

Bringing Broadband to your Community

Frequently Asked Questions

What am I looking at right now?

This is a set of Frequently Asked Questions designed by the Commonwealth of Virginia's broadband team to explain why and how to get everyone in your community or region access to broadband, or high-speed internet. The guide is designed for local leaders, whether they be local elected, business or concerned citizens, who will work with local governments and internet service providers to bring universal access to broadband.

Everyone?

Well, hopefully. The Commonwealth is defining "universal broadband coverage" as anything over 95% of homes and businesses. Some communities may have residents that are simply too remote for it to make sense for those folks to be connected as a part of this effort. What we've seen, as we've looked at connection costs across the Commonwealth, is that some areas are able to get nearly everyone online while others are so spread out that it could cost twice as much to get 100% connected as it does to get 95% online. We'll talk more about this later, but it's also worth noting here that another reason for planning for "universal broadband coverage" is so that we're not creating pockets of constituents that are even harder to reach than they were before. So please keep reading.

So what is broadband?

Broadband is any connection that allows data to move from the internet to your device quickly. When it is slow, it's an internet connection but it's not broadband. In Virginia, we define broadband as connections with speeds of greater than 25 megabits per second download – when things load from the internet to your computer or device – and 3 megabits per second upload – which is when you send something from your computer or device out to the internet.

Why do we need to do this?

The pandemic has made it abundantly clear how crucial broadband is in the 21st century. It has become a primary means of school, work, shopping, and communication. Even as we put the pandemic behind us, many of these trends will continue onwards, and those lacking broadband will be left behind.

Broadband was already essential for school before the pandemic. We already knew that children in households with broadband access have better educational and career success – even when you consider all other factors. The advent of online school has only made this more the case, and some aspects of online schooling, such as online homework and virtual classes for inclement weather, were either already here or are now here to stay. The kids in your community deserve just as good a shot at success as any other kids around Virginia do.

Second, this infrastructure is, as we've seen, as critical to modern life today as electrification and indoor plumbing have been for the past century. High-speed internet is essential to local economies, whether it be agriculture, forestry, or the expanding home-based small businesses. Businesses absolutely need high-speed access to the internet, and that now often means access at their employees' homes as well as at the workplace. Local economies benefit from access to quality broadband coverage and high-speed internet brings access to telemedicine and online education opportunities. Additionally, with many jobs staying remote even after the pandemic, broadband connectivity offers the potential for attracting and retaining jobs and workers from elsewhere.

Finally, participation in modern American civic, economic, and social life requires that all of us be able to have the same opportunity to access voting information, local public notices, email, online marketplaces and other modern communication tools as easily as do those who have good broadband connections. Your community deserves to have the same quality of life as connected communities.

Isn't the state going to handle this?

The Commonwealth is here to help in every way we can. We can give advice, we can supply documents like this one and other tools and resources, and most importantly, the Governor and the General Assembly have allocated millions of dollars in broadband funding opportunities to help make broadband projects in your community happen.

What we can't do is get anything done without local partners. Our grant programs require a private sector partner (usually) and a unit of local government. That could be a single county, city, town, a group of counties, a planning district, GOVA region, etc.

Simply put, local leadership is a key factor in getting your community online. Without that, broadband expansion probably won't happen.

Isn't some consultant going to handle this?

You can absolutely hire a consultant to help you with this BUT you don't have to, and it's important that you have a very clear idea of what you want your consultant to do if you do.

The key things to think about when considering a consultant are:

1. Can I get what we need with some legwork on my part and on the part of those in my community?
2. Have I fully explored the support available for free from the state?
3. What are my specific needs?
 - a. Do I just need legal support to manage these relationships?
 - b. Do I need technical advice on what's achievable?
 - c. Do I need financial advice about my community's resources and available benefits?
4. Do the Internet Service Providers (ISPs) that already serve – or could serve – my area already have the ability to support planning an expansion effort? They may

already know what it would take to expand, and simply haven't because of cost concerns – we can help with that.

5. Has this consultant worked with other localities before? If so, can they provide references I can take to the Commonwealth Connect team?

The Commonwealth Connect team wants to help you get as much done as you can for as little expense as possible.

What if it turns out a consultant is exactly what we need?

It's always nice to know exactly what you need. In our experience, hiring a third-party consultant to manage and support your efforts can be very useful. Hiring a third party consultant to design your network build out is rarely a cost-efficient way to get your community covered because your eventual partners will need to do their own design and engineering.

There are some great consultants out there, and as with any large-scale project, due diligence is important. Look for a consultant's work history and reach out to both the Commonwealth Connect team and some of the other localities in which they've worked before you hire them.

Also, make sure you give the Commonwealth Connect team a heads up about your plans. We may be able to help find resources for your planning work.

Isn't Elon Musk or some other tech person going to handle this?

There are lots of developing broadband technologies, and they're all exciting. That said, there is currently no silver bullet technology in the pipeline that is likely to solve the challenges of rural broadband and get your community online in the near future.

Can't everyone already get satellite service?

You hear a lot about satellite broadband. Here's the challenge: current satellite services rely on a comparatively small number of satellites far above the ground, and even though signals are fast, there's no way to speed up the "latency," or the time it takes your clicks and keystrokes to travel up to the satellite, back down to a receiving station, out to the internet, back to the receiving station, back up to the satellite, and back down to you. Phew! This type of service is also very expensive and, as anyone whose service has been knocked out during a thunderstorm can attest, can be unreliable in bad weather.

