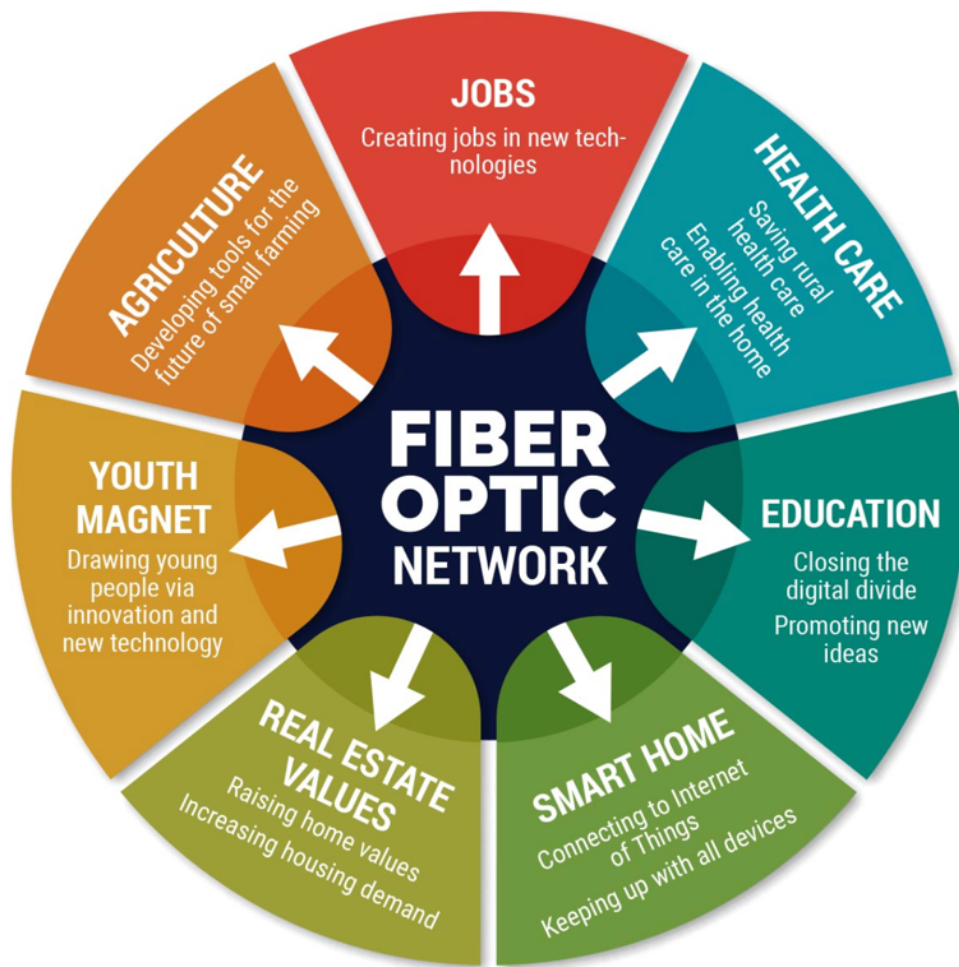


A Guide for Municipalities, Local Broadband Task Teams, and Advocates:

# Addressing Broadband Needs in Northwest Connecticut

An initiative of Northwest Connecticut's Comprehensive Economic Development Strategy



*Prepared as a regional resource on behalf of  
Northwest Hills Council of Governments and Northwest ConneCT*



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## Broadband: A Problem that Connects Us

Our Litchfield Hills region needs to take immediate action. **The impact of COVID-19, compounded with our modern connected lifestyle has highlighted the fragility of our obsolete cable-television based broadband network, deployed nearly four decades ago.** Now, students struggle for the necessary bandwidth to interact with their virtual classrooms, telehealth conversations freeze mid-sentence and remote employees are at idle while they wait for their VPN connection to synchronize. Our outdated broadband infrastructure is a problem that impacts every resident in our region and that, if not addressed, will thwart our region's future.

Fortunately, we have pathway to address this challenge. **Our solution can positively impact our educational, healthcare, and workforce challenges. It can attract new opportunities, entrepreneurs, families and businesses to the Litchfield Hills.** There are immediate, tangible and wide-spanning benefits from upgrading our neglected Broadband infrastructure.



**Broadband Connectivity is as Important as our Roads**

*The time has arrived to upgrade our obsolete broadband infrastructure. The work of local broadband task teams to help with outreach and move Fiber-to-the-Home forward is essential.*

*In coordinating efforts across multiple towns, we can strategically position the Litchfield Hills as the most connected rural region between New York City and Boston.*

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## Purpose of this Guide

This document intends to provide stakeholders in the region including local municipal officials, broadband task teams, and advocates guidance on how and why to pursue an updated Fiber-to-the-Home broadband network for their town.

