

Broadband Expansion in Frankestown

Since September 2019 the Broadband Committee has been searching for a solution to expand wired broadband access (defined by the FCC as at least 25mbps download and 3mbps upload) to the unserved areas of town. One of the goals of the committee is to find a way to extend broadband service to these unserved areas without relying on tax dollars. The committee members are:

- Alfie Eisenberg - Chair
- Jamie Pike - Town Administrator
- Marsha Dixon - Ex-Officio Select Board
- Gerri Bernstein - Planning Board representative
- Tom Burke
- Laura Abrahamsen
- Mary Murphy

Current Broadband Coverage

Frankestown currently has 3 wired internet service providers (ISPs): Comcast, Consolidated Communications (CCI) and TDS. TDS and Consolidated do not overlap due to old telephone company boundaries, but Comcast overlaps both TDS and CCI.

- Comcast offers up to 1 gbps.
- CCI is DSL only and offers a max of up to 25 mbps download/2 mbps upload which can be as little as 768kbps download and 128kbps upload in some areas.
- Up until this year, TDS has only offered DSL to residents in their coverage area, but has converted most, if not all, of their customers to fiber to the home and has already notified these residents that they can upgrade. They also offer up to 1gbps.

There have been satellite options available for quite some time via Hughesnet and Viasat (formerly Exceed) but those are not considered real broadband due to the high latency involved with current geostationary (GEO) satellites at about 22,000 miles high.

According to the 911 database, Frankestown has 808 official 911 addresses. The table below shows the distribution of service to the best of our knowledge at the moment. Gathering this data was a combination of information provided by the ISPs, the state 911 database, Avitar Associates assessment data, as well as driving the roads verifying each companies service in questionable areas. There is a GIS map with all of this data here: randbrooksoftware.com/o (open street maps base layer) and randbrooksoftware.com/g (google maps base layer)

Comcast served (cable)	665	82%
Comcast not sure	5	1%
TDS Served (Fiber available)	170	21%
Unserved (< 25/3 service)	113	14%

Service for all providers consists of street level access plus an allowance of 150-300 feet to a residence for no additional charge. Each provider has their own pricing schedule for driveways longer than the allowance.

Past Grant Opportunities for Funding Expansion

There have been multiple federal programs over the last few years that we have investigated, but, without going into a lot of detail, we don't seem to qualify for any of them.

- Some have a threshold of 10/1 mbps which reduces our unserved count as most of our unserved households have access to this level of advertised service.
- Most require some considerable spending up front on design with only a 50% or less chance of getting a grant/loan
- Some require towns to be below certain average income levels
- Some are completely business oriented and require detailed justification via promise of x number of jobs to be created.

Emergency Broadband Fund

In June 2020 the governor allocated \$50 million via the CARES act and Emergency Broadband Fund. This was a very condensed RFP process for providers to propose expansion to unserved areas. Providers were required to commit to completing projects by the end of the year or lose 90% of the funds. Due to these constraints, only \$16 million was spent and it is unclear what happens to the rest. A few towns were fortunate to have been selected based on circumstance towns got brand new fiber installations for all residents at no cost to the town.

SB170

In May of 2018, the governor signed senate bill 170 (SB170) into law. This bill allows for towns to bond for broadband expansion, but only allows the town to bond for the amount it would cost to serve the unserved residents. Chesterfield was the first town to "crack the code" for SB170 style public/private partnerships and since then many towns have implemented all new fiber solutions and many more are in progress. Most of these towns had little or no 25/3 mpbs service available. There is a process to follow where the town sends out a request for information (RFI) to incumbent providers requesting details on coverage in town, and by law, they have 2 months to respond. If they don't respond, their service areas can be considered unserved. The next step is for the town to send out a request for proposal (RFP) to providers for them to propose a solution with details on costs, timeline, etc. The due date for the response is up to the town but is usually 30-60 days. After the town chooses the best option, which could be to do nothing, there is a process to follow with public hearings and the town must approve the bond by 2/3 at either the regular town meeting or a special town meeting. The solution that has been working has been called the Chesterfield model, which is a public/private partnership. The town takes out a bond for the amount needed to build the infrastructure to street level plus associated administrative costs. The provider supplies the connections to each residence. The bond is usually for 10 or 20 years and the payments are covered by a small additional monthly subscriber fee, usually \$10/month plus or minus, and the provider uses that to pay the bond. Usually, the town ends up owning the infrastructure for that time and the provider is contracted to manage and maintain it. At the end of 20 years, the provider may have the option of buying it back from the town

and/or extending the contract. CCI has won almost all the contracts in the southern part of the state for fiber to the home (up to 1 gbps) for everyone in town.

Bottom line: SB170 works well for towns with at least 80% unserved by 25/3 mpbs internet.

SB170 and Frankestown

We gave SB170 a try even though our unserved numbers are low and would be difficult to make work. We had sent our RFP out to Comcast, CCI, TDS, Granite State Communications, HUB66, as well as posted on the NH Office of Strategic Initiatives web site. We received responses from 2 providers, Comcast and HUB66. The reason we didn't receive responses from others is probably either because they don't want to cross old telephone company boundaries (TDS extending into CCI territory) or the cost to bring new infrastructure into town for widely dispersed islands of no service doesn't work numbers wise for a public/private partnership.

Comcast Response

To our surprise Comcast came back with an astronomical number considering they already have infrastructure covering 82% of town. They proposed a bond of just over \$1 million, over \$8000 per household. Even if all the unserved signed up for this service it would require an additional service fee of \$40 per month or more for the new signups for 20 years to pay for this bond. We don't see this as an option for SB170 style bonding, so it could only be done with a grant.

