ATTENDANCE:

MEMBERS:
Clint Aurand, Armagh Township
Craig Bubb, MABL
Doug Cunningham, Mifflin County School District
Michael Hain, Nittany Media
Barb Harer, South Hills School of Business and Technology
John Rhone, Wayne Township
Kristen Ritchey, Comcast
Kay Semler, Mifflin County Planning Commission
Gene Wolfkill, Geisinger

OTHERS:
Alyssa Burd, The Sentinel
Lori Comp, Senator Corman's Office
Nick Felice, MCIDC
Chastity Fultz, Mifflin County Planning and Development Office
Bill Gomes, Mifflin County Planning and Development Office
Brad Kerstetter, Juniata County
Scott Kramer, SEDA-COG via teleconference
Mark Long, Representative Benninghoff's Office
Liz Lose, Centre County Planning via teleconference
Sascha Meinrath, Palmer Chair in Telecommunications at Penn State's Donald P. Bellisario College of
        Communications
Susan Miriello, Mifflin County Library
Robert Postal, Mifflin County Commissioner
R. Joseph Rupert
Jeremy Smith, Century Link
Jim Smith, Granville Township
Eric Welty, Noovis via teleconference

Call to Order: Bill Gomes called the meeting to order at 3:35 p.m. and reminded everyone to sign the attendance sheet. Everyone introduced themselves.

Approval of Minutes: Kay Semler motioned to approve the October, November and December meeting minutes. Barb Harer seconded the motion. All members voted aye.

Update on Noovis Contract: Eric Welty of Noovis has begun the process of data collection as well as analyzing some of the data collected. A lot of information has been gathered and he is trying to determine what information is most important. He has one countywide map that will likely be broken down to a

county map with three separate insets. The maps will show commercial properties and land use areas. Maps were produced at the lot line level for Decatur, Menno and Wayne Townships because these are areas where there is little service and definite need.

Eric and his team have also reviewed the new USDA guidelines. USDA is allowing for-profits to apply for and accept money. Noovis will provide a more simplified version of these guidelines to share with current providers and anyone else who may want to apply for the money.

One outstanding item for Eric at this point is to find specific areas the committee wants to review. Please forward any areas to Bill to forward to Eric.

Michael Hain is having Mark VanOuse work on the Nittany Media coverage map to make it available for the committee needs.

Eric should have a more granular idea of areas to focus on by the February meeting.

Sascha Meinrath, Palmer Chair in Telecommunications at Penn State's Donald P. Bellisario College of Communications:

Prior to Sascha Meinrath's presentation, Bill provided some background on the speaker and his efforts related to broadband. Penn State has been hired by the Center for Rural Pennsylvania to conduct a study on broadband across the state. Walt Whitmer was able to connect Bill with Sascha Meinrath to discuss the Penn State study and what they have done. Before the presentation, Liz Lose of Centre County Planning encouraged everyone to take the speed test that Penn State is using for their study. Kristen Ritchey stated that in order to get an accurate speed going into the home, you must be connected right into the modem as opposed to using Wi-Fi.

In preparation for the meeting, Bill shared some of the work the committee has done so far, including results from the residential survey with Mr. Meinrath prior to the meeting. Mr. Meinrath congratulated the committee on their efforts and acknowledged that much of this information is typically missing in debates over broadband connectivity. Mr. Meinrath is a practitioner, having built networks for the past 20 years. He was one of the early users of Wi-Fi technologies having built out networks in various locations both stateside and internationally. He also spent a decade inside Washington D.C. trying to convince them of the state of the real world and on the ground realities. For the past 10 years, he has been working on broadband mapping in particular. He pushed FCC to do broadband mapping and develop methodology used for the artificial maps. The maps are great in terms of idealized mapping of what could be, but not what is actual on the ground reality. Mr. Meinrath has worked to build an infrastructure in the past 11 years known as Measurement Lab to document actual speeds and availability. This began as a prototype to demonstrate to the FCC. FCC officials did not think this could be done. Measurement Lab has grown to become the largest open repository broadband data over the past 10 years. The data, methodology and tools to do broadband measurement are all open and run by network researchers for network research community. It is done to the highest scientific principles for methodology.

Mr. Meinrath proposed to the Pennsylvania legislature to develop a map indicating actual data. He and his team set out to collect and visualize the information. They originally set a goal to collect one million data points. As of November of 2018, they have collected 10 million data points plus 5 million historic data points. They are now building out the maps based on what they saw, which is quite different than the official measures. A report will be delivered to the legislature in the next 30-60 days, which will include the

basic rigorous research methodology along with approximately 1,200 maps for every legislator and county. The discrepancy between actual and FCC measurements will also be demonstrated and is growing. The idealized speeds and actual speeds are pretty flat and growing in tandem in the urban environment; however, the actual speeds in the rural environment are flat while idealized speeds are increasing, creating a growing gulf over time. Over the past half-decade, this discrepancy has exploded for rural areas such that it was overstated by 50-75% five years ago, but is now overstated by approximately 250%. To summarize, what providers are stating the customer is getting is 2 ½ times faster than what they are actually getting. This is the first time data will be compared, analyzed and visualized. Mr. Meinrath's goal is to provide as much ammunition as possible for those who want to solve the problem. This is one project of a number of initiatives he is taking to address the broadband divide. He is hopeful that this work will act as an accelerant that allows people to move forward by proving there is an issue.

