

FREQUENTLY ASKED QUESTIONS for ARTICLE 14: THE PROPOSED ENGINEERING & DESIGN STUDY FOR A TOWN-WIDE BROADBAND NETWORK

On Wednesday, June 15 at the Annual Town Meeting, Rockport Opera House Auditorium, 7:00 PM, Rockport voters are being asked to take the next steps and continue the progress in building a community-wide, municipally-owned, broadband network.

Three years ago when the Select Board started to consider this possibility, it made clear that the effort was only worthwhile if three conditions were met:

1. Equality (everyone gets same access at the same time)
2. Future Proof (Best technology), and
3. Cost Savings for most of Rockport's citizens.

Since then, building a municipal network has been a high priority goal of the Select Board and they have been moving toward that goal, one step at a time.

When the first small piece of Town-owned, open access (dark) fiber went into place, Rockport gained national attention while becoming the first town within the State of Maine to do so. We followed that with a feasibility study, completed in October 2015, to look at the question of whether a complete town-wide network was feasible. Indeed, the study affirmed that it is very possible.

(To view the full study, click here or on the link below:

http://www.town.rockport.me.us/vertical/sites/%7B6F0724F7-400D-4D0B-B299-FF5E21F-5B92A%7D/uploads/Tilson_Feasability_Study_2015-09-29.pdf)

In order to go to the next step and secure bonding for construction, we need to complete a Design & Engineering Study to really get a handle on the cost to build it... block by block, mile by mile. Article 14 of this year's warrant, asks voters to raise and appropriate \$300,000 for that study. It is supported unanimously by the full Select Board and the Budget Committee.

Specifically, we need unbiased data to inform our decisions on:

1. The details we need to include in the bids (RFBs) to build it.
2. The type of business model that will work best for the Town.
3. How much of a bond we'll need to issue.

Once completed, Rockport voters would be able to vote yes/no in June of 2017 on a bond to build a system that affords its residents and businesses to have the fastest and cheapest

internet access in the State of Maine.

The information that follows this introductory note captures what we felt are the most likely questions about Article 14 and our collective answers.

Respectfully submitted,

Rockport Technology Committee
John Viehman-Chair
Steve Hand-Vice Chair & Secretary
Debra Hall
Emmett Sutton
Ari Meil
Joe Sternowski
Geoff Parker-Select Board Liaison

FREQUENTLY ASKED QUESTIONS

WHY SHOULD THE TOWN GET INVOLVED WITH PROVIDING BROADBAND ACCESS (I.E., BUILDING THE “ROAD” FOR SERVICE AND CONTENT PROVIDERS OF TELEVISION, TELEPHONE AND HIGH-SPEED INTERNET SERVICES)?

The role of a municipality is to provide essential civic services for the health and welfare of its community. That includes providing water, sewer (where practical), streets, lighting, and other essential services that support us on a daily basis.

The internet is going to play an increasingly larger role in our professional and personal lives. Consider that the typical household today has more than 6 digital devices that rely on internet access in some form. That’s expected to increase to 20 by 2020. To extend the benefits of broadband internet access to each and every one in our community in a timely manner requires a town-wide cooperative effort. In our rural location, without this effort, there will be many households that will not get adequate internet capabilities for twenty years, if ever, under a private enterprise model. This is an opportunity to not only put Rockport on the map as a forward thinking town, but it’s an opportunity to get everyone there at once, and at a net cost far cheaper than any fully commercial effort.

WHAT ARE THE ADVANTAGES OF MUNICIPAL BROADBAND NETWORKS?