## Northwest Connecticut's Broadband is Inadequate

We need a next generation broadband network connecting every home and business in our region. As the demand for internet bandwidth continues to increase exponentially, our entire community relies on our current bandwidth infrastructure for learning, work, health, and entertainment – it's part of our daily life. Regardless of where in the country you live bandwidth has become as important to Americans as roads. As staying digitally connected is now a necessity to modern life, Broadband Internet infrastructure is often referred to as “The Fourth Utility.”

Accompanying our changes in lifestyles and growing internet bandwidth needs, comes challenges. The biggest of which is that our existing network is obsolete and cannot support our demand – a problem that will not resolve itself, nor get better over time without our action. **The copper-based broadband infrastructure that we critically rely on, has exceeded its inherent capacity. This network deployed 40-years ago, was designed and intended for cable television, not internet access.** A major design limitation is that our cable internet pole wiring is common along roadways. This commonality means, we share the bandwidth available to our homes. **Similar to traffic congestion on a highway, when multiple internet users go online along a common line the available bandwidth is shared, and transfer speeds are decimated. Local infrastructure and technology must be upgraded for Northwest Connecticut to stay connected, relevant, and resilient in our new and quickly changing world.**

The COVID-19 pandemic became the precipitating event that highlighted to the mainstream the fragility of our broadband infrastructure. Our already exponentially increasing need for bandwidth skyrocketed. Schools transitioned to online curriculums, employees brought their, healthcare patients found Zoom to be their new doctor's office, and everyone turned to all forms of digital channels to stay connected with friends and family.

**While we know our obsolete broadband infrastructure needs an overhaul, the biggest problem is how to finance such an undertaking.** Critical infrastructure, like roads and sewers are typically subsidized with government funding. Relative to other infrastructure projects, deploying fiber optic broadband is quite economical and can even provide revenue generating opportunities for an incredibly low total cost of ownership. Current federal funding programs generally target areas with little to no existing broadband (whether that existing broadband is inadequate or not) and our region does not qualify. Together as a region we must vocalize our need for financial support to update our antiquated broadband network. Technically upgrading our networks to fiber optic broadband is entirely a tangible objective – the issue is identifying pathways to create funding or sponsorship pathways for our towns to support fiber optic to the home.

Note that the FCC definition of broadband is 25 Mbps downstream, 3 Mbps upstream. This FCC performance benchmark is no longer relevant and this speed (particularly asynchronous upload) cannot support today's basic broadband needs of video conferencing, 4k video, cloud-based software.

The region we are focused on in Northwest Connecticut has 25 towns and just over 76,000 homes. In a recent study commissioned by the Northwest Hills Council of Governments it was found that 65% of homes in our region subscribe to a copper wire cable television-based Internet service. Another 16% connect to the Internet through a slower performance Frontier DSL services, most of which are 6 Mbps downstream or less. Some 11% of our homes use satellite services, largely (we assume) because they had no other connectivity option. Some 8% of our homes, roughly 6100, have no service at all. **This means that 35% of homes in our region—around 27,000—have inadequate Internet access, or none. That means that 27,000 homes, or in the order of 60,000 people, in our region are deprived of critical broadband infrastructure.** What if that many people were denied roads and electricity?

For those who are connected, nearly all subscribers rely on obsolete copper wiring. This is a major limiting factor. Copper wire was intended for watching cable television, not ultra-fast broadband - it's physically limited in transmission speed and performance. Internet service providers do offer higher speed packages to customers willing to spend in excess of \$200 per month. Premium cable internet is prohibitively expensive. And if you are willing to pay the extra fee it doesn't mean you're getting the bandwidth speed you're promised. Our current network shares last-mile allocated bandwidth, meaning the more people using the internet on your road or line, the slower your internet connection. Our network operates at its capacity. Since the pandemic, it became obvious that our network cannot support the increase usage due to a sudden growth of the remote workforce, tele-health appointments and the virtual learning. Post-pandemic, many of these new trends will remain part of our normal usage. Combining these factors with the increase bandwidth demand of 4k and 8k video standards and it's clear, our current network infrastructure is inadequate and obsolete for us to maintain competitiveness and regional resiliency.

