Schoodic Peninsula Broadband Committee

Broadband 101: The Basics

- Broadband is **high-speed internet access**, not a specific type of service
- Broadband is measured by download and upload speeds
  - Download speeds matter for streaming movies and TV shows, web-surfing, and receiving large files
  - Upload speeds matter for things like teleconferencing (Zoom), telehealth, remote learning, and content creation
- Maine has updated standards to define broadband as internet access with speeds of at least **100 Mbps down** and **20 Mbps up**

Broadband 101: The Basics

- What can you do with these different speeds?

At 1 Mbps, you can browse the web or social media, check email, stream online radio, make VOIP calls, or Skype with one person – but not all at the same time

At 5 Mbps, you could stream standard definition (SD) and some high-definition (HD) videos and do gaming.

Between 5 Mbps and 25 Mbps, you can work or learn from home, have more complex meetings (Zoom), stream higher quality video, and do online gaming

At 25 Mbps and above, you can stream Netflix in 4K

- And that's if you're just one person using the Internet connection
- Every device using the Internet connection consumes bandwidth

Broadband 101: The Basics

- Broadband works over multiple formats: **cable**, **fiber**, **satellite**, or **cellular**
- Internet access enters a building via physical connection from a utility pole or a satellite radio dish (like Starlink), or a hotspot from a wireless provider
- Once inside the building, networking equipment such as routers and modems connect individual devices using wires, or sometimes exclusively over wifi
- Many factors impact the speed individual devices have access to – just as a chain is only as strong as its weakest link, a connection to the Internet is only as fast as the slowest component or link along the way

Schoodic Peninsula Broadband Committee

- Formed in 2022 by the combination of the Gouldsboro and Winter Harbor Broadband committees
- Comprised of members representing both towns
- Goal is to ensure that all residents and businesses in both towns have a reliable and affordable broadband connection available to them

Why is broadband important to our communities?

- Broadband availability is a driver of economic growth and allows many employees to be able to work from home – for people with such jobs to settle in our area or for locals to apply for and work those kinds of jobs
- Remote learning can grow into a more versatile tool as connectivity improves, either as a backup against interruption in regular, in-person instruction, or as a supplement and a support for it
- Telehealth requires strong upload and download speeds – as more people come to rely on this technology, bandwidth needs will increase
- And as always, broadband helps us stay connected in all the ways we've come to expect and already use

SPBC Survey Results

- The committee sent out surveys to all addresses in Gouldsboro and Winter Harbor in 2022 and received 138 total responses
- 128 respondents said they had Internet access of some kind, 10 did not
- Of the 10 respondents who didn't have Internet access, all wanted it
- The following services were reported in use by respondents:

  60 – DSL (Consolidated Communications)

  41 – Cable (Spectrum)

  11 – Satellite (HughesNet, Starlink, etc.)

  8 – Mobile hotspot (AT&T, Verizon, T-Mobile, etc.)

  1 – Dial-up

  17 – no response or unsure

SPBC Survey Results

- Respondents reported **advertised speeds** as low as **0.75 Mbps down** and **0.76 Mbps up** and as high as **500 Mbps down** and **300 Mbps up**
- **Actual speed** test results differed, as low as **0.5 – 1 Mbps down** and **0.09 Mbps up**; highest test results came in at **359 Mbps down** and **980 Mbps up**
- While some services reported very good speeds, **only 19** respondents reported download speeds that **meet 100 Mbps** or better, and **only 8** respondents reported upload speeds that **meet 20 Mbps** or better

SPBC Survey Results

- Respondents reported paying as little as **$6.00/month** and as much as **$330.00/month** for Internet
- The **median** price reported was **$62.00/month** for Internet alone
- The **average** price reported was **$70.50/month**, again for Internet alone

SPBC Survey Results

- Respondents reported the following main uses for their Internet connections:

  123 – Email

  120 – Web browsing

  99 – Streaming

  88 – Social media

  63 – Work from home

  48 – Telehealth

  42 – Business or home office

  36 – Remote learning

  30 – Home surveillance

  28 – Smart home components

SPBC Survey Results

- **Half** of respondents said their Internet service was inadequate for their current needs
- Of those for whom service was inadequate, **51** said the obstacle to better service was that it **wasn’t available** and **11** said that improved service would be **too expensive**

SPBC Direction

- The committee, informed by survey results, set a goal of a **symmetrical** connection speed of at least **100 Mbps** for all residents
- A symmetrical connection means that **upload and download speeds are the same**
- The committee also looked at different modes of distribution and decided that a **fiber**-based solution is the best option for future upgradability and capacity

Why a symmetrical connection?

- For most of the commercial existence of the Internet, its use has been characterized by the need to download more data than is uploaded
- For example, downloading software or music to local devices
- Asymmetrical internet connections are the norm with DSL, Cable, and Satellite providers based on geostationary orbits (different from Starlink)
- As uses of the Internet expand to include things like work from home, remote learning, and telehealth, all areas which are growing in importance in our area as around the world, the ability to upload data at the same fast pace is increasingly important

Why a fiber-based system?

