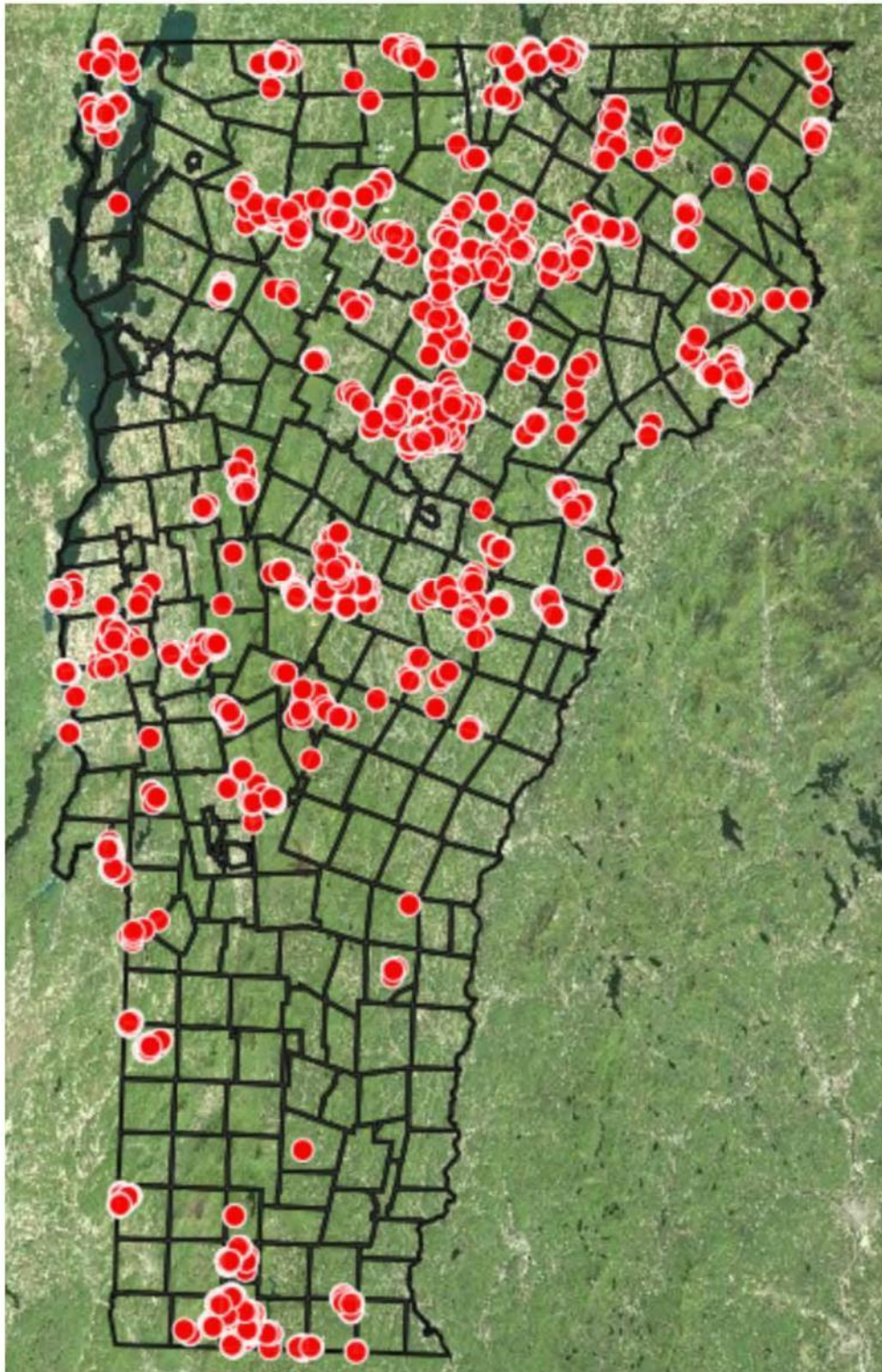


An explanation of our methodology and details on each of these towns are in Appendix G. Because these deployments are extending existing infrastructure, the project team believes that with sufficient resources and cooperation by the cable and fiber providers, this deployment could be completed by the end of the year and if possible, funded using CARES Act dollars.

8.2.2.3 Cellular Service Signal Boosters

Some Vermonters have weak cellular service and would not be able to get consistent broadband but would be able to get significantly better service by installing cell service repeaters, also known as signal boosters, typically on a premise's roof. Installing signal boosters will allow a greater number of Vermonters to receive adequate internet speeds on existing cellular networks. Using data from The Department of Public Service's drive test (expanding to areas with any measured speed, and any area within one-half mile of those areas), we estimate that about 3,700 additional unserved locations likely have weak cell service and could benefit from repeaters. (If VTel receives ReConnect funding and expands its network as discussed below, a further 3,500 locations would receive enough signal to likely benefit from repeaters.)