***To summarize a few of our key broadband challenges:***

- ***Our current broadband network, designed for cable television, is nearing its end-of-life.***
- ***Prior to the pandemic, at least 35% of our region had inadequate access to the internet – with onset of COVID-19 that number has skyrocketed.***
- ***The bandwidth needs of the remote workforce, tele-health applications and virtual learning cannot be supported with our current network's capacity.***
- ***In order to maintain competitiveness and regional resiliency we need a competitive broadband infrastructure.***
- ***Simply put: our region requires new infrastructure for ultra-fast broadband***

## Trends in Bandwidth Demand

Our bandwidth needs are growing beyond the steady-state capacity of our existing broadband network. Key drivers behind our local needs for Fiber-to-the-Home access are outlined below.

### *Tele-health*

Our healthcare system is at the beginning of a massive transition. Patient interactions are defaulting to virtual engagements. Diagnostics and remote monitoring will move towards in-home IoT-based devices. Hospital and medical practices will offer procedural services and advanced diagnostics. The need for additional bandwidth will grow exponentially to support our population's future healthcare needs.

### *Remote Workforce and Business Development*

Enabling the Remote Workforce's bandwidth needs are a key and immediate priority for business resiliency. Secure and immediate access to corporate serves as well as seamless video-based communication are requirements. Our region offers the lifestyle proximity to Boston and New York to attract a remote workforce. Specifically, the Litchfield Hills could appeal to the insurance industry, healthcare, fintech, education, and agricultural industry.

### *Virtual Learning*

Educational channels have quickly transitioned to online formats. New tools and curriculum for learning are in still their infancy and are quickly advancing. As virtual learning opens new opportunities and challenges, access to reliable high-speed broadband connectivity is a key enabler to the future of our education.

### *Real Estate*

Real estate pricing can be positively impacted by regional amenities. These often are related to local quality-of-life amenities, such as high-performing schools, commutability, vibrant arts and culture scene, parks and natural resources. Fiber-to-the-Home would complement the Litchfield County experience and offer a market-differentiating talking point. FTTH is expected to positively impact real estate market prices and property assessments.

### *Entertainment*

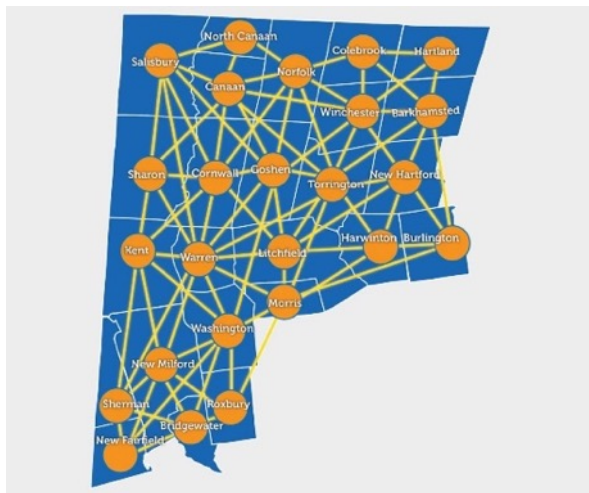
4k resolution is the benchmark for video quality. Whether you view 4k video on a monitor or capture it on your camera, this volume of data must be transferrable seamlessly in both upload and download directions. The transition to the 8k standard, which consumes exponentially more bandwidth is already in deployment. Rich, depth-based video to support Virtual and Augmented reality applications are also entering mainstream. VR/AR require a very low latency connection that FTTH can provide.

## About Northwest ConneCT

Northwest ConneCT is a non-profit corporation formed for two purposes: to orchestrate for our region a universal gigabit data highway using fiber optic transmission lines; and to promote economic and community development made possible by such a network. We think of it as connecting our communities to the future.

Northwest ConneCT works with the Northwest Hills Council of Governments (NHCOG) and the Northwest Connecticut Economic Development Corporation to implement the regional economic development plan's fiber optic broadband initiative.

## The Region



Our region, loosely referred to as the Litchfield Hills comprises of 25-municipalities in the northwest corner of Connecticut. While a regional collaboration would be beneficial, it is not a requirement for all municipalities to participate to have a viable FTTH service. Our current plan starts with just one town and grows the network organically from there. Our region has about 180,000 residents, 76,000 homes, and 2290 miles of road, the key parameters for puzzling out a network. Together, our region is larger than any single city in Connecticut.

## The Proposed FTTH Network

Northwest ConneCT proposes a regional network with fiber-optic last mile links operating at 1 gigabit per second (in both upload and download directions) to every home and business in our region. The network will have a community component—the wires on the poles called trunk wiring, as well as a private partner component—the drop wiring from the pole to the home, the operation of a regional gigabit speed broadband network, and an internet service provider.

