was held at the Berryville/Clarke County Government Center, Berryville, Virginia, on Monday, September 18, 2017.

### ATTENDANCE

**Present:** Robina Bouffault, Mary Daniel, Scott Kreider, Bev McKay

**Absent:** None

**Staff Present:** Brandon Stidham, Planning Director

**Others Present:** Bill Johnston (resident); Tom Innes (All Points Broadband); Mark Bayliss (Visual Link); Cathy Kuehner (Winchester Star)

### CALLED TO ORDER

Mr. Stidham called the meeting to order at 9:30AM.

### AGENDA

The Committee approved the agenda by consensus as presented by Staff.

Mr. Stidham reviewed the format of the meeting, noting that the Committee would first meet with Tom Innes (All Points Broadband) and James Funkhouser (Shentel) until approximately 11:00AM and then discuss two business items before breaking for lunch around 11:30AM. The Committee will reconvene at 1:30PM for a meeting with Mark Bayliss (Visual Link) until 2:45, then after a short break will have a teleconference with Dave Grigonis (SBA Tower) from 3:00PM to 4:15PM. The day will conclude with follow-up discussion and scheduling of the next meeting.

Mr. Stidham introduced Mr. Innes who began with an overview of All Points Broadband's response to the County's Request for Information (RFI). Mr. Innes described a potential project to design a county-wide network, noting that there is a demand for service in Clarke County but that his company typically does not speculatively invest in designing networks for counties. He said that they ask counties to provide financial support to complete the network design rather than have counties invest in consulting services from vendors that are not also committed to constructing the network. Mr. McKay asked how much it would cost the County. Mr. Innes said that it would depend on how many hours his company spends on the design process, noting that any time not used would be credited back. Mr. McKay asked if the County could eventually realize income from the system over time if constructed, and Mr. Innes replied yes. Mr. Innes also noted that they are currently

negotiating with the Clarke County Sanitary Authority to lease space on the County water towers but that this process is not complete yet.

Ms. Bouffault asked whether they can adapt their equipment for use on structures such as silos. Mr. Innes replied yes and noted that the size and weight of their equipment allows for placement on structures that companies like Verizon or AT&T may not want to use. Ms. Bouffault also asked whether WISP technology has a range of about 10 miles with clear line of sight. Mr. Innes replied that 10 miles would be pushing the limit for “last mile” connections to residences but that a 10 mile range can be achieved with point to point connections from separate towers. Ms. Bouffault asked whether they use distributed antenna systems to serve neighborhoods and Mr. Innes said yes and described how such systems work. Ms. Bouffault asked whether fiber optic service would have to be available at a structure such as a silo in order for the WISP service to locate there. Mr. Innes said that a backhaul radio link could be used to bring “fiber-like” speeds to the repeater antennas. He added that fiber at the site is nice to have but not required, and that using wireless backhaul helps to avoid the reoccurring expense of using a fiber connection. Ms. Bouffault asked if his company is using wireless backhaul currently in the County and Mr. Innes replied no. Mr. Stidham asked whether there are any drawbacks to using a wireless instead of wired backhaul, and Mr. Innes replied that there might be speed degradation at a range of 20-25 miles. Mr. Innes added that they are using wireless backhaul in a number of locations in Loudoun County. Mr. McKay asked whether the wireless backhaul link requires line of sight and Mr. Innes replied that it has to be “near line of sight” with some tree coverage. He added that the backhaul frequency is licensed and is stronger than the unlicensed frequencies used to transmit to residences.

Mr. McKay asked whether All Points would be able to cover most of the County with a few transmission sites given that the range is 20-25 miles and the County is relatively small in area. Mr. Innes replied yes but also noted that topography can be a limiting factor. Mr. Stidham asked what else the County would need to do to work with All Points to expand service if they are successful in locating on the Sanitary Authority’s three water towers in addition to their existing antenna in Berryville, and he also asked whether All Points has equipment on any of the mountain towers. Mr. Innes replied by showing which mountain towers his company is using. He also provided a brief summary of the infrastructure costs associated with adding WISP equipment to existing towers. Mr. McKay asked whether the costs are intended to discourage WISPs from locating on towers that already have licensed tenants. Mr. Innes replied no because WISPs do not take up space or interfere with licensed tenants and they provide additional revenue.

