Jefferson

During Phase I of the planning process, Axiom's analysis of Jefferson's overall internet coverage revealed a hodge-podge of coverage. Spectrum cable service does cover a portion of the town, Consolidated Communication's DSL service is available, but does not cover close to 25% of the town. Red Zone has a wireless system that covers some in the community, and others use satellite service or simply their phone- if they can get a strong enough cellular signal. There are many frustrated residents in the community and Jefferson returned the largest number of surveys- over 120, which is a strong indicator of dissatisfaction.

Current Service Provider: Consolidated Communications

Consolidated Communication service leaves a lot to be desired. Over 290 homes unserved (24.2%); 24.8% have service, but do not meet the federal standard of 25/3Mbps. The chart, provided by Consolidated, confirms the difficult situation that residents of Jefferson are feeling about their Internet service.

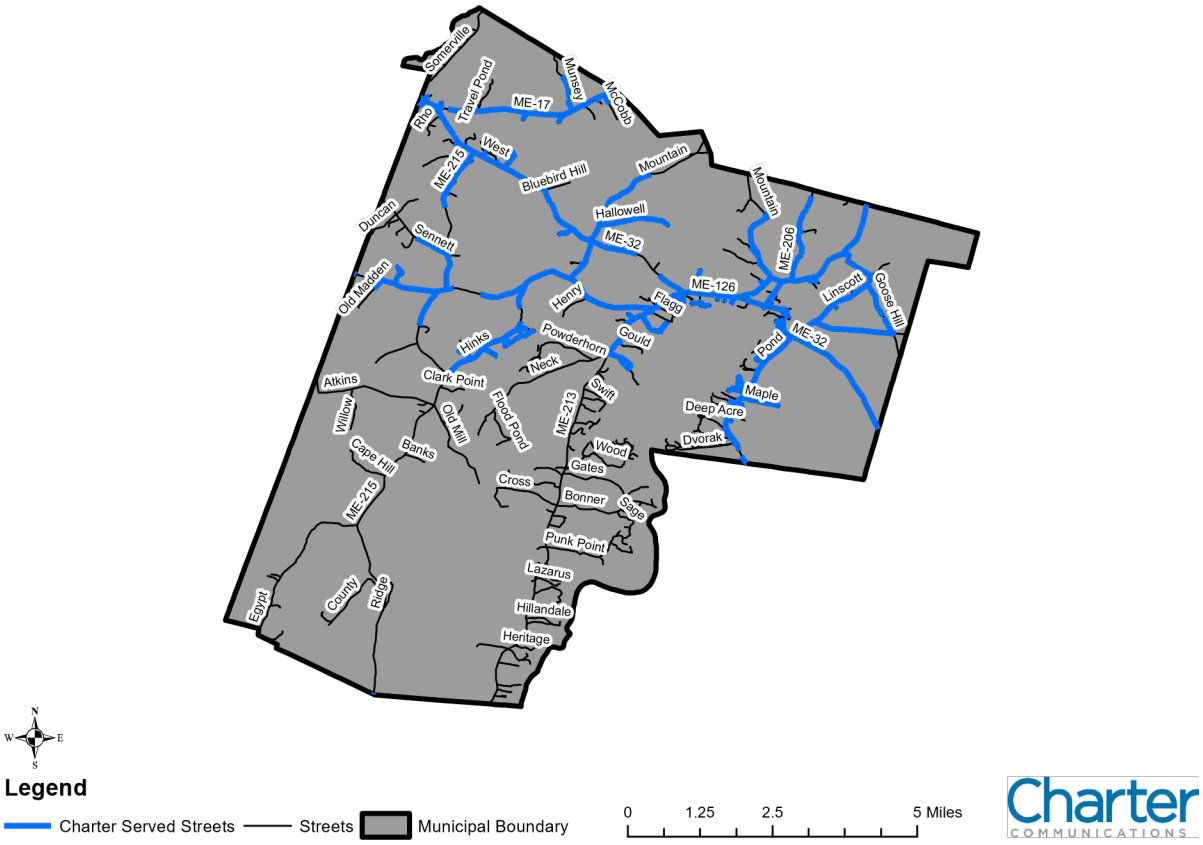
Speed/Bandwidth [Max Available]	# Locations	% available
768K/3M	38	3.2
7M	88	7.3
10M	172	14.3
20M	79	6.6
25/2M	443	36.8
40M	44	3.7
60M	3	.2
80M	44	3.7
NS	291	24.2
TOTALS	1202	100.0

Jefferson resident testimonial-
"The cost is high for my slow internet DSL [Consolidated] connection and the basic (no long distance) phone service. Cable TV is not available in my area of Jefferson, so I get TV via antenna connection."