In rural America, three models have emerged for municipal fiber optic networks: (1) the municipality owns and operates the network, usually through a municipal electric or telephone utility and often with federal or state subsidies; (2) a large private partner such as Google, Verizon, etc. installs and operates a network with substantial inducements; and **(3) the municipality installs and owns the wiring on the poles, a contracted private partner installs home wiring and electronics and other network electronics.**

We know of only two cities that have adopted Option 3, but it is the one most attractive to us. We do not have electric utilities, no subsidies exist for our region presently, and our thin housing footprint makes a fully private arrangement infeasible.

Figure 1, details the basic idea of how the model would apply to our region.

INFRASTRUCTURE	RESPONSIBILITIES	SYNERGIES
<p><i>For our purposes we need to think of our networks divided into the following pieces: (1) fiber optic cabling on the poles or underground (no electronics, just wire); (2) drop-wire from the pole to the premises, an Optical Network Termination (ONT), other electronics, and in-house wiring; (3) an Optical Line Termination (OLT) at the other end, usually in a cluster with other electronics and often in an unmanned Hut, and (4) back-haul, fiber optics connections from the Hut to resources such as the internet. The reason for isolating the pole wire from the electronics is that the wiring without electronics can secure loans with forty-year terms, whereas wire with electronics will be less than twenty.</i></p>	<p><i>We propose a three-way partnership. Municipalities will own the trunk wiring on the poles, but no electronics. One or more private organizations will install and own drop wiring and all premises electronics, and huts at the other end. We will then use the Connecticut Education Network (CEN) for back-haul. CEN has a point of presence in most of our municipalities - either at a school or a library. This private partner will also provide operations and maintenance, to be paid for through internet access fees. The private partner will also pay for lease costs from CEN and, perhaps even a small lease fee to the municipalities for use of its fiber.</i></p>	<p><i>Municipalities will thereby get a universal fiber optic network for the least amount of funding in practical terms, with the least monthly cost per home. Private partners will incur most of its capital expense when a customer has subscribed, reducing their capital risks considerably. CEN needs more customers; if it becomes the back-haul choice for many municipalities, it can substantially increase its services to schools, libraries, municipal departments, and other natural customers for a network that has been cut off from state funding. Furthermore, all partners have skin in the game - a tremendous benefit towards a successful collaboration.</i></p>

Figure 1 Proposed Fiber-to-the-Home model

## Why Fiber Optics to the Home?

Our current connectivity infrastructure is past capacity and has reached its end-of-life. Our region needs a ubiquitous broadband network that's affordable relying on robust future-proof technology as soon as possible. The simplicity of a fiber optic wire is one of its many appeals. A glass-based fiber optic wire carries no electricity, but instead very efficiently transmits information via light. Data is converted into very high-speed packets of pulses of light, in some ways like a Morse Code and information is sent from a transmitting location to a receiving location. Since Fiber Optic is transmitting light, no EMF radiation is emitted with this medium.

*Fiber optics* refers to thin wire strands of purified glass, the size of a human hair, that when fitted with transceivers on each end can carry data-packed modulated light signals as far as 20 miles without amplification. Fiber Optic's primary attribute is its blazing fast speed, at least 10,000 times the maximum rate one can realize over copper-based wiring. Fiber optic signals also emit no electromagnetic radiation, suffers no errors caused by electromagnetic noise, and boasts a longer service life in suitable sheathing compared to copper-based lines. Fiber is the only wiring option that will support our needs for the next several decades.

To connect everyone, broadband must become a community responsibility. In our rural area connecting everyone with the latest technology requires that some or all of next generation networks must be owned by municipalities, just like roads. We advocate a business model that parallels roads: the municipality owns the wire on the poles, like roads, private partners install wire to the home and all network electronics, like driveways to a home.

For a detailed list of Frequently Asked Questions, please visit online [Northwest ConneCT](#). There are also many online resources, such as [Community Networks](#) that provide a wealth of information and examples of community driven broadband initiatives.

# Fiber Deployment Pathway

## Process Flow

Building a strategy for deploying fiber in your town is an approachable task. Northwest ConneCT can help guide you through this process. We have baseline information available for each town in our region enabling your team to evaluate approximate costs for deployment. The following process flow intends to guide your team forward to a tangible deliverable.