Ms. Bouffault asked Mr. Innes how many clients that his company has in the County, and he replied that he did not know an exact number but probably around 100. Ms. Bouffault also asked how many customers they needed to have in order to provide viable service and, in a related question, Ms. Daniel asked him if he could explain their market analysis. Mr. Innes said that the aggregate number of customers is not as important to know as is the number of customers per site and whether or not the site is dependent upon wired or wireless backhaul. He also noted that redundancy is important in the event of an equipment failure or other outage. The members then discussed the feasibility of locating equipment at a silo on private property near Waterloo.



Mr. Stidham asked how they can serve pockets of residences that have extensive tree coverage or topographical issues such as on the mountain or along the river. Mr. Innes replied that positioning the repeater site as close as possible to the homes is necessary – most likely with a telephone pole of approximately 60-70 feet in height. He added that they would also use a lower frequency (900 MHz) to transmit to the homes as it can penetrate tree coverage better but does not have tremendous capacity. Mr. Stidham asked how many customers this system could serve and Mr. Innes replied 30-50 if evenly dispersed, or 20-30 if in a specific sector or direction. Mr. Stidham also asked whether this can work on the mountain and Mr. Innes replied that his company has not actively sought property owners in these areas that would be willing to host a repeater antenna.

Mr. McKay asked if you could connect existing fiber optic cable from Shentel or Comcast to a 60 foot pole and transmit to customers. Mr. Innes replied that you can do it under a special license agreement with the company but it can be expensive and is not available in all locations served by the fiber optic companies. Mr. Stidham asked whether there would be any limitations on serving customers this way in an area that is already served by that fiber optic provider (e.g., Comcast). Mr. Innes replied that there are no anti-competition requirements. Mr. Stidham added that Shenandoah Retreat is currently served by Comcast but due to topography and tree coverage, there are no other broadband options and that WISP service could be introduced there as an option. Mr. Kreider said that there are about 220 homes in the Retreat. Mr. Innes asked if there is a franchise agreement that contains a density of service requirement. Mr. Stidham replied that there is a cable television franchise agreement with Comcast but it does not cover broadband access.

Mr. McKay asked whether the takeaway from the discussion is that having fiber optic access at the WISP antenna sites is not critical but that you have to have a fiber optic connection somewhere in your system, and Mr. Innes replied yes. Ms. Bouffault asked if the ideal distance from a fiber-served wireless hub is 3-5 miles and Mr. Innes said that you could serve a lot of capacity at that range. Mr. Stidham asked whether the only thing gained from having fiber at a tower site is redundancy. Mr. Innes replied that locating on a commercial tower also ensures that the site and its access will be maintained by the tower owner and there are often backup generators available for use. He said that having fiber capacity at the tower is useful but for the same price, a WISP can install three wireless access points. Mr. Stidham asked whether the WISP's end users would be able to tell anything different from a wireless connection versus a wired connection and Mr. Innes said no. Mr. Innes added that using a wireless backhaul allows the provider to better track their network activity at specific sites as compared to wired backhaul. Mr. McKay asked whether locations in the County that have good line of sight to the water towers and the tower in Berryville would be good places to locate wireless hubs. Mr. Innes replied yes as long as they can get access and power to the site at a reasonable cost. He added that real local knowledge of these locations and the number of customers in the surrounding area would be very helpful to his company for site selection. Mr. McKay asked how much power is needed for a wireless site and Mr. Innes replied that it is a minimal amount and would not require three-phase power. Mr. Innes noted that field inspection of each wireless hub is important to ensure proper line of sight, and he provided an example of a situation in Charles City County where there was a line of sight issue impacting a wireless system. Ms. Bouffault suggested that the Committee could identify some potential sites for wireless hubs, noting that Blandy Experimental Farm has fiber optic cabling onsite and may be interested in hosting a site.