Communities are investing in municipal broadband networks because they hope to reap economic benefits for their residents and businesses. These benefits have borne fruit, including:

Education - High speed Internet through a fiber optic network represents a long-term social investment in the form of better-connected schools, availability of state-of-the-art digital learning initiatives, college distance learning and depth of offerings through public libraries;

Job Creation - By ensuring access to high-speed Internet, communities can take advantage of the fact that companies seek rural areas for data centers, distribution centers and other types of businesses that are dependent on technology. In our information age of “work from anywhere,” availability of reliable, high speed broadband allows residents to compete with jobs across the nation - 75% of Jet Blue customer service representatives currently work from home - anywhere;

Support Existing Business - By ensuring businesses have fast, affordable, and reliable Internet access, existing businesses can function efficiently and expand their offerings and market reach;

Telecommuting - High speed Internet allows current residents to work from home more effectively and encourages part-time homeowners to spend more time in Rockport, thereby increasing revenues through taxes and expenditures to local business. Thanks to advances in technology Rockport especially is positioned to benefit from the trend toward “working where you want to live, instead of living where you want to work.” Broadband access assures that future to us.

Increased Productivity - By providing a reliable and fast Internet infrastructure, the productivity of existing businesses and new businesses (including home-based businesses) is improved to the benefit of residents and taxpayers;

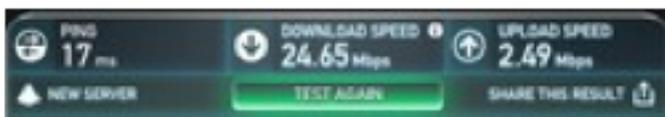
Healthcare Availability - Telemedicine removes distance barriers to cutting-edge health-care and makes it more available and affordable to all including those that cannot travel safely, are in emergency situations or cannot afford to visit urban clinics. Reliable high-speed Internet supports basic healthcare in an environment where patients are being forced to take on more responsibility for their health care through online monitoring of health status and online medical charts. Strong Internet speeds support patient/physician videoconferencing and provide patients with knowledge to self-help through webinars and other technology tools;

Help Seniors Stay at Home - Telemedicine supports elderly, military veterans and others by enabling diagnosis, treatment and monitoring from their homes. Elderly patients can continue to live at home longer, reducing the cost of eldercare and improving the quality of life in later years;

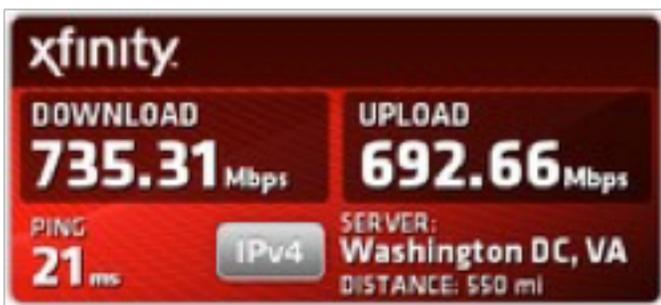
Increased Home value - Fiber optic networks strengthen local housing markets by increasing home value and attracting a larger pool of buyers;

Future proof - Fiber strands last for decades. The need for increased capacity can be achieved by upgrading the lasers on each end of the network, without having to lay new fiber infrastructure. The investment in a fiber optic network ensures that Rockport residents and businesses will receive the high speed Internet capability they need for decades to come.

HOW MUCH DIGITAL SPEED, VOLUME AND RELIABILITY WILL THE AVERAGE HOUSEHOLD OR BUSINESS NEED IN FIVE OR 10 YEARS?



Above: Rockport Home (TWC) Speed Test 4-26-16 at 7:00 p.m.



Above: Town Office (Rockport Fiber Optic Network) Speed Test 4-27-16

You can break down this question into three parts: Speed, Volume and Reliability.

1. SPEED

Presently the majority of Internet users in Rockport get their connection via Time Warner Cable (TWC) through a copper coaxial cable. A minimal level Internet connection on TWC typically provides 15 to 20 megabits per second (Mbps) download and 1 Mbps upload.

Fiber optic systems are based on different technology. The jump in capability removes restrictions on transmission rates for the foreseeable future. In addition, fiber optic systems are almost always symmetrical, providing identical upload and download speeds.