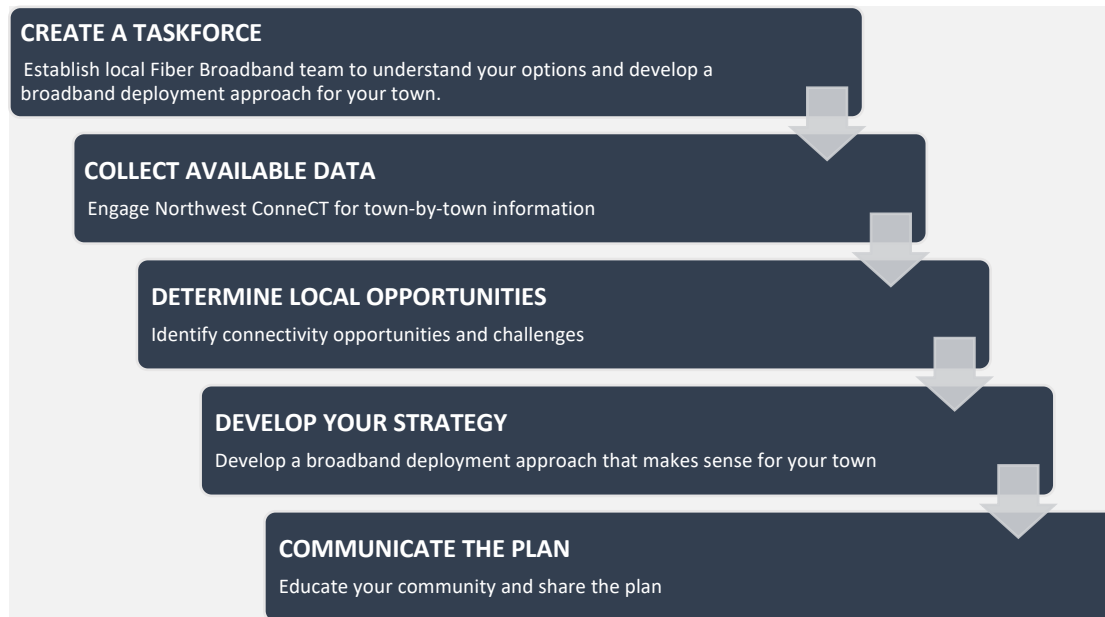


Figure 2 Deployment Process Flow

### ***Considerations for your broadband planning:<sup>1</sup>***

- *Understand the market you plan to serve*
- *Cultivate local political and community support*
- *Educate community leaders and set realistic expectations*
- *Communicate frequently and clearly*
- *Actively seek funding opportunities*
- *Broadband is a service; fiber is just glass*
- *Success depends on availability and affordability*
- *Supplemental funding is essential to affordable broadband*
- *Availability does not guarantee adoption*

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<sup>1</sup> Source: BroadbandUSA.com

### 1. Create a Taskforce

This initiative encourages each town to formally establish a Fiber Broadband Advocacy Team. Contact your town hall to determine if such a group exists. It is important that each team is formally recognized by the town, and that the roster of that team and updates are shared with Northwest ConneCT. Often these teams exist in an advisory role to the mayor/first selectman's office, or function within a town's existing Economic Development Commission.

#### ***Fiber Broadband Team's primary responsibilities:***

- *Serve as your community's local fiber broadband advocates*
- *Understand what your town's current and future broadband needs are and the options your town has for addressing these needs.*
- *Provide advisory guidance to municipal leader for high speed fiber*
- *Serve as primary the point-of-contact with Northwest ConneCT*

### 2. Collect Available Data

Fiber Broadband teams should familiarize themselves with the resources provided by [Northwest ConneCT](#), including the extensive online information available on their website. Northwest ConneCT has available a series of informational fiber broadband [webinars](#) on its website. Northwest ConneCT also has information packages available for each town addressing current coverage, existing infrastructure, and demographics. These packages can be obtained by contacting Jocelyn Ayer, Northwest Hills Council of Governments ([jayer@northwesthillscog.org](mailto:jayer@northwesthillscog.org) or 860-491-9884). Review the packet, if there are questions please email Northwest ConneCT for support.

### 3. Determine Local Opportunities

Understanding local opportunities will help you create a fiber broadband plan that makes sense for your community.

#### **Opportunity questions to consider:**

1. Where are your towns business districts or possible areas of higher subscriber density?
2. Who are your town's anchor businesses, and/or have immediate bandwidth needs?
3. Are there local opportunities within your town to support a fiber broadband deployment?
  - a. Are there residents or local institutions with capacity to finance a broadband deployment?
  - b. Are there technical contacts in town that can be of assistance?
  - c. Will local legislators and municipal stakeholders be supportive?
  - d. Do town-specific grant funding or philanthropic opportunities exist?
  - e. Within the town, are there industry professionals that can access outside financial or technical resources from the private or public sector?
4. Determine if a town wide survey could be helpful. Areas of interest may pertain to the remote workforce, tele-health, virtual learning, local business, education, first-

responder, tourism and municipality needs. There are [survey examples](#) available in the region.