Mr. Kreider asked what the bottom line cost to the County would be to develop a study as proposed by All Points. Mr. Innes estimated between \$55,000 and \$75,000 depending upon how much work the County has done or would do to support the study. Mr. Stidham asked whether anything has come from today's discussion that Mr. Innes thinks the County could do to facilitate broadband expansion short of expending County funds. Mr. Innes replied that identifying potential wireless hub locations is important as are replacing County internet services with in-kind services provided by All Points. He added that knowing neighborhoods that need service or service options is very important and that this activity could make up a quarter of the budget for a study. Mr. McKay said that serving residents on the mountain is the biggest challenge. Mr. Stidham added that some of the denser concentrations of homes on the mountain may have a higher than average concentration of school-age children that need broadband internet for school work. Mr. Innes noted that going into areas that are already being served by Comcast would be a lower priority for his company than serving areas with little to no service.

Ms. Daniel asked Mr. Innes how he would envision a future County-wide network of reliable, commercial grade broadband internet. Mr. Innes replied that the difference between 85% coverage and 100% coverage is very expensive and that absent a public subsidy, it is not feasible for any provider to attempt to serve the last 15%. He said that companies like his first works with fiber companies to identify the locations and sites that they serve, then they work to identify the best locations for their hubs. He said that coordination among the WISPs is important to ensure that they get the largest bang for their buck from their frequencies without creating interference and adversely impacting the customer's experience. Ms. Daniel asked Mr. Innes about what he thinks is most helpful and what needs more work in the County's revised wireless communication facility regulations, tax rates, or any other County regulations. Mr. Innes replied that the increased tower heights are helpful. He said that it is important for the County to ensure that WISPs who co-locate on County structures do not interfere with each other's frequencies. He said that "dig once" policies are helpful – encouraging entities that install underground utilities to provide for future fiber optic installation. Ms. Daniel said that what she is hearing is that there is little that the County can do for WISPs but there are things that they can do for the fiber and tower-building companies that would in turn help the WISPs and Mr. Innes replied yes. Mr. Innes added that some counties establish Broadband Authorities with citizen representatives that may or may not be the decision-makers and that this creates an unnecessary layer of bureaucracy. He said that the County's Broadband Committee is a much more helpful approach and recommends against creating an authority in the future. Mr. Innes also recommended against creating municipal broadband services noting that if it is difficult for private sector companies to provide these services, it will be just as difficult for the locality to provide them.

Ms. Bouffault asked how many customers it would take for All Points to decide to install a wireless hub on the silo located west of Waterloo. Mr. Innes said that assuming the installation costs at this silo are minimal, it would take them two years to get a return on their investment if they had 90-100 customers. Ms. Bouffault said that this is important to know when sites are identified for consideration. Mr. Innes said that there are also challenges to attracting customers who may be waiting to finish contract terms with satellite or cable internet providers. Mr. McKay asked how much it costs to establish a wireless hub site and Mr. Innes replied that it is in the several thousand dollar range unless there are additional mounting and structural work to do.

Mr. Stidham noted that he received an email during the meeting from Mr. Funkhouser indicating that he had an emergency and would need to reschedule his appearance.

Ms. Daniel said that the Committee could conduct outreach efforts to facilitate neighborhoods working with WISPs to identify wireless hub sites to serve their area. Mr. Innes cautioned against giving residents the impression that hosting a wireless hub site would generate a significant amount of revenue.

The Committee then thanked Mr. Innes for his presentation and he indicated that the Committee is welcome to visit his office in Leesburg to see examples of the equipment that they use.

### **APPROVAL OF MINUTES**

The Committee approved the August 23, 2017 meeting minutes as presented by Staff.

**Yes:** Bouffault (seconded), Daniel, Kreider, McKay (moved)

**No:** none

**Absent:** none

### **OLD BUSINESS ITEMS**

#### **Update on Broadband Website**

Mr. Stidham noted the comments that he received on the draft broadband website and indicated that Matt Rabbitt would include them. He said that the site is now active and available to the public. He also said that he would add the Committee minutes to the website and noted that Cathy Kuehner wants to run an article on the website in the Winchester Star.

