July 7, 2022

Re: Proposed cell tower at Martin Rd

Dear members of the Buckland ZBA and Planning Board,

I would first like to say that I feel improved cell coverage would be beneficial and valued by many residents and visitors to Buckland. The proposed tower off of Martin Road fills a significant gap along Route 112 and obstructed points lower in the Clesson Brook valley. In talking with others in town I believe that most people are in favor of improved cell coverage, and would support the construction of a cell tower; but most are at the same time concerned by the visual impact of such a tower. There is a balance needed and compromises will be made no matter what the final outcome. However, I am concerned that this particular proposed site off of Martin Road requires too many compromises to allow for large variances in the current bylaws.

The proposed site and project ask for a tall tower which will be visible against the sky from most locations, and is not practical to disguise (realistically) because of its extreme height. It will require construction of a road that will also be visible from afar because of the challenging grade on the site. The site, while not historically significant itself, is still a critical pastoral and forest backdrop to many historic paintings and structures, and there is currently no visible development surrounding it. See *Exhibit A* as an example of the historical context. It is also visible from many homes, scenic areas and the Route 112 Scenic Byway.

While the height is represented in photo simulations, I found that the balloon test – which was used to define the simulated tower height – was flown at notably different heights on different days (see *Exhibits B* and *C*). Because only a single balloon was used instead of 4 balloons along a line (to simulate the individual antenna bays/tiers) it is difficult to accurately represent both the scale of the simulation as well as the accuracy of the balloon height. For example, if multiple balloons were attached at a known spacing, the scale could be verified and understood in many photos. Because of this ambiguity I do not feel the balloon test was conducted in the spirit of the bylaw and makes it unreasonable to grant a variance for the proposed height without further study.

It also appears that the applicant has (perhaps unintentionally) biased the application in favor of the proposed site while overlooking other legitimate sites that would provide similar coverage with less impact to the character of the town. It concerns me that a number of ideal sites exist but were not even mentioned in the application as alternatives – especially given that the applicant provided so-called “alternatives” only to dismiss them as non-viable because the locations would not even technically meet the coverage objectives (such as Sites A & C). In my interpretation this is an attempt to circumvent the town bylaw in section 10-15.2, which states, “A survey of **any and all** sites for the installation of personal wireless service facilities that are feasible for providing the intended services. The survey shall include a rationale for the selection of a prime and at least one alternate site.” Since the applicant has been unwilling to re-evaluate

the alternative sites I am providing some here, modeled using conservative parameters in RF modeling software.

By siting a tower on the opposite side of the valley, for example, on the site of a former television antennae, cell coverage would be comparable or even better for the target corridor, but the tower itself would be far less visible to the majority of residents and visitors. Additionally this particular site has recently been logged, has existing access roads built and might even have some historical significance preserved by the installation of a cell tower since the antenna tower used by the late Dr. Purinton's cable service was formerly in a similar location. There are a handful of such sites. I have submitted to the Boards radio frequency analysis of multiple sites, as evidence. Both of these sites have existing access roads and would require virtually no land clearing. I am confident that there are even more options.

The applicant also does not clearly state why small-cell devices[1] installed on existing structures would not be an acceptable way to provide the intended coverage along route 112 with virtually NO visual impact. Such devices could be attached to utility poles, church steeples, small radio towers (such as those on the fire station), and so on. Another option would be a combination of 2 towers at less obtrusive sites (but more readily accessible, thereby lowering the cost); it may simply be unrealistic given the geography to deploy a single site and cover the desired area without serious aesthetic compromises.

I am further concerned with the integrity of the application because it appears to cherry-pick coverage data and downplay impacts in an effort to shoe-horn this particular tower into this particular location. A major point of concern is that the Vertex application for modeling coverage on site VT-MA-0012A (Baptist Corner Rd Ashfield) uses a minimum RSRP signal of -108dBm (which equates to a minimum "2-bar" level; i.e., minimum usable coverage), while the Buckland VT-MA-0016A tower coverage map which is the subject of this application uses a threshold of -95dBm, equivalent to a "3-bar" signal on many phones.[2] This is advantageous to Vertex in that it provides false evidence in support of the need for a taller tower. If -108dBm was acceptable for the purpose of designing the Ashfield tower, it should also be appropriate to demonstrate the coverage at various antenna heights (both minimum and maximum) on the Buckland tower to determine its minimum viable height. I would like the applicant to be more transparent about the methods used to determine the proposed coverage maps. Additional information should be documented, such as the propagation model used, the ground cover and clutter models, antenna patterns and orientations, and diffraction models.