5. Discuss how broadband connectivity impacts your town's Plan of Conservation and Development.
6. Consider collecting Voice of Customer through first-person research. This means, simply talk to people and have a conversation about the topic. While less efficient than a survey you will gain a more in-depth perspective about the opportunity.
7. Who are the innovators in the community? Where are they located? Do they have the connections necessary to create and share their ideas? Education? Arts and culture? Civic applications? New businesses? How will improving broadband access and service affect economic development?
8. Are there existing fiber optic wires within your community?
9. Collect people's "stories" of how fiber broadband could positively impact their quality of life.

#### 4. Begin to Develop your Fiber Broadband Strategy

From the previous three steps your team has now collected a significant amount of regarding your community's broadband needs, the availability of existing resources, and can now begin evaluating financial deployment models to determine a pathway forward.

#### 5. Installation Cost Modelling

Northwest ConneCT has compiled regional data, (see Table 1) enabling local communities to model Fiber-to-the-Street and determine Fiber-to-the-Home cost estimates. Note that this table is for approximation purposes. A network engineering survey will be required to determine final figures. This guide will walk you through the process. Running new fiber optic cable on poles costs an estimated \$50,000 per mile<sup>2</sup>. Take your town's "Road Miles" and multiply out those figures to determine the Fiber-to-the-Street costs.<sup>3</sup>

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<sup>2</sup> Note that buried (18" below ground) fiber optic cable models at \$100,000 per mile to cover both sides of a road.

<sup>3</sup> It is possible to reduce total road miles by partnering with existing fiber providers.

Table 1 Northwest ConneCT Community Data Summary: Demographics

Participating Town	ZIP	TOTAL Housing Units CERC	Land Area Sq.Mi.	Road Miles Rounded Up	Total Road Fiber Other	Total Road Fiber CEN	Dead Zone Miles	Housing Units in Dead Zone	% Housing Units in Dead Zone
Barkhamsted	06063 & 06065	1501	39	75	14	18.28	10.49	181	12%
Bridgewater	06752	892	17	45	5.85	14.17	No Dead Zones Map		
Burlington	06013	3529	30	100	None	4.5	23	807	23%
Canaan	06031	782	33	47	5	7.1	42.89	476	61%
Colebrook	06021	829	32	57	16	6.53	34	501	56%
Cornwall	06754 & 06796	1043	46	81	24	15.12	43.99	528	51%
Goshen	06756	1679	45	85	11	11.41	6.16	95	5%
Hartland	06027 & 06091	851	34	47	None	7.53	3.91	40	5%
Harwinton	06791	2230	31	87	None	10.77	3.31	16	1%
Kent	06757 & 06785	1660	49	90	25	6.1	30.03	429	26%
Litchfield	06759 & 06778	4137	57	148	14	18.81	19.04	539	13%
Morris	06763	1290	19	46	None	8.38	8.02	332	13%
New Fairfield	06812	5705	25	105	None	14.2	No Dead Zones Map		
New Hartford	06057	2757	38	100	None	20.34	0.84	16	1%
New Milford	06755 & 06776	11561	64	260	8	25.6	No Dead Zones Map		
Norfolk	06058	923	46	71	18	13.31	18.77	159	17%
North Canaan	06024 & 06018	1462	20	47	6.5	9.96	12.13	254	17%
Roxbury	06783	1210	26	73	0.5	21.28	3.34	27	2%
Salisbury	06039 & 06068	2723	60	95	17	11.93	62.8	1772	65%
Sharon	06069	1975	60	112	19	25.75	25.03	297	15%
Sherman	06784	1708	23	72	0	14.51	37	823	47%
Torrington	06790	16911	40	204	12	32.99	No Dead Zones		
Warren	06754	845	27	50	16	11.17	46	845	100%
Washington	06777 & 06793 & 06794	2268	39	111	0	10.95	44.66	705	32%
Winchester/Winsted	06098	5590	34	106	17	20.33	No Dead Zones		

Your fiber network will also require a piece of infrastructure called a Fiber Hut. At Fiber Hut is small structure that interconnects the local fiber connections, boosts the signal, and provides back-up power for uninterrupted service. Your planning team should consider options for locations of their Hut, although it will be up to a network engineering company to select the most practical placement and cover expenses related to this piece of infrastructure. A hut costs in the range of \$200,000.

