

ctc technology & energy

engineering & business consulting

DRAFT February 10, 2020

Mr. Brian Jones
Department of Information Technology
Worcester County
One West Market Street, Room 1003
Snow Hill, MD 21863

Subject: Proposal to conduct broadband service testing and develop grant strategy

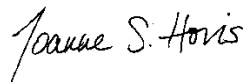
Dear Brian:

As we discussed, CTC Technology & Energy (CTC) is pleased to provide this proposal to conduct highly detailed broadband service testing in the County, and to develop a grant strategy that aligns with federal and state funding rules as they relate to the service we identify.

CTC works primarily for public entities and has no financial relationships with equipment manufacturers, construction companies, or systems integrators. We will be your independent, objective adviser—and will be guided by your goals, priorities, and risk tolerance.

Please do not hesitate to contact me if you would like to talk further. We look forward to the opportunity to continue working with you and your colleagues on this important initiative.

Best regards,



Joanne S. Hovis | President

Columbia Telecommunications Corporation

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1. Project Understanding

As our recent report concluded, Worcester County has significant areas that currently are unserved by wireline broadband. However, as far as the federal government is concerned, the County also is considered to be entirely covered by fixed wireless service and thus ineligible for federal grants for wireline service; that coverage status is based on federal grants previously awarded to the wireless ISP Bloosurf—Broadband Initiatives Program (BIP) and Connect America Fund (CAF II)—for services areas that together cover the County.

Bloosurf's earlier grant applications indicate that the company intended to deliver broadband service using equipment mounted on government towers, as well as access to government fiber. The company's right to use those government assets has since been withdrawn, which calls in to question Bloosurf's ability to deliver as promised. Further, anecdotal evidence received by the County from residents indicate that potential customers are receiving less than the promised service, service that falls short of current federal benchmark speeds (i.e., 25/3), or no service at all.

In order to ensure that unserved residents and businesses in the County have access to federal grant opportunities that target this problem, it is necessary to document Bloosurf's actual performance and potentially develop a clear path to challenge the "protected status" of Bloosurf's funded service area (i.e., to make the unserved portions of the County eligible for new federal broadband funding).

2. Scope of Work

Our scope of work will seek the required supporting evidence and a potential roadmap for challenging the protected status of Bloosurf's funded service area. Specifically, we will clarify requirements and procedures with federal grant managers in regard to challenging Bloosurf's previously awarded service areas; develop a sound test methodology and robust metrics of broadband performance; conduct testing to identify broad areas of coverage that could be challenged or would remain protected; and guide the County in potentially taking practical steps toward challenging the protected status of areas found in violation of the terms of performance of Bloosurf's original grant awards.

Task 1: Facilitate discussions with USDA and FCC officials

CTC's president, Joanne Hovis, and funding strategies team lead, Heather Mills, will engage with Kenneth Kuchno, the USDA's Deputy Assistant Administrator for Policy and Outreach, to identify critical details about Bloosurf's protected status, including:

- The date that BIP protection for Bloosurf runs out
- The underlying speeds promised under the BIP award to Bloosurf
- Any additional information about criteria and evidence by which protected status can be challenged

Joanne and Heather will also engage with Mr. Kuchno and with representatives of the FCC to develop a clear understanding of the USDA and FCC's processes for challenging protected status—and to determine whether a challenge can be mounted as a standalone endeavor, or whether it must be part of a formal grant application. Among the key questions we will seek to get answered are:

- Will Bloosurf get a chance to refute and demonstrate coverage to defend its protected status?
- If so, will there be a process for the County to challenge those claims?

Task 2: Conduct signal strength testing in the County to document Bloosurf's coverage

In this task, a CTC engineer will conduct signal strength testing to identify areas with poor signal strength in the licensed frequencies that Bloosurf is known to use in Worcester—which, if too low or nonexistent, could indicate an inability by the company to deliver service at the speed promised.

While Bloosurf's BIP-protected areas are the most relevant, we will conduct these tests at locations across the County to get a baseline that can be referenced in the future—including in CAF II-awarded areas that currently are being built out.

The test locations will be selected based on the County's map of wireline-unserved areas, BIP and CAF II reported areas, anecdotal reports on spotty service the County has received, and any known information about Bloosurf's tower locations.

To conduct the testing, a CTC engineer will identify 40 representative test points across the County, will map out the most effective routing to drive among the test points, and will take 360-degree measurements over two days at each location using a spectrum analyzer connected to a pole-mounted antenna. CTC will provide all necessary hardware for the testing, and will record all test results for later analysis and mapping.

Task 3: Design and host an online speed test and survey

In this task, we will seek to collect standardized speed test results from County residents (with a particular focus on identifying areas where wireless service is problematic), as well as identify residents who would be willing to let CTC and the County conduct a speed test in their homes as part of Task 4 (premises-based testing).

CTC will prepare draft questions to be included on the speed test web page; the County will have an opportunity to approve the final text and the layout of the web page before the test goes live.