There are two things that raise the user's speed requirement. The first is television and home entertainment picture quality, particularly for movies and videos. The second is large files transmitted by Internet. For instance, viewing movies and songs requires higher bandwidths if the associated files are to be sent in reasonable times. And a professional working from home needs upload speeds as fast as the download speeds in order to transmit files and participate in video conferences.

Video – As the cost of cable television rises, many households have been switching to viewing television over an Internet connection. At the same time, the quality of television pictures has been multiplying. So there’s no question that both cable television and Internet video require higher bandwidths. Standard definition television requires only 1-2 Mbps speeds. High-Definition Television (HDTV) on the other hand, requires 15 Mbps for full HD. The transition to Ultra-High Definition television (UHD or 4K) is now in progress. This will require download speeds of 25-75 Mbps. These speeds will be required for each television or video-viewing device being used.

File transfer requirements – A typical DVD movie downloaded at 20 Mbps would take 29 minutes. At 300 Mbps, a speed more typical for a fiber internet user, this file can be transmitted in seconds. These are the differences that make such transfers practical. Videoconferencing, teleconferencing and educational technology not only require speeds at the upper end of these ranges but also symmetry—upload speeds the same as download.

Industry and societal trending indicates that by 2020 the average home is expected to have 20 connected devices, each of which requires a share of the available home bandwidth and each impacting the available speed. These devices could include mobile phones, tablets, computers, security devices such as cameras, digital entertainment devices (Roku, Amazon), thermostats, and medical monitoring.

To assess your current internet speed from any computer, got to www.ookla.com.

2. Volume

Volume, or the size of files being transferred, is usually not an issue for a cable or fiber Internet system user.¹ This is only a problem for mobile systems and/or what’s referred to as “personal hotspots,” where the limits not on a home Wi-Fi are capped by telecommunication companies. At this time, they top out at 10 Gigabits/month. On the open broadband system being considered, data caps likely will be among the criteria for choosing one ISP over another.

¹ *This is not always true. For instance, Comcast caps its internet download sizes at 1 Tb.*

3. Reliability

The reliability, as well as speed, of existing coaxial cable depends on the distance to the central or satellite hub from which the signal emanates. Fiber optics is unaffected by distance, weather or time, ensuring a robust and consistent signal. In fact, fiber optic cable has none of the disadvantages associated with coaxial cable, which include “noise” and random, often frequent drop-outs due to degradation of the signal.

WHY IS AN OPEN-ACCESS FIBER NETWORK GOOD FOR COMPETITION AND GOOD FOR THE AVERAGE ROCKPORT RESIDENT AND BUSINESS?

Wired telecommunications networks are a natural monopoly – they have high upfront capital costs, which result in one or two large companies participating in a market, financially preventing others from entering that market.

Additionally, cable and telephone companies are able to cross-subsidize their networks, meaning they can charge more in the rural areas they serve where there are no competitors in order to charge less in a competitive community.

A lack of competition in the high-speed Internet market keeps prices high. This is the case in Rockport.

In those markets where fiber optic networks have been introduced to challenge the status quo, competing providers are forced to lower their prices. The FCC and industry experts have repeatedly recognized and documented the fact that customers pay more for cable in markets where competition is lacking. For example, in cities where Google offers its \$70-a-month high speed Internet service, AT&T's rival offering is available for about the same price. However, in cities where AT&T is the only option, or at least the only large provider, the company charges as much as \$120/month. The same is true of Comcast and other large providers.

Large cable and telephone companies have avoided modernizing Internet services in rural areas because they believe that low population density areas cannot produce enough profit to justify the investment. As one of the most rural states in the nation, the lack of competition in Maine provides existing service providers, such as Time Warner, no incentive to offer fiber optic services, or to reduce the high costs of cable. The comparatively low population density of Rockport ensures that residents will continue to pay the high cost of cable for years to come with little to no expansion of Internet bandwidth.