HUB66 Response

HUB66 gave us 2 proposals, fiber to the home and a fixed wireless solution. The fiber solution would be a bond of about \$1.1 million, the wireless solution is about \$240,000. If it wasn't for up and coming LEO (Low Earth Orbit) Satellite Constellations wireless would be a good option). Their fiber solution would also actually work in a bonding scenario if half of the residents in town signed up for it as they have a clever revenue sharing scheme which gives cash back to the town as more people sign up. This could help pay a bond and keep the monthly service charge low enough to work.

HUB66 is an innovative agile company that seems to be moving aggressively to increase their footprint in New Hampshire. They have some wireless and fiber installations in the lakes region as well as one in Fitzwilliam, NH. So far they are extremely responsive and flexible and working with their main network designer/engineer has been a pleasure to say the least.

Consolidated Communications

Even though CCI did not respond, we have been in contact with them. They are hoping to work with us at some point, and it may get easier for them to convert their footprint in Frankestown to fiber as they build out fiber in surrounding towns such as Greenfield. CCI has been the winner for many of the SB170 projects in NH.

New Federal Funding Opportunities

National Telecommunications and Information Administration (NTIA) - Broadband Infrastructure Program

The NTIA has announced a funding opportunity targeted specifically at broadband buildout including residential. Initially there is \$288 million available, which is not much nationwide, but we fit the

qualifying criteria well. Applications are due in August, awards in November. We just need to work on a provider to partner with us.

This grant opportunity was written as we had wished all the other ones had been written. There are few restrictions, and it is specifically designed to build out broadband, preferably fiber, to unserved households.

- There is no requirement for matching funds from a provider or otherwise, although 10% or more is looked at favorably.
- There is a high priority put on rural projects, and there is talk of more money coming at some point through this or other programs.
- The application process is far simpler than other federal programs we have investigated.
- All expenses involved in the project can be included in the grant application, including administrative costs.
- The only limitation is a government entity, in our case the Town of Francestown, must select one or more providers as part of a “covered partnership” in the application process.

This money won't go far but hopefully more will be coming through.

[American Rescue Plan Act \(ARPA\) - State and Local Fiscal Recovery Funds \(SLFRF\)](#)

From the Treasury website: “The American Rescue Plan will deliver \$350 billion for eligible state, local, territorial, and Tribal governments to respond to the COVID-19 emergency and bring back jobs.

The Coronavirus State and Local Fiscal Recovery Funds provide substantial flexibility for each government to meet local needs—including support for households, small businesses, impacted industries, essential workers, and the communities hardest hit by the crisis. These funds can also be used to make necessary investments in water, sewer, and broadband infrastructure”.

As the funds were distributed based on population, the limited funds allocated for Francestown do not make it feasible to use these funds for broadband expansion.

[Future Infrastructure Funds](#)

The Biden administration is talking about broadband for all in their infrastructure plan so there is a good chance more funds will be coming either through NTIA or some other vehicle. We need to wait and see if we can get the initial NTIA funds.

[New Technology on the Horizon - Low Earth Orbit \(LEO\) Satellite Constellations](#)

There are several of these efforts going on world-wide at various stages of development. LEO constellations are not geostationary (GEO), and they are at very low altitude, hundreds of miles vs 20,000 of current geostationary satellites from the likes of Hughesnet and ViaSat. The LEO satellites are constantly moving in a web around the globe. Think of them as cell towers in the sky that move over you with at least one always in sight. The dish is a fancy phased array antenna that finds the optimal angle to point and tracks the satellites without moving once in position. LEO solves the huge latency problem with GEO satellites and will be able to get ping times down to 20-40 ms when in production,

which is better than cellular. If the LEO satellites add satellite to satellite communications via laser or some other method, they have the potential of lower latency across the globe as the speed of light travels faster in the vacuum of space vs terrestrial fiber.

Starlink (SpaceX)

The most advanced implementation by a long shot is currently in beta for residential users of which there were over 10,000 users around the world as of April 2021. SpaceX has their own rockets and launch 60 satellites at a time, which will be increased up to 400 once SpaceX has their starship rocket in production mode. There are currently over 1000 satellites active in the Starlink constellation. In beta it costs \$500 for the dish and \$99/month but SpaceX says they want to lower the price and add a low cost option. We will see what happens. They have hinted they will be out of beta this year, maybe even as early as this summer. From personal experience this is a game changer. Currently you need about a 100 degree cone view of the northern sky down to about 25 degrees over the northern horizon, so the install may be a challenge for some homes with trees surrounding a residence. This requirement will be reduced as they fill in the constellation with more satellites. Otherwise it is plug-and-play.

OneWeb, Telesat, Project Kuiper (Amazon/Bezos), and the Chinese government also have programs in process. OneWeb already has satellites in orbit and is testing, but not available to the public. Kuiper has nothing in orbit yet. These companies are at least one to several years behind SpaceX, and it's not clear which ones, when, or where they will be offering residential broadband.

In Closing

The Committee is dedicated to continuing the effort to bring more wired broadband options to the residents of Frankestown and will continue to search out those opportunities.

Because Frankestown has 14% unserved for 25/3 broadband service currently, we as a town are in a wait and see situation. Until a viable grant or option presents itself it is the committee's opinion that we are best off to bide time and see if the Starlink option from SpaceX becomes a good solution or if some of the federal and state grants offer a town such as ours alternatives that make sense over the long haul.