CTC will then:

1. Develop an online speed test website (subject to our standard terms of use for our proprietary online tool)
2. Host the broadband speed test (which we assume the County will publicize the link on its website and in other ways it communicates with citizens)
3. Collect data submitted by County residents, with a focus on:
 - a. Areas where Bloosurf service is not available or not delivering at the speeds promised
 - b. Addresses of residents who will allow us to test from their homes
4. Provide regular data reports to the County

All data collected will be the property of the County. CTC will maintain a cloud-based MySQL database to store the results of County residents' tests. The pricing proposed below is based on use of a shared database; if the County requests a dedicated database, extra fees will apply.

CTC will host the speed test using Amazon Web Services (AWS) for a period of five months. During that period of time, CTC will furnish the raw results to the County in a weekly report delivered in an Excel table format. At the conclusion of the hosting period, CTC will deliver to the County a final set of all speed test data collected.

Task 4: Conduct premises-based speed testing of Bloosurf's service

As a complement to the Task 3 field testing, we will select up to 10 locations for on-premises testing. We anticipate testing at the homes of people who volunteer through the speed test website (Task 2) and potentially at the homes of residents identified by the County as being willing to host such testing. Unlike the field test, which will measure Bloosurf's theoretically feasible speeds, this premises-based testing will measure Bloosurf's actual speed.

We will develop a standardized approach and metrics to ensure the tests measure the speeds delivered to Bloosurf's on-premises endpoint equipment and are not affected by internal home routing equipment and other potential bottlenecks unrelated to Bloosurf.

CTC will provide a 25/3 map, and a map targeting the BIP grant speeds promised by Bloosurf. The metrics and methodology can later be used as a proposed standardized framework for subsequent Worcester County broadband grant applications.

Task 5: Conduct in-field speed testing in the County

In this task, a CTC engineer will conduct in-field speed testing utilizing Bloosurf endpoint equipment. This methodology could potentially be used to perform speed tests at any location in the network. However, there is a possibility that such devices are tuned to particular antennas or sectors, in which case test results for some locations will not be successful and instead would be limited to a single antenna or sector.

To procure the endpoint devices needed for this testing, we propose the County sign up for Bloosurf service at one employee's home or County building locations. Once the Bloosurf end user equipment has been installed and baseline capacity testing has been completed at this premises, CTC will then use that Bloosurf-provided equipment to conduct testing at 25 locations. As with the signal strength testing, the engineer will connect the Bloosurf equipment to a pole-mounted antenna for the testing.

Task 6: Prepare final report

Our final deliverable will be a written report that documents our methodology, analysis, test results, discussions with USDA and FCC officials, and other relevant insights and data we develop throughout this engagement. We will also establish the background issues, the served and unserved areas previously mapped, and the impact of protected status for Bloosurf's service

area. The goal of documenting these tasks and findings is to provide the County with the tools it would need to challenge Bloosurf's protected status (and regain eligibility for federal broadband funding); we will also lay out a roadmap for how to potentially mount that challenge.

Our final report will include:

- Any rules and procedures adopted by federal grant administrators for performance testing, coverage, and challenge of protected status
- Recommendations for steps for the County or the state of Maryland working with the County to lodge challenges with federal funding programs as needed to ensure the County's eligibility
- Maps illustrating test results
- Policy recommendations for County, state, and federal grant programs

We will deliver our report in electronic format.

Task 7: Prepare RFP or RFQ to identify potential partner (optional)

If the County, based on the test results and analysis developed in the previous tasks, determines that it has a viable opportunity to challenge its ineligibility for federal broadband funding programs, we will help the County develop a request for proposals (RFP) or request for qualifications (RFQ) to identify a potential partner with which to move forward.

Our goal in preparing the RFP or RFQ will be to enable the County to select a partner that would align with the County around its broadband goals—and would be a strong applicant for state and federal broadband funding.

Drawing on the range of data and insights developed in the tasks above, as well as the analysis and recommendations developed in our earlier report, we will write a narrative describing the County's broadband circumstances and desired partner attributes and qualifications, and will develop a suitable range of criteria for evaluating prospective partners. We will incorporate feedback from the County's designated reviewers and will prepare final text; we assume the County will incorporate our text into a standard County procurement format and will issue and manage the RFP or RFQ.

3. Cost

CTC proposes to perform the tasks identified in the scope of work above for the following not-to-exceed costs:

Tasks 1 – 6: \$50,000

Task 7: \$7,500

We will invoice \$20,000 upon completion of Tasks 1 and 2. We will invoice \$30,000 upon completion of Tasks 3, 4, 5, and 6. Task 7 will be invoiced separately.

We will bill our work at the following hourly rates:

Labor Category	Rate
Chief Technology Officer/ Director of Business Consulting	\$225
Principal Analyst/Engineer	\$200
Senior Analyst/Engineer	\$175
Staff Analyst/Engineer	\$155
Aide	\$80

CTC's billing rates are inclusive of all expenses, including travel.