#### **Discussion, Letter to Citizens Regarding Broadband Efforts**

Mr. Stidham provided an overview of the draft letter that the Committee discussed sending out regarding broadband efforts to date. Mr. McKay said that he is concerned with the cost of the letter and whether it will actually reach as many residents as the Committee would like. Mr. Stidham reviewed the cost estimate to mail the letter to the addresses of all real estate taxpayers (estimated 6500 addresses) noting that the total cost would be \$3,123.50. He added that a custom postcard would be more expensive to produce and send. Ms. Bouffault said that with a proper envelope a letter would not be thrown in the trash and that the letter should be done in addition to posting it in the Clarke Monthly. She said that a formal letter from the County would get people's attention. Mr. McKay suggested including the letter in the tax bills and Ms. Bouffault replied that she is opposed to this approach. Ms. Daniel said that there are a number of other enclosures in the tax bills that increase the likelihood that the letter would not be read. Mr. Johnston asked about how they are going to reach residents that do not have any internet access. Mr. Stidham said that we are trying to create a listing of free WiFi hotspots in the County in addition to the library where people can access the internet. Mr. McKay suggested seeing if the Schools would send the letter out via their communication system and Ms. Bouffault said that she would be happy to coordinate that effort.

Members then discussed the advantages and disadvantages of printing the letter in the Clarke Monthly. Ms. Daniel noted that it would reach all households as opposed to a mailing to taxpayers



that would also reach non-residents and mortgage holders. Ms. Bouffault said that many copies of the Clarke Monthly are thrown out unread.

Mr. Stidham suggested that future targeted mailings could be used to support the efforts of a broadband provider that is looking to expand into a specific area by soliciting responses from residents to gauge potential interest.

Mr. Stidham asked the members whether they approve of the letter as drafted as well as having Ms. Bouffault work with the Schools to have the letter distributed and Ms. Daniel work with the Clarke Monthly to have the letter printed in an upcoming edition and a potential article drafted – the members agreed to these items. Ms. Bouffault suggested sending the letter to the list of business license holders and offered to develop a mail merge spreadsheet to assist with the mailing effort. Mr. Stidham said that it would still have to be outsourced for mailing but would be at a much lower cost. Members agreed to do the targeted mailing to the business license holders. Mr. Stidham said that he would get a revised cost estimate and take the request to the Board of Supervisors Finance Committee for funding approval.

The Committee recessed for lunch at 11:44AM.

The Committee reconvened at 1:30PM.

Mr. Stidham noted that Dave Grigonis (SBA Towers) had a meeting conflict and would be unable to join via teleconference as scheduled.

Mark Bayliss (Visual Link) introduced himself to the Committee and provided an overview of his role and activities on the Federal Communications Commission's (FCC) Technology Advisory Council. Among several items discussed, Mr. Bayliss indicated that several large companies have come before the Council with proposals to provide broadband access without the use of towers. He noted that one company proposes to use low-altitude satellite platforms to transmit broadband internet and another company proposes to use drone technology.

Ms. Bouffault asked Mr. Bayliss what he thought Clarke County could realistically expect in the near future for improved broadband access. Mr. Bayliss said that approximately 80% of County residents could have access to broadband internet with the ability to have an antenna on their property with a height of 60 feet. He said that making this a by-right activity for homeowners is important. Mr. Stidham noted that the revised zoning regulations allow poles up to 50 feet by right with approval by Staff and up to 80 feet by right with Planning Commission approval. Mr. Bayliss then gave a brief overview of how different types of radio frequencies transmit broadband internet. He noted that if there is more cooperation and coordination among the WISPs regarding shared frequencies to reduce interference, it would dramatically increase each WISP's coverage area and increase overall available capacity by 30-40%. He suggested that the Committee could convene a meeting of the WISPs serving the County to discuss this and other issues of mutual concern.

Mr. McKay asked how the County can influence this process to increase cooperation and coordination. Mr. Bayliss recommended that if a new proposed tower cannot guarantee download

speeds of at least 25Mbps, it should not be approved. He also said that WISPs are probably the County's best alternative to expanding broadband access. He suggested that the County consider the design requirements for 60 foot poles including not limiting them to monopole design, noting that monopoles require a crane to repair and maintain unlike a lattice tower design. He said that this could cause additional delays in repairs because of OSHA requirements resulting in both internet and 911 communications outages.

Ms. Daniel asked about drawbacks to convening a meeting of the WISPs and what to do if one or more choose not to participate. Mr. Bayliss replied that if WISPs can make more money from an effort, they will support it.