Bill has been trying to obtain a map from Mark Smith of the Governor's office, who was the head of the broadband initiative for the state, and was not sure if this was the same thing Mr. Meinrath is working on. Mark Smith had stated they created maps of speeds for the entire state, but Bill has not been able to obtain a copy. It is unclear who will take Mr. Smith's place. Mr. Meinrath would be curious to see these maps as well. Bill added that the committee has looked at internet as a universal issue while others were looking at it for strictly business purposes.

According to Mr. Meinrath, the super majority of the state does not meet the federal official definition of broadband, which is a minimum speed of 25 Mbps down and 3 Mbps up. Some places have the speed, but a bandwidth cap is in place. After the cap is reached, the speeds often reach to less than dial-up. Mr. Meinrath noted that there is a lot of talk with 4G and 5G networks and the speeds that will go with it, but no one is addressing the data caps that will be associated with it.

When asked what his solution would be, Mr. Meinrath explained that there has to be public investment for broadband expansion, just like electricity, roads and water infrastructure. This will require a multihundred billion dollar investment nationwide. Additionally, he stated that the lack of broadband access and strong internet service negatively impacts local economy and ultimately leads to other issues within communities. The opioid epidemic will continue to get worse because of the lack of jobs. Internet access should be treated as critical infrastructure for everyone as the United States government has already declared it to be. Americans pay more for slower service in fewer locations than some other countries. Connectivity is essential today.

Mr. Meinrath also stated that you can draw borders around states by viewing internet speeds, which is an indicator of varying state policies. Several years ago, Pennsylvania gave tremendous tax breaks and rate hike authority to Verizon in return for universal mandate for approximately $800 million. In 2015, Verizon testified before the state legislature that they had accomplished this, but no one is willing to challenge this. Because providers say we have connectivity everywhere and the official maps demonstrate this, we are not eligible for CAF, Connect America, E-Rate, etc. New York held their telephone companies accountable and invested in broadband using various funding sources, including private subsidies and public investment. Mr. Meinrath thinks that those states with slower speeds have more regulatory barriers to entry. Pennsylvania's rules and regulations make it very difficult for Internet Service Providers (ISPs) to enter the market.

Until 2005, companies had to interconnect because of common carriage. This is why dial-ups thrived. Countries around the globe that have done better with connectivity use either common carriage or a

competition policy. In the United States, we do neither and are falling behind other highly industrialized countries because there is not a competitive market space.

Jeremy Smith of Century Link acknowledged that his company must colocate, they must provide space for others to use their infrastructure. Mr. Meinrath acknowledged that DSL is a Title 2 service over phone lines and cable is a Title 6 service and operates differently and are under different legal authorities. The last telephone company policy overhaul was in 1996 and has not been systematically updated since.

Mr. Meinrath also cautioned against a silver bullet approach for broadband expansion. There are various ways for expansion, but you need either a competitive market space or regulatory oversight. He recommended the Institute for Local Self-Reliance who has a municipal broadband database of case studies for further information.

Scott Kramer of SEDA-COG questioned whether the data from the study Mr. Meinrath is working on will be available to be used for prework for grant funding. Mr. Meinrath confirmed the results of the study will be made public for free and could be used for grant funding. Much of the data can be downloaded now at measurementlab.net website, but you need to know something about databases. The Center for Rural PA also wants to make this data publicly available. He also stated that it is almost impossible to be eligible for the new USDA program based on official measures. The USDA does not specify how to demonstrate eligibility. Since the study Mr. Meinrath is working on is based on actual data and will be far more accurate than official maps, eligibility may be generated from this.

Microsoft also performs speed tests while providing updates and released their study in the past month. They have shown 160+ million users do not have broadband access. The data sets from the Microsoft study and Mr. Meinrath's study are triangulating on the ground truth because they are measuring actual speeds rather than using advertised speeds. This should open up a host of different grant programs. The USDA program does not have enough money to expand to everyone. Mr. Meinrath is hopeful politicians will realize this and have to do something. Investments need to be made for the future of the economy.

Michael Hain asked Mr. Meinrath what are they tracking and how this was being done in the study. Mr. Meinrath explained they are using network diagnostic tools, which is the standard in network research. They also have volunteer information collected via the broadbandtest.us website.

Other Business: None

Next Meeting: February 20, 2019

Adjournment: The meeting adjourned at 4:43 p.m.