To determine the estimated total Fiber-to-the-Street wiring costs, use this simple formula:

$$\text{Total Fiber Costs} = [(\text{Road Miles} \times \$50,000) + (\text{Underground} \times \$100,000)]$$

**Example:** The Town of Cornwall has 81 Road-Miles (per Table 1) and assumed no underground wiring infrastructure, therefore the FTTS deployment estimate would cost:

$$\text{TOTAL COSTS} = (81 \times \$50,000) = \$4,050,000$$

Each team will have to work with their town to determine the best suited means for financing FTTS. A realistic pathway is to simply distribute the cost across median home tax assessment. From which mill rate impact can be determined.

Table 2 provides a high-level idea of cost per home by town in our region. **This model applies a flat rate across all homes, a calculation that would not be practical to determine what each home contributes towards FTTS.** In a practical deployment, the total FTTS cost could be distributed based on tax assessments to determine mill rate impact.

Table 2 Distributed FTTS Monthly Cost per Home

TOWN	HOUSING	ROAD MILES	FTTS COST	COST/HOME
Torrington	13,613	204	\$ 10,200,000	\$ 3.19
New Fairfield	5,583	105	\$ 5,250,000	\$ 4.08
Morris	2,556	46	\$ 2,300,000	\$ 4.09
Winchester/Winsted	5,590	106	\$ 5,300,000	\$ 4.11
New Milford	11,201	260	\$ 13,000,000	\$ 4.93
Burlington	3,529	100	\$ 5,000,000	\$ 6.16
North Canaan	1,456	47	\$ 2,350,000	\$ 7.32
New Hartford	2,870	100	\$ 5,000,000	\$ 7.57
Salisbury	2,713	95	\$ 4,750,000	\$ 7.63
Litchfield	4,138	148	\$ 7,400,000	\$ 7.68
Harwinton	2,230	87	\$ 4,350,000	\$ 8.53
Sherman	1,736	72	\$ 3,600,000	\$ 9.15
Goshen	1,758	85	\$ 4,250,000	\$ 10.58
Washington	2,226	111	\$ 5,550,000	\$ 10.80
Barkhamsted	1,501	75	\$ 3,750,000	\$ 11.00
Kent	1,657	90	\$ 4,500,000	\$ 11.85
Bridgewater	859	45	\$ 2,250,000	\$ 11.92
Sharon	1,965	112	\$ 5,600,000	\$ 12.34
Hartland	851	47	\$ 2,350,000	\$ 12.52
Roxbury	1,207	73	\$ 3,650,000	\$ 13.33
Warren	845	50	\$ 2,500,000	\$ 13.35
Canaan	782	47	\$ 2,350,000	\$ 13.63
Colebrook	891	57	\$ 2,850,000	\$ 14.31
Norfolk	923	71	\$ 3,550,000	\$ 16.98
Cornwall	1,040	81	\$ 4,050,000	\$ 17.08
REGION	73,720	2314	\$ 115,700,000	\$ 6.57

Note that FTTS calculated costs assume all new wiring and provides only a cost estimate. Final figures will have to be determined from a fiber broadband network engineering firm.

**Depending on the specifics of the community, estimates for a formal network engineering analysis would cost approximately \$30,000 per town.** Note that regional cooperation could yield further efficiencies of scale and incentives. Communities with higher population

densities, lower road miles, business/downtown districts, the ability to partner with existing fiber line partners and possibly find sponsoring anchor businesses or philanthropists could see further cost benefits. Each community will have unique opportunities to dial in their strategy by leveraging the information gathered from their local broadband assessments, offsets from possible federal incentives, existing infrastructure, public/private partnerships, regional partnerships and economic development programs.

If you consider broadband an essential service like roads and public education, FTTS deployment costs are quite reasonable. By comparison, just maintaining our roads can cost \$100 per home per month, and the state now pays \$488 per home per month for education, our most important investment.