Similarly, in the required balloon flight demonstrations, there were noted variations in height from day to day, and in the simulations Vertex apparently chose the more optimistic "short height" days to demonstrations as the basis for their renderings where the tower image was superimposed. On one day for instance, the balloon was visible on 112 south of the proposed site; on another day it was not at all visible.

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[1] https://vertextowers.com/our-programs/small-cells/
[2] https://5gstore.com/blog/2021/04/08/understanding-rssi-rsrp-and-rsrq/

However, if the cell tower must be placed on the given site, I ask that the applicant propose a shorter structure and make use of regionally-appropriate camouflage to conceal the tower against the forest backdrop. In this case, an Eastern White Pine tree concealment structure could blend as an above-average tall tree on this face. Since Eastern White Pine trees on hillsides do not typically exceed 100 feet, a tower height close to that could appear realistic. 150ft would be a truly monstrous pine tree for this hillside!

Since one of the primary concerns here is the impact to the natural character of the landscape, antenna height is something of critical importance and it should be the focus of the application. I think we all can agree the tower must only be built as tall as necessary to provide useful coverage; it is even in the interest of the applicant to do so since extra height is extra cost. I believe that in this particular case the necessity of providing 4 fully independent antenna bays (tower "tiers") for collocation is less important than minimizing the visual impact. The applicant, as a property developer, may feel differently because from their perspective extra height means extra leases – and while we can't expect a money-losing operation, it should not be an obligation of the town of Buckland to maximize the profitability of Vertex Towers LLC. Therefore if collocation can be reasonably achieved with one or two antenna bays, it should suffice and would allow the tower to be much shorter with a negligible difference in service coverage. There are several different ways to serve multiple carriers from the same facility besides adding height to the tower[3].

The applicant, as well as Buckland's wireless consultant, have determined that lower antenna heights on the tower would serve carriers and users nearly as well. From the applicant's own documents, antenna positions at 85ft AGL could provide very reasonable coverage given the population, traffic density, and the geography of the area when combined with site VT-MA-0012A. Further optimization with antenna design could even improve on this.

Buckland has invested significant time and resources into the development of thoughtful zoning bylaws to balance development with preservation of natural spaces. In addition the town has recently invested in an exhaustive Open Spaces and Recreation Plan, which emphasizes the unique and scenic qualities of the town. The same standard for variances and approvals would be applied to complex housing projects, which is a similarly important topic in Buckland. To allow the significant height variance requested on this dramatic natural backdrop rich in history would be a dereliction of duty by officials.

I also am concerned about the longevity of this facility. The applicant (Vertex) appears to be a relatively small company that has come and gone over the past 10 years, according to filings with the MA Secretary of State. As industry, technology and legislation evolve, and small-cell distributed deployments of 5G millimeter-wave (and beyond) inevitably expand into rural areas, the tower itself may soon become irrelevant. With a trajectory like that, how can we be assured that Vertex will exist with the resources to remove this facility if it is no longer used or needed? I

[3]APWireless Investments ULC: "CELL TOWER AND ROOFTOP ANTENNA NETWORK SHARING" https://www.apwip.ca/cell-tower-and-rooftop-antenna-network-sharing/

feel the applicant should offer a guarantee in the form of a surety bond or escrow to cover the decommissioning costs when the time comes.

I believe the evidence I have provided here shows that this particular application is inadequate and does not fit the honest and legitimate objectives of Buckland's zoning bylaws. I respectfully request that the town deny the application as received, and that Vertex re-submit their application taking into account these important points. Nothing in my arguments here should be misconstrued as a wholesale rejection of expanding cell service, but rather the next phase of a working dialogue with the developer to provide service whilst respecting our objectives in town planning.

Sincerely,

John Holden
Orcutt Hill Rd.