Current Service Provider: Spectrum

Spectrum service covers approximately half of the community, typically covering only the most densely populated areas, as the company policy will not cover areas with less than 20 homes per mile. It's not clear if the town has a contractual franchise agreement with Spectrum. If so, the town is receiving some subsidy on a yearly basis and may be able to review the contract to understand better Spectrum's responsibility, if any, to bring expanded service to other parts of the community. The map provided by Spectrum is a reasonably accurate representation of the areas they cover.

CHARTER TOWN OF JEFFERSON, ME SERVED STREETS



Because of the number of roads not covered, it is unlikely that Spectrum would consider a major expansion, even with significant local dollars to pay for it.

One concern expressed was the cost, with one resident reporting that Spectrum service was costing them more than $175/month.

Other Service Providers:

Red Zone- Red Zone offers some service in limited areas and is not particularly well regarded. Because of the technology they are using to deliver service the limitations can severally impact user experience.

Red Zone testimonial-
"I had no service for two weeks this summer following storm. I had to leave my lake camp and return to VA"

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Satellite and cellular- both are expensive, unreliable bordering on unusable at times for even the most basic of internet functions and should not be considered as satisfactory alternatives to a true Broadband connection.

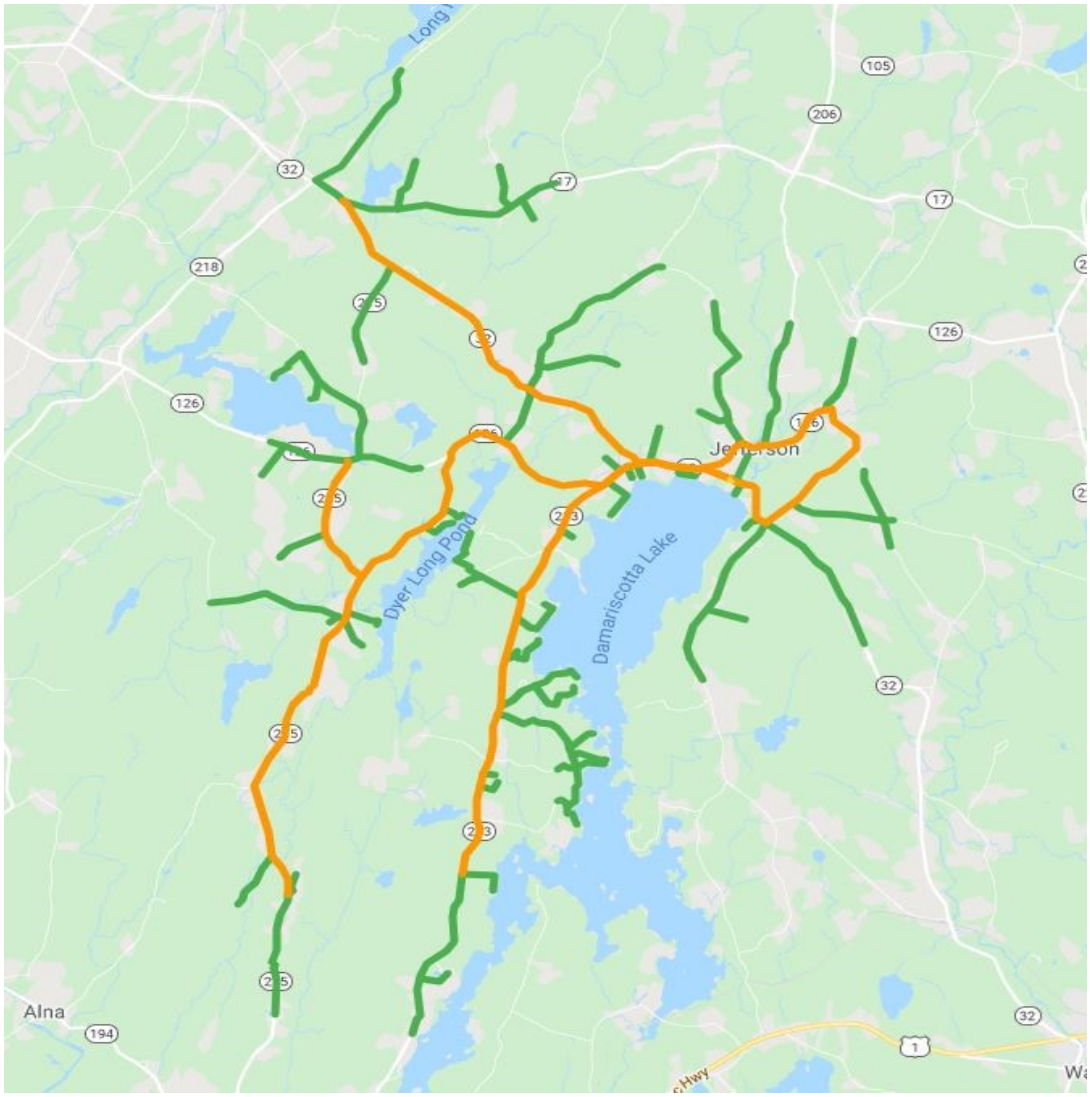
The Plan

We recommend a full fiber optic plan for the community, including the areas currently covered by Spectrum. This would allow for the full benefits of fiber optics to help the community remain vibrant, attract young families and help Jefferson citizens build their own economy.