Figure 30: Premises Where Cell Boosters Could Benefit Connectivity



The project team recommends the State of Vermont notify residents who may benefit from signal boosters and provide a list of options. The project team recommends that the State bulk purchase signal boosters for an estimated 820 low-income households that would benefit; another 775 low-income households would likely benefit from a cell service repeater if VTel expands its network. The State should also consider the bulk purchase of signal boosters for additional Vermonters who are not below the low-income threshold, which would allow them to access better service without needing to pay as much for the installation of new equipment.

As described below, the proposed Broadband Corps could install these signal boosters for Vermonters. Corps members will receive a simple training on installation, as well as Covid-19 safety precautions.

Cell signal boosters typically cost about \$400, with installation costs of about \$350. Assuming the Broadband Corps is able to complete installations and the State can negotiate a lower price when purchasing in bulk, the project team estimates that the State of Vermont can install signal boosters for 1,575 low-income households for about \$535,000.

8.2.2.4 Potential New Wireless Deployments

VTel has applied for ReConnect funding from the USDA to extend its wireless network. While this application is still pending, VTel has already begun to expand its network with new wireless deployments, like their recent deployment in Whitingham. Our estimates indicate that VTel's proposed network expansion will cover about 2,500 that are currently without access to mobile data service; and would not be well covered by the mechanisms described above. In addition, another 3,500 premises could be served by VTel's proposed network with the installation of cellular signal boosters. It is not known whether VTel would build part or all of the proposed networks should USDA funding not be available.

We do not recommend at this point that Vermont step in to subsidize VTel's proposed deployment should the USDA decline to fund it. First, this wireless infrastructure would not provide speeds of 100/100, and therefore does not advance the State's long-term goals. Second, funding this project may keep many parts of the State of Vermont ineligible for future USDA ReConnect funding for a longer period of time, which would inhibit the State's ability to meet its long-term goals. Because the State has set 100/100 as a goal, any investment in long-term, permanent investment should be directed toward meeting that goal.

8.2.2.5 Wireless from Other Non-Residential Fiber

We evaluated whether it was possible to expand broadband access by deploying wireless equipment on buildings or other vertical assets where there is existing non-residential fiber; for example, a wireless provider could attach equipment to a building connected by FirstLight or a fiber splice located outside a VELCO substation on VELCO's fiber network. However, the project

team does not recommend that the State of Vermont fund the deployment of this type of wireless network at this time.

Nearly all locations within a 0.5 mile radius of a building served by FirstLight or a VELCO substation could be more rapidly served by mobile data (including those households that could benefit from signal boosters) or line extensions. Identifying and deploying small-scale wireless solutions would require time from PSD employees or employees from other agencies that could best be used implementing other programs.

Individuals across the State have been working on these types of hyper local solutions — from Addison County to the Northeast Kingdom. Individuals with experience could be supported by the CUDs may be able to set up and manage these micro-networks. These deployments are not to be discouraged; however, it is not in the State's best interest to fund them to address an immediate Covid-19 emergency.

8.3 Using Broadband Corps to Mobilize Solutions

Consistent through interviews and survey feedback, stakeholders have illustrated a need for more hands-on resources to assist with the technical issues that inevitably arise as the State moves online. Schools tech directors that were busy serving an in-person school enterprise now need to also assist educators, students and parents for both online and in person instruction. Healthcare providers report that appointments take longer due to technology barriers and state that they often are using appointment time to walk patients through use of their online systems. And the rapid distribution of wireless devices and boosters to connect many unserved locations will require relatively low skill but intensive work on the ground.

8.3.1 Overview of Broadband Corps Tasks

A quickly organized Broadband Corps could address these gaps through organizing volunteers through the CUDs and providing direct service to Vermonters to make sure as many as possible are connected quickly and able to use this new connectivity.

We recommend the creation of a Broadband Corps to perform the following tasks:

- 1) **Assist with infrastructure and service deployment.** Corps members will assist Vermonters to measure what type of hot spot would work best, and whether a signal booster is needed. Corps members would also be responsible for installations, updating coverage maps, and other duties related to infrastructure deployment. Installation of signal boosters are very simple efforts that require few specialized skills and could be ideal for volunteer efforts.
- 2) **Perform outreach, and direct technical support to Vermonters becoming familiar with their broadband connections and devices.** Corps members will work with schools,