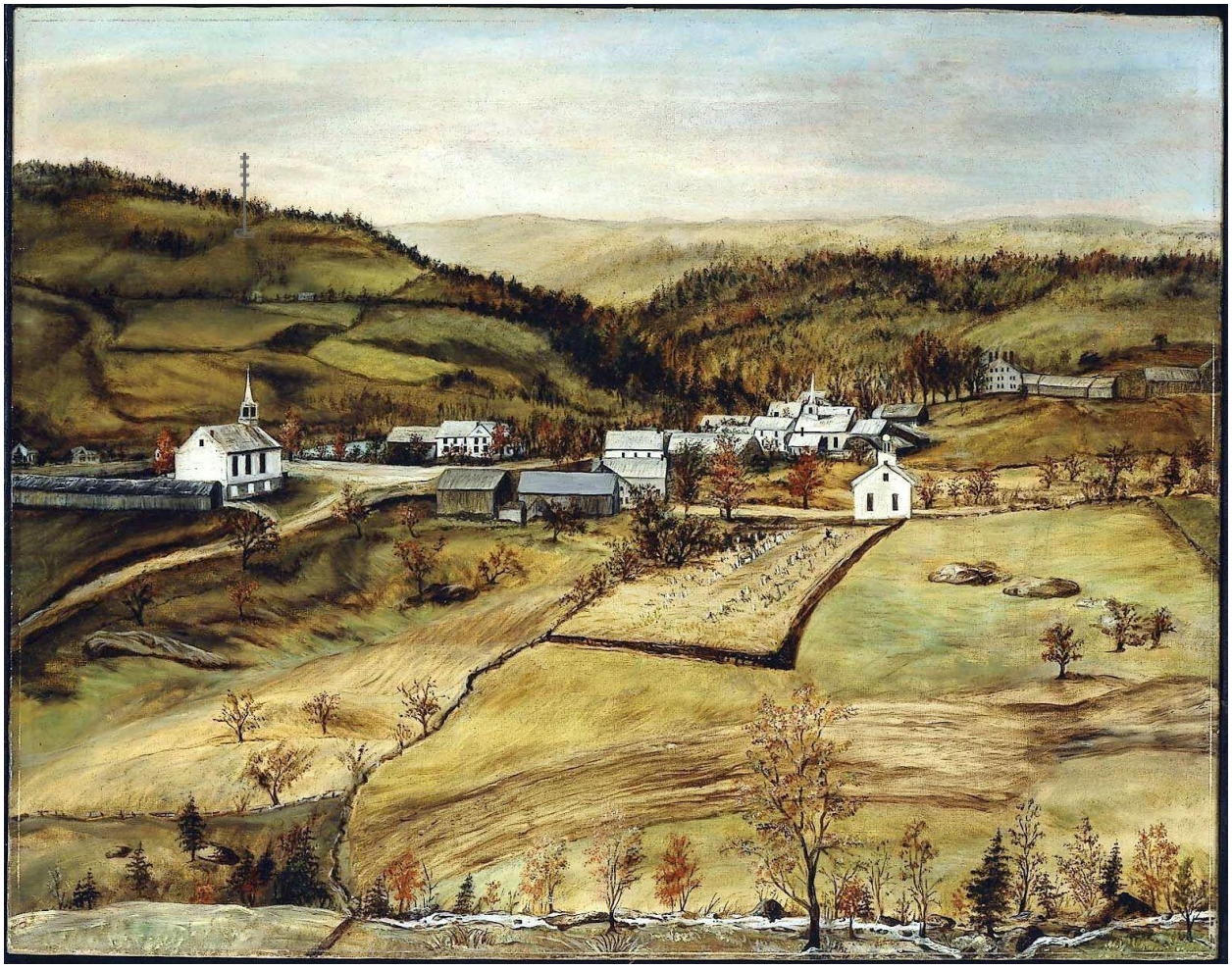