Elon Musk is putting satellites into orbit much closer to the ground to try to solve that problem. And it will, eventually. But that creates a bunch of new problems related to the satellites having to move across the sky rather than stay in the same place, the satellites falling back to earth much more quickly, the satellites having to talk to each other, outages between satellites, etc. The service, which is currently being beta-tested in some areas, is expensive and likely to stay that way. Additionally, it is still potentially unreliable in bad weather and is not guaranteed to reach a widespread rollout.

Google, Microsoft, Facebook, Amazon, as well as scientists with the cable and telecommunications industries are all also working on new technology.

The Commonwealth Connect team thinks these people do lots of neat stuff, and don't get us wrong, we are excited to have people thinking outside the box on this, but we aren't holding our breath on these developing technologies, and you shouldn't either.

Isn't 5G cellular service going to solve all this? We have lots of towers already.

While you may have what seems like a lot of towers, you don't have enough for 5G. We are certain. Here's why:

5G, unlike previous improvements in cellular technology, is going to require transmitters to be VERY close together, sometimes as close as a few hundred yards apart. Plus, towers and transmitters don't do anything on their own; they need to be connected by fiber-optic lines.

While 5G may roll out to the Commonwealth's urban cores sometime in the next few years, it likely won't reach anywhere not currently served by broadband service any time soon, and even when it does, your community is going to need a ton of Fiber Optic Capacity to make a 5G network work.

That's the great thing about the work you are undertaking to grow your broadband network. You'll get your community online and in doing so, actually lay the groundwork for things like 5G networks in the future.

So what will an actual broadband network look like in my community?

Unless you know where to look you probably won't notice it. But if you mean, "what kind of infrastructure and technology will you be deploying," that's a much better question.

Ok, what kind of infrastructure and technology will my community be deploying?

While there are lots of different ways to move data around, in the current and near future technological landscape, you'll hear most about two technologies that make sense for most communities to support: 1) fiber optics to the premises (FTTP); and 2) fixed wireless broadband.

Fiber Optics are glass cables that transmit data through pulses of light, and these connections can reach blistering speeds. Fiber to the premises networks tend to be expensive however, and are best-suited for more dense areas. Fiber Networks physically connect homes and businesses to internet infrastructure.

Fixed wireless is different from cellular service; anything you get on your mobile phone is, kind of by definition, mobile. Fixed wireless means transmissions between equipment that is fixed in specific locations, usually a tower and an antenna on your home or business. Fixed wireless networks still require fiber, but that fiber only goes to towers and other transmission sites – the signal travels wirelessly from there.

Ultimately, the Commonwealth Connect team is technology-neutral and suggest that you be as well. If a product, be it fiber, fixed wireless, TV whitespace (which is a specific kind of

fixed wireless), or a string tied between two cups, can deliver reliable high-speed broadband in all kinds of weather, with low-latency, and at a reasonable cost- count us in.

Isn't fiber much better than wireless?

Yes and no. Fiber does offer higher speeds, but at much higher capital costs. Fixed wireless technology is gaining ground on fiber every day, but requires that equipment be regularly upgraded as the technologies advance.

Most communities will need to pursue a hybrid approach: some fiber to the denser areas, and to towers, with fixed wireless extending the network out to the less-dense regions.

Our locality is struggling financially – how can our community afford broadband?

That's ok. Really.

First, you probably have the ability to access more money than you think. Later in the guide we'll discuss service districts for broadband and solar siting agreements, which can both be really good ways to raise capital at the local level.

Second, the Governor and the General Assembly, with the support of a broad coalition of stakeholders, are leading the charge for more state investments in broadband. Commonwealth investments in broadband grants to communities and Internet Service Providers (ISP) have grown exponentially in the last few years. The Governor and the General Assembly have been slowly ramping up grant funding from \$19 million per year in 2019 to \$50 million per year in 2021 for grants to localities – or groups of localities – who are in partnership with a private sector ISP or public broadband authority (as a temporary pilot program).

Third, and we'll be able to help to identify these, your community almost definitely has tons of assets to bring to the table. Each will look different, but we've seen communities come together around funding, vertical assets, even volunteer property and land clearing for tower locations.

How do we get those grants?

There are really two state sources of grants: the Virginia Telecommunication Initiative (VATI), which is run through the Virginia Department of Housing and Community Development (DHCD), and the Tobacco Region Revitalization Commission's (TRRC) Last Mile Broadband Program.

Anyone in Virginia can access VATI grants. You can learn more about them on DHCD's website, which is [here](#).

TRRC grants are only available to select communities in Southern and Southwest Virginia. To learn if you're eligible, check [here](#). For background on that program, reach out to your regional TRRC office.

For a full list of Virginia and federal broadband funding opportunities, click [here](#).

You also said federal. What federal funding opportunities are there?

There are lots of federal programs. They tend to work differently from state programs in that the locality does not always need to be involved or even consulted – the ISPs work on them themselves. There may in fact be federal funding already invested in your community for broadband! We will elaborate on this more later, but if you want to read ahead a bit, a [full list of those federal funding programs can be found here](#).

We got money from the federal coronavirus relief bills. How can we use this for broadband?

A lot of federal broadband money came from the coronavirus relief bills. Several federal programs have been established through recent relief packages to directly aid broadband expansion and affordability. Plus, local governments are receiving direct funding for coronavirus relief. We will talk more about this later but always remember that the Office of Broadband Team in DHCD (vati@dhcd.virginia.gov) is here to help access and plan uses for federal dollars.

Shouldn't this be a part of our Comprehensive Planning Process?

Yes, it should be, however, we absolutely don't want you to wait until your next comprehensive plan update to get started on this. You should hit the ground running, and by the end of this process, you'll have plenty of material to include in your next plan.

So what should we do first?

You're doing it. Work with our broadband toolkit, figure out how far along you are, and take the next identified steps. If you run into trouble, contact the Commonwealth Connect team for help.