### Take Rate

Take Rate describes the number of people opting to subscribe to an offering or service, divided by the total number of people who have access and are aware to the offer. In our case, the service is subscribers to ultra-high speed fiber broadband, and everyone within the community should have access. Once Fiber Optics wiring is in place on the street, Subscribers (both home and business owners wanting Broadband service) now have the opportunity to connect. Average connection from the pole to home including optical modem costs around \$1250 per location. This number can increase in the case of longer driveways or related challenges with respect to cable routing. Considering our proposed business model, it is the Internet Service Provider's responsibility to connect subscriber's FTTH service, meaning the ISP subscription fees would absorb the \$1250 cost. It helpful to consider two things, ISP's possible customer offerings (i.e. Subscriber's connection and monthly fees) and what is the adoption plan for FTTH Broadband. While it may be challenging to require a community to adopt a new service and abandon legacy offerings, understanding the dynamics driving your take rate will provide your team insight towards creating resonating FTTH marketing campaigns. This insight will also be beneficial while engaging your ISP partner(s). Marketing Fiber-to-the-Home's vastly superior connectivity benefits combined with an approachable price point (and even subsidized for those in need) will be critical in getting your community excited to subscribe to this new offering. **We need to make Fiber-to-the-Home a household name and ensure all sectors of the community understand its value proposition.**

### Internet Service Providers

Your Internet Service Provider (ISP) will provide a front-end operational role in your FTTH network. They will be who your community interacts with to subscribe to FTTH services, calls for support, pays for FTTH service, and maintains the network. ISP's can offer value-add services like phone, voicemail, email, website hosting, and support services. A local ISP also has the potential to drive regional job growth via local (or remote workforce) call centers and technicians. By following a model where the community finances/owns the fiber trunk wiring, communities have control of who they opt to partner with for ISP responsibilities. As being a front-end to the community and their broadband needs, one cannot understate the importance of performing the due diligence to find the right internet service provider. Note that Northwest

ConneCT has been meeting with potential ISPs and can assist towns with making these connections.

The ISP will be charging subscribers a monthly service fee. As the FTTS infrastructure is publicly owned, the monthly service fee should be relatively low (this of course will vary depending of subscriber size). **The combined ISP service fee and FTTS monthly cost per home could potentially be comparable to current cable internet fees, however with much better connection speeds.** Targeting the total cost of service and ownership could provide residents a compelling justification to subscribe and support FTTH in your community.

### Compile your strategy

With a general understanding of the business models and approaches, you can begin compiling your findings into a proposed baseline strategy for your town. Capture the key points of how deploying a fiber broadband network will positively impact your town with infrastructure that will satisfy your community's needs for in the coming decades. Include cost model assumptions so that voters can appreciate the total cost of ownership and community's positive return on investment for this upgrade.

### Communicate Your Plan

Educating all members of your community on the benefits of fiber broadband is a critical step to moving this initiative forward. Consider that different stakeholders in your community will resonate with different value propositions. Tailor the message to align to your audience. If helpful for your outreach efforts, Northwest ConneCT has PowerPoint presentation examples available.

#### **General Talking Points**

- *Broadband is now as important as roads - we consider broadband infrastructure as the fourth utility.*
- *The copper-based broadband infrastructure that serves most of our homes and businesses, has exceeded its inherent capacity. This network deployed 40-years ago, was designed and intended for cable television, not internet access. Fiber-optics wiring is future proof.*
- *All members of our community would have ubiquitous and affordable access to the internet at gigabit speeds in both directions.*
- *A fiber network will ensure our region's resiliency and self-reliance.*
- *A FTTH network will meet our community's bandwidth needs for the next several decades.*
- *Leasing out a fiber network to an Internet Service Provider means we have control and can create competition for who offers us internet service at affordable rates.*
- *Fiber broadband is a desirable service that can boost our real estate market and attract young families to this area.*
- *Fiber-to-the-Home expands our areas attractiveness to businesses in media, finance, education, healthcare and technology.*

- *A deployed fiber-to-the-home network defines the Litchfield Hills with another unique value proposition, that further enhances our quality of life.*
- *While some have an acceptable level of connectivity today, it's the result of decisions made decades ago. As our current network has reached obsolescence, the decision to support fiber broadband now will pay dividends to your community for decades to come.*

## Summary

We have arrived at the point where our region needs to take immediate action. Our modern lifestyle compounded with COVID-19 has highlighted the fragility of our obsolete cable-television based broadband network. Now is the time to upgrade our failing broadband infrastructure. Waiting will simply compound the problem and our region will get left behind. This is not a problem we can avoid or mitigate without investment. We have a technical solution, but we need to continue our work to determine a viable funding pathway. Public outreach and education in each of our towns is critical to securing that pathway. The work of local broadband task teams to help with this outreach and education is essential. If you experience roadblocks along the way, please reach out to Northwest Connect to see how we can help. As milestones are achieved, let us know of your team's successes.

Your effort supporting this initiative is important. Deployment of FTTH is a key step towards improving the quality of life for our region's future and prepares the Litchfield Hills to be resilient and competitive for the next several decades.