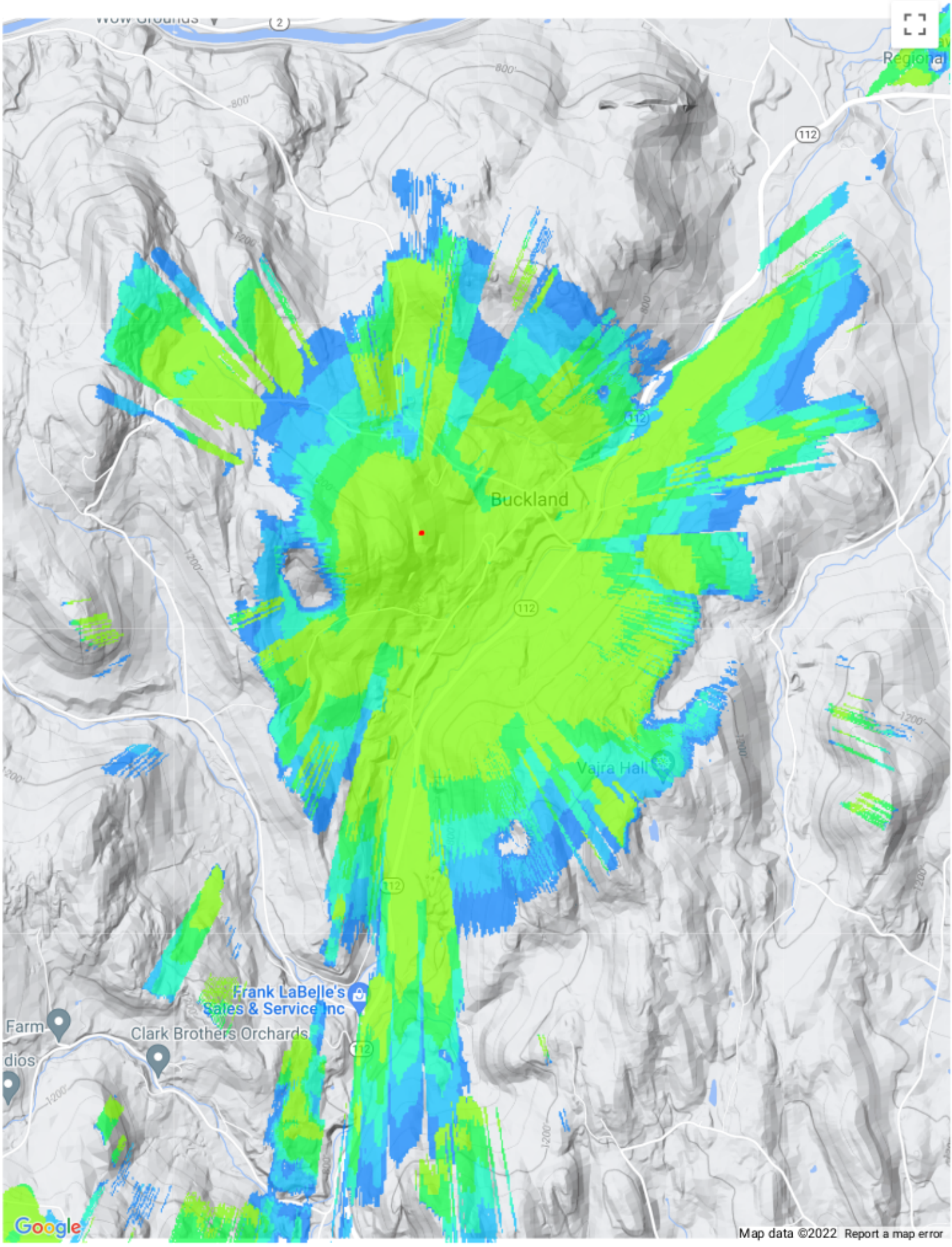