But Rockport can build a network and open it to a host of competitors. This would significantly increase the pool of competitors, which experience shows would reduce costs. A community network does not shut down existing providers; it provides choice to the community – generally a much faster, more affordable, and more local option.

See <http://muninetworks.org/content/competition> and PCWorld, “Google Fiber Competition Makes AT&T Cut Cost of Gigabit Service in Some Areas,” October 5, 2015.

WILL I GET BETTER SERVICE?

Absolutely. The following are but a few of the reasons why Rockport residents and businesses can be assured of better service:

Make it Local and Personal – Owning the fiber network infrastructure will put the Town of Rockport in the driver's seat, no longer held hostage to the profit interests of large telecommunication providers. Locally-owned networks are accountable to the community. Rockport citizens can shape their own telecommunications destiny via the democratic process. A community fiber network can be open to all competitors on equal terms, bringing choices to citizens. Community networks have proven to offer great service at competitive prices, advancing the community interests and keeping money circulating locally rather than heading across the country in the form of corporate profits.

Require Quality Standards - As the owner of the fiber network, the Town of Rockport may condition access through Service Level Agreements, requiring service providers to meet established standards. This ensures that providers compete on equal terms, meet a prescribed level of service and standards of quality for Rockport residents and businesses or face financial penalties, or contract cancellation. Large providers, such as Time Warner, have no such service level commitments, leaving Rockport residents with no leverage to demand and receive acceptable quality or service.

Speed - Cable and DSL advertise “up to” speeds but actually reaching those speeds is rare. Fiber optic infrastructure can handle increased demands for bandwidth as your needs grow. These needs include an increased number of devices (computers, tablets, smart phones, smart appliances), increased availability and usage of streaming (Sling TV, Hulu, Netflix, Apple TV, Amazon Fire) and unavoidable advances in home technology (non-HD TVs are no longer available and Ultra HDs will replace HD TVs).

Reliability - Fiber optic is not only significantly faster than DSL and cable, but more reliable. With more reliable fiber connections, businesses and individuals are far less likely to experience temporary blackouts that can halt productivity in vexing and expensive ways. As more residents place higher demands on the system, cable reliability will continue to degrade.

Universal Access - DSL uses copper telephone lines with very low Internet speeds dependent on how close your home or business is to the equipment that generates the signal. Cable networks are shared with others, rarely producing the advertised “up to” speeds with significant decreases during periods of peak usage due to congestion from your neighbors’ usage. Fiber optic networks, based on lasers shooting pulses of light across very thin strands of glass, are the gold standard. They offer nearly unlimited expansion, have fewer points of failure and deliver bandwidth that isn’t negatively impacted by the heavy use of others.

Value to the Consumer - Even if you are not a heavy user of TV and Internet, you will benefit by ensuring that the high use by others will not negatively impact you and that you will receive the speed and reliability of service for which you paid.

[1] Cable was introduced at a time when consumers were downloading from the Internet but with little regard for the need to upload. Uploads are increasingly important as we share photos, transfer large files to one another, upload to the Cloud, and as businesses back up to off-site locations.

WHAT ABOUT THE DIFFERENCE FROM ONE HOUSEHOLD TO THE NEXT... DOES EVERY HOUSEHOLD REALLY NEED THIS MUCH CAPABILITY?

Our individual needs from one household to another may differ, but so too will the plans offered by various internet providers. Any internet provider will offer a selection of service levels. While we anticipate that ALL service options that come as a result of a town-wide

network will save Rockport residents a fair amount of money, certainly the lowest tier offerings from existing internet providers likely will be cheaper and more stable from the get-go. From a whole systems approach, this effort yields an infrastructure that will guarantee the ability for each individual to move up to a higher level whenever their individual needs change in that direction – e.g., adolescent students, home occupation businesses, senior medical care, etc. And with a pure fiber network there would be no limit on capability as a household's needs change over time.