The plan would provide for:

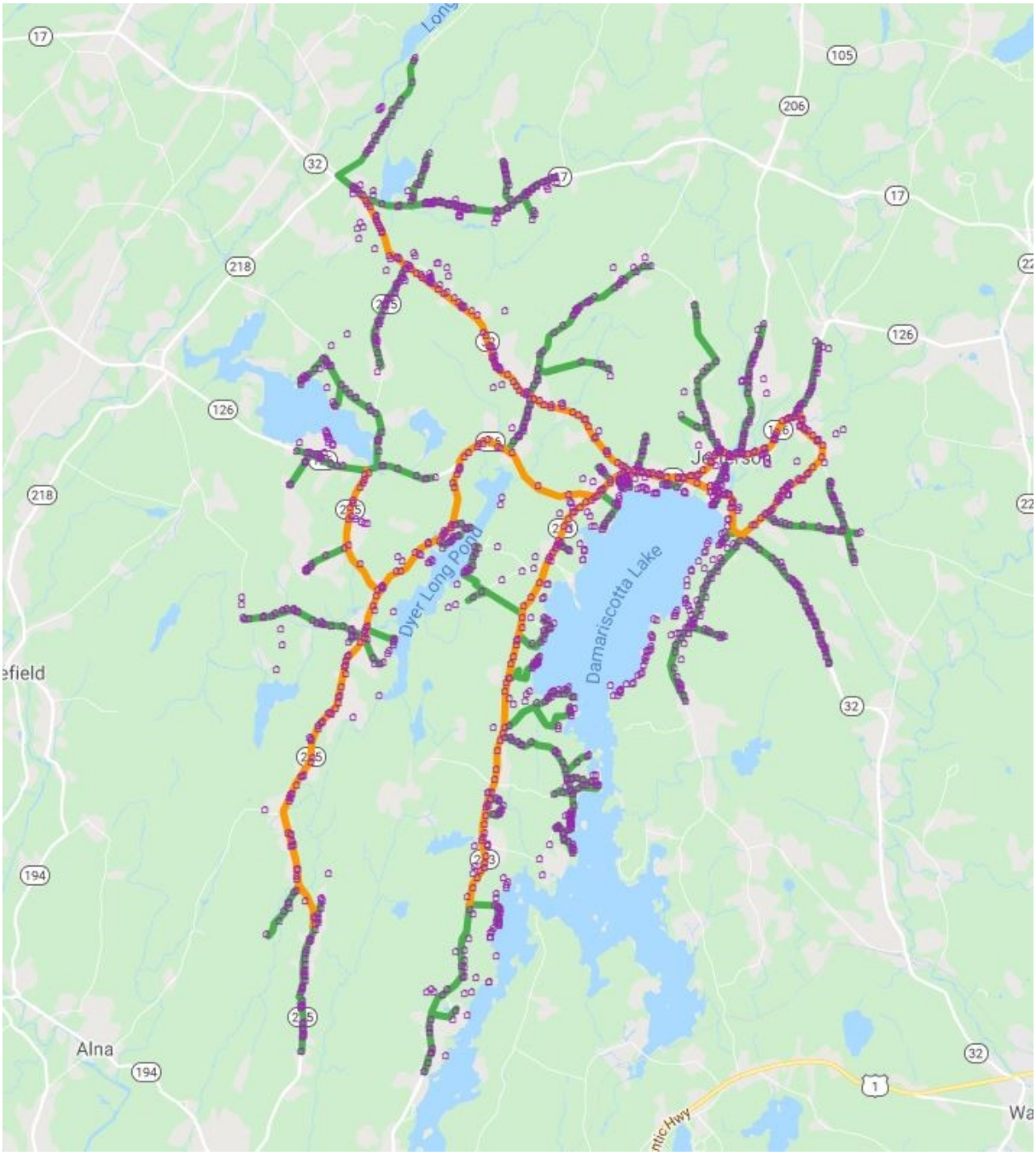
- Equal Access to All- Speed and Reliability would be consistent across the whole community
- Fast and Reliable- Fiber allows for unlimited speeds- to each house, while also providing best-in-class reliability
- Futureproof- while more expensive up front, because this technology is easily scalable, no reinvestment necessary for 20 years or more. This makes fiber the best choice- and least expensive option over time

Fiber Optic Cable routes



Orange= Trunk fiber: Green= Drop fiber

Fiber Routes including locations of homes and businesses



This is the same fiber map with E911 addresses added to give you a good visual of the density of homes across the community. The map does not depict each connection from the fiber to the individual homes. However, we have built into our pricing model connections to every home that wants service. Any home is capable of receiving a connection from this construction design.

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