- Fiber-optic cables are already the methods used to create the backbone of the global Internet – they can carry the most bandwidth, with the least degradation, over the greatest distance
- For local uses, fiber is now reasonably affordable, it is lightweight and therefore will strain existing utility poles less, and there is no known limit to the bandwidth that it can ultimately carry
- Fiber transmission technology continues to improve while copper cable's limits have already essentially been reached
- The downsides to fiber are not unique, but similar to those with cable

Options to expand broadband

- There are two basic options to actively expand service
  - Engage with an Internet Service Provider (ISP) to build and operate a fiber network in the two towns
  - Build a municipally owned and operated fiber network

- And of course, there is always the option to wait and let existing ISPs expand on their own

Engage with an ISP to build a network

- This is the simplest route
- The ISP will design and build the network which they then will operate and maintain
- The towns will be responsible for finding the funding source(s) some of which can be grant money that is currently available
- Bonds/municipal borrowing can make up for the non-grant-funded portion
- Ultimately, control of the network and its future expansion/improvement is the responsibility of the ISP
- Subscription fees go to the ISP

SPBC Request for Information

- In late 2022, the committee sent out an RFI to existing ISPs in our area
- Two responses were received from providers interested in pursuing a project in our area
- Consolidated Communications offers Fidium fiber-based service in some neighboring communities already and is expanding
- Axiom Technologies is a Maine-based company offering fiber-based service downeast and that also builds/operates networks for municipalities in other areas as well (Hampden is a recent example)

Municipally-owned and operated route

- This is more complicated but gives us local control over the system
- An ISP may design and build the network, or that may be contracted out separately
- The towns then either on their own or as part of a collaborative are responsible for operating, maintaining, and improving the network
- The towns will still be responsible for finding the funding source(s) either through grants or borrowing
- Subscription fees from customers pay back any debt service and for system maintenance/operation; excess revenue returns to the towns

Municipally-owned model example

- Before the RFI, the committee met with the president of the Downeast Broadband Utility, a 501(c)(3) non-profit organization which built a dark-fiber, open-access network in Calais, Baileyville, Alexander, Indian Township, and is expanding to Cooper and Princeton
- Dark fiber means that they are not the ISP, just the fiber network
- Open access means that multiple ISPs can compete and sign up customers over that network
- It may be possible to duplicate their model, or join with DBU and build the same kind of network here

Municipally-owned model example

- Their first ISP: Pioneer Broadband; they built and maintain the DBU network
- Base package is 100 Mbps symmetrical for $60.00/mo; speeds up to 1 Gbps are available presently; moving to have base at 1 Gbps for less than $100.00/mo
- No matter which package a customer has, $25.00/mo is returned to DBU to pay back the loans, pay for DBU's network operator, and fund a maintenance reserve
- DBU presently has approximately 1000 customers and has only lost customers due to their moving out of the area; more are waiting to join
- DBU began serving customers in 2019 after about a year of planning
- Calais, Baileyville, Alexander (’20), Indian Township (’21), Cooper (’22), Princeton (’22)

Hybrid models do exist

- In the RFI responses, both companies indicated an ability to build and turn over control of the network to the local communities
- There are specific terms and exclusivity components to those models

What would it cost?

- The cost of building the network will be clarified through the Request for Proposals (RFP) process
- Rough estimate, 82 miles @ $75,000.00/mi construction cost = $6,150,000.00
- Maine Connectivity Authority grants target “unserved” and in some cases “underserved” addresses, i.e., DSL-only customers or those with no service
- Such addresses require at present a $700 match each from the communities, the balance of cost to connect those customers is covered by the grant
- Any existing addresses meeting threshold of “served” are not eligible for grant
- Currently identifying served vs. unserved areas

What would it cost?

- Hancock County Commissioners may have funds to cover the match
- More grant money, the less the towns would need to borrow, the easier it is to break even
- On the customer side, Pioneer's plans already discussed
- Customers of Fidium can get a promotional rate of $70.00/month plus user fees for 1000 Mbps (1 Gbps) for the first year
- And help is available for low-income households: the Affordable Connectivity Program is a federal program that provides a $30.00/month credit to eligible households

Why not let ISPs do it themselves?

- We know there are customers in need of expanded service now
- Existing ISPs like Spectrum and Consolidated Communications only tend to expand service when they can guarantee a certain return on investment
- For rural areas, that makes expansion/improvement a low priority
- Grant money exists now to help communities push through improvements that might take decades to happen if driven by ISP expansion
- Grant money must come through community-driven efforts
- And you’re never sure what an ISP-driven expansion will yield and if that would meet the needs of the community in the long run

Next steps

- SPBC is working with consultants to finalize a Request for Proposals, responses to which will include specific network design and build cost
- Earlier outreach meetings showed strong support of municipally-owned model; that preference is being included in the RFP language
- The committee would like your input on if there is a model that is more appealing to you

Next steps

- August is when applications for the next and most flexible round of grant funding opens; closes in September, probably unable to make that round
- Will need to execute RFP, consider responses, and have special town meetings to enter inter-local agreement and approve borrowing before applying for grants
- Once inter-local agreement is voted on this summer, can form non-profit
- Spread the word! We will need broad community support to take advantage of these opportunities

www.schoodicbroadband.org