Exhibit A. SIMULATION - (View from Maynard Hill)
Provenance/Ownership History: the artist; with Connecticut dealer; with Harry Shaw Newman, New York, 1943; to Maxim Karolik, Newport, R.I., 1943; to MFA, 1947, gift of Martha C. (Mrs. Maxim) Karolik.
In the collection of the Museum of Fine Arts, Boston
https://commons.wikimedia.org/wiki/File:Buckland,_Massachusetts_1850-68.jpg

Exhibit B: Balloon demonstration on Jun 14, 2022. Emphasis added for identification of balloon. Photo credit: John Holden

Exhibit C: Balloon demonstration on Jun 25, 2022. Emphasis added for identification of balloon. Photo credit: John Holden


Buckland
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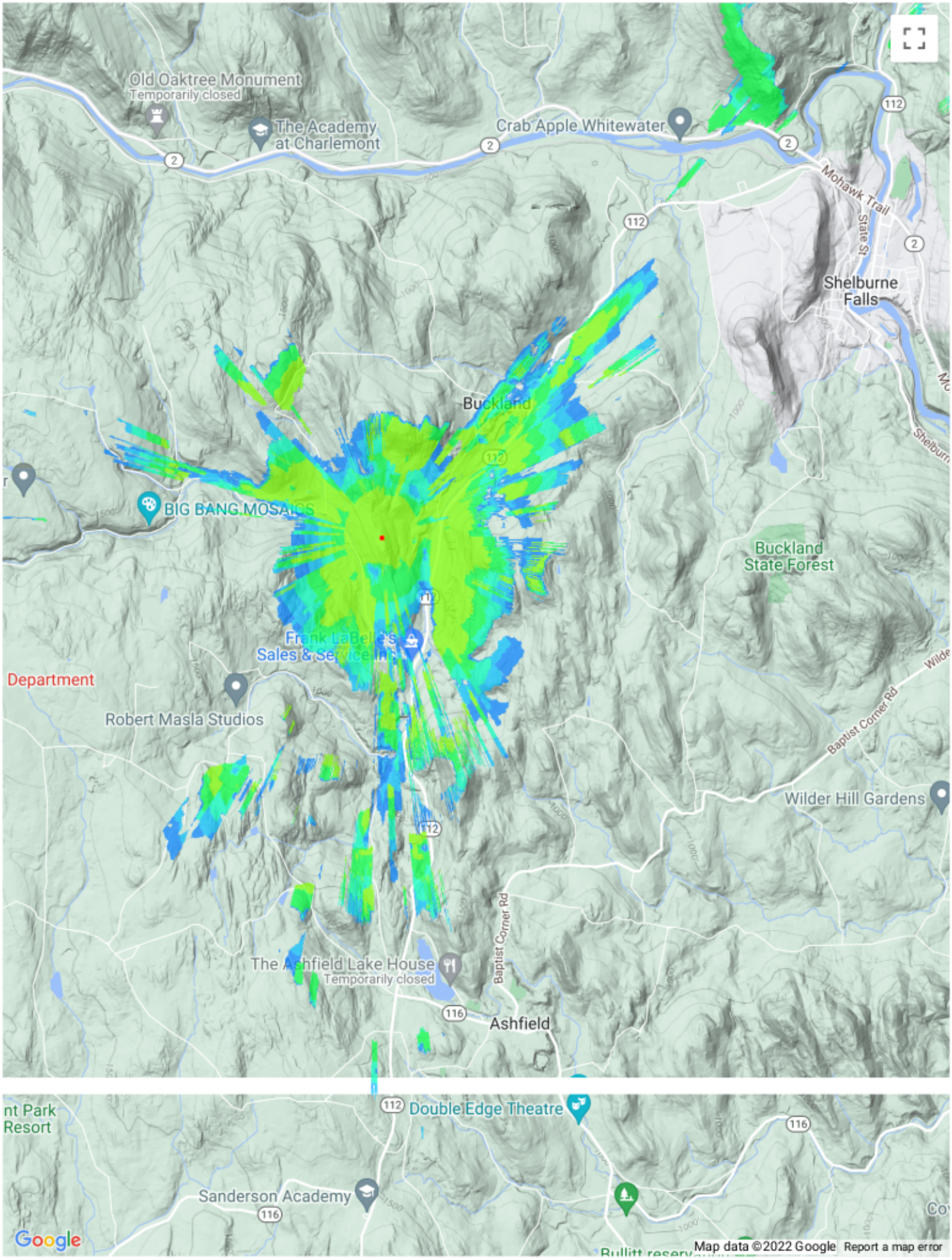
Old Oaktree Monument
Temporarily closed
The Academy at Charlemont
Crab Apple Whitewater
Mohawk Trail
State St
Shelburne Falls
Buckland
BIG BANG MOSAICS
Buckland State Forest
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