Mr. McKay asked how WISPs look for vertical assets to locate their equipment and would it help if the County maintained a list of these assets. Mr. Bayliss replied that it is always helpful but that his company has mapped all of Clarke County and its vertical assets including silos. He added that unfortunately most of the silos are not located on hills and many are unstable and not suitable for supporting WISP equipment. He also stated that less than 20% of the County's households have not contacted Visual Link to request broadband service and that they will typically do site surveys of those areas to determine whether they can be served. He added that Visual Link has probably done site surveys for every house in the County excluding the towns. Mr. Stidham asked if Visual Link has any customers in the towns and Mr. Bayliss said very few but they have seen an increase in recent years. He attributes this to the popularity of streaming video and residents choosing programming by the channel using Hulu or other services instead of satellite and cable packages. He also noted that realtors are reporting a 15% increase in property value for homes that have broadband access over those that do not, and that realtors are now requesting broadband certifications for the homes that they are listing.

Mr. Bayliss talked briefly about the activities of the FCC's Technology Advisory Committee and of their upcoming meeting. He noted that there is a rule requiring any company that runs fiber optic cabling to be a certified telecommunications provider recognized by that state. He added that the rule was put into place when AT&T was the company installing cabling and that the FCC does not believe the rule applies anymore. He further stated that providers installing fiber optic cabling exclusively do not fall under the control of the FCC or this rule. He said that the state of West Virginia recently passed a rule allowing broadband providers to have by-right access to all utility easements and rights-of-way to facilitate broadband expansion. He noted that Virginia could do the same thing for regulation of broadband providers. He said that counties could grant utility franchise agreements to broadband providers but it is likely that Verizon would file suit to challenge such actions because they have done so in other localities.

Mr. Bayliss returned to the topic of allowing 60 foot towers to facilitate WISP service at individual residences including the design of the towers and arrangements with property owners to serve as the hub for the neighborhood. Mr. Stidham noted that the Zoning Ordinance included a provision that has since expired allowing such towers by-right up to 80 feet but that no providers or property owners requested approval of such towers during the life of the rule. Mr. Bayliss replied that most WISPs will avoid having to go through a local government permitting process if at all possible. Mr. Stidham asked if this is the case, how will the County be able to get them all to come to the table to discuss



improving broadband access. Mr. Bayliss replied that they will participate if they think that failing to do so will give the competitors an advantage. Mr. McKay asked if the County should be requiring applicants for larger towers to reserve space for WISPs. Mr. Bayliss replied that this is not a problem because tower owners are required by law to allow providers to co-locate on them at reasonable lease rates. Excluding providers or charging unreasonable lease rates could be construed as a monopolistic practice that is not allowed.

The Committee thanked Mr. Bayliss for his presentation and he offered to send the members a copy of the materials from his upcoming Technology Advisory Council meeting.

**Follow-Up; Scheduling of Next Meeting**

Mr. Stidham presented some possible dates and times for the next meeting. The Committee agreed on Monday, October 16 at 2:00PM.

Mr. Stidham recommended having a regular Committee report at the Planning Commission meeting and Ms. Daniel agreed to provide the report.

Mr. Stidham said that at the next meeting, the Committee can discuss next steps including the planning of a meeting with the WISPs as well as potential budget requests. He added that he would attempt to reschedule meetings with Mr. Funkhouser and Mr. Grigonis.

Mr. Stidham also noted that Ms. Kuehner is present and plans to do an article on the Committee's activities. Ms. Kuehner said that she would discuss the new broadband website and the Committee's meetings with providers. Mr. McKay said that his takeaway from the meetings is that broadband options are increasing and improving. Mr. Kreider added that property owners could have broadband access for free through WISPs if they agree to host a tower serving as a wireless hub for the neighborhood. Ms. Daniel said that our regulations already allow 60 foot towers by-right that would be needed to improve residential broadband access. Members also reviewed their earlier decision to publicize the broadband letter in the Clarke Monthly, through the Schools' communication system, and a targeted letter to business license holders.

The meeting was adjourned by consensus at 4:02PM.



Brandon Stidham, Planning Director