Effectively, there are two ways you look at this. You can save money and stay at your current service level, or you can keep the same amount in your household budget and enjoy higher quality service that only increases over time.

Resale of your existing home is another consideration. Having the capability for virtually unlimited broadband access may be highly valued by a potential buyer, making your home more attractive than, say, a home in a neighboring town without high-speed access.

WILL A TOWN-OWNED FIBER NETWORK COST ME MORE OR LESS MONEY?

The quick answer:

Combining community resources will save money for almost everyone in town. The exceptions are for those with very high value property or those who use very little internet services.

The long answer:

Because any bonds taken out to finance a fiber optics infrastructure will be paid back by property taxes, this initiative affects each citizen differently. And what we expect to learn with the Engineering & Design Study will inform the Select Board as it decides on just how big or small of a bond is required to pay for the system.

Right now, at its simplest, if you have internet and/or television service, you might have one bill. Some households may have several bills each month (e.g., cable for TV, separate internet service, ROKU, Netflix, Amazon Prime, etc.) Assuming Rockport approved a town-wide broadband network, your increase in taxes essentially would be another internet bill. But paying that portion through your taxes has the benefit of significantly lower net costs, or in the least much improved service at the same cost.

Formal and informal polls of Rockport residents indicate that the current range of monthly costs for internet and TV connectivity ranges from \$45/month to over \$250/month. So where does the savings come from with a town-owned broadband network? Let's take a look at the numbers:

For purposes of initial conversation we chose a property value of \$300,000. For that representative house, our options for different bonds yield an annual increase in taxes of between \$75 and \$210. If we assume that we land near the middle, this is an increase of \$12.50/month. If your house is taxed on a \$600,000 value, your taxes would increase \$25/month.

An important point here is that once the network is in place, competing Internet Service Providers (ISPs) can connect you with a very simple process, which lowers their costs and, presumably, the costs to their customers. No longer do they have to pay millions of dollars to run the fiber optic cable. No longer will some residents be left out in the dark because they live in a part of town that is not “cost effective” to reach with fiber optic cable. The ISP merely makes a connection in a big metal box and instantly you become a subscriber. It’s hard to determine exactly how much of a reduction in monthly cost each homeowner would experience. However, in every one of the 450 communities throughout the country where similar networks have been installed, residents have seen their net costs go down and available speeds and bandwidth go up.

In our own town we already have Gigabit internet service @ \$69.95/month using the limited run of Town-owned fiber. Since not everybody wants or needs 1,000 Mbps service, it seems very logical that the ISP companies would offer lower tiers at a reduced rate. While we do not have any firm contracts in hand at this point, it would be reasonable to assume that there would be price breaks at \$49.95 and \$59.95 for 100/100 Mbps and 300/300 Mbps service. Compare that with your current bill, add your tax burden, and you can approximate your own savings.

It’s worth noting that while there may be an increase in annual taxes, it has been well documented that any increase is more than offset by lower costs and higher speeds for broadband and/or internet services.

HAVE OTHER COMMUNITIES DONE THIS?

More than 400 towns and cities nationwide offer some form of municipally-owned internet access, among the smallest being Lenox, Iowa, and the largest being Anaheim, California. Most networks are in small communities. Two cities that have done this, Chattanooga and Lafayette (Louisiana), have turned their local economies around using fiber as an economic development tool. For more information, [click here](#).

WHO MAINTAINS THE SYSTEM AND WHAT’S THAT GOING TO COST?

The Town would maintain the actual fiber on the pole and the Internet Service Provider (ISP) would maintain the electronics to send the signal to a home or business, for which they’d pay the Town a monthly fee of \$14/customer. Those fees would be applied toward the cost to maintain the system. That said, we will be better informed on all the maintenance costs once we have completed the Engineering & Design Study in 2017. The short answer is that ultimately the cost to maintain the system would be covered by the provider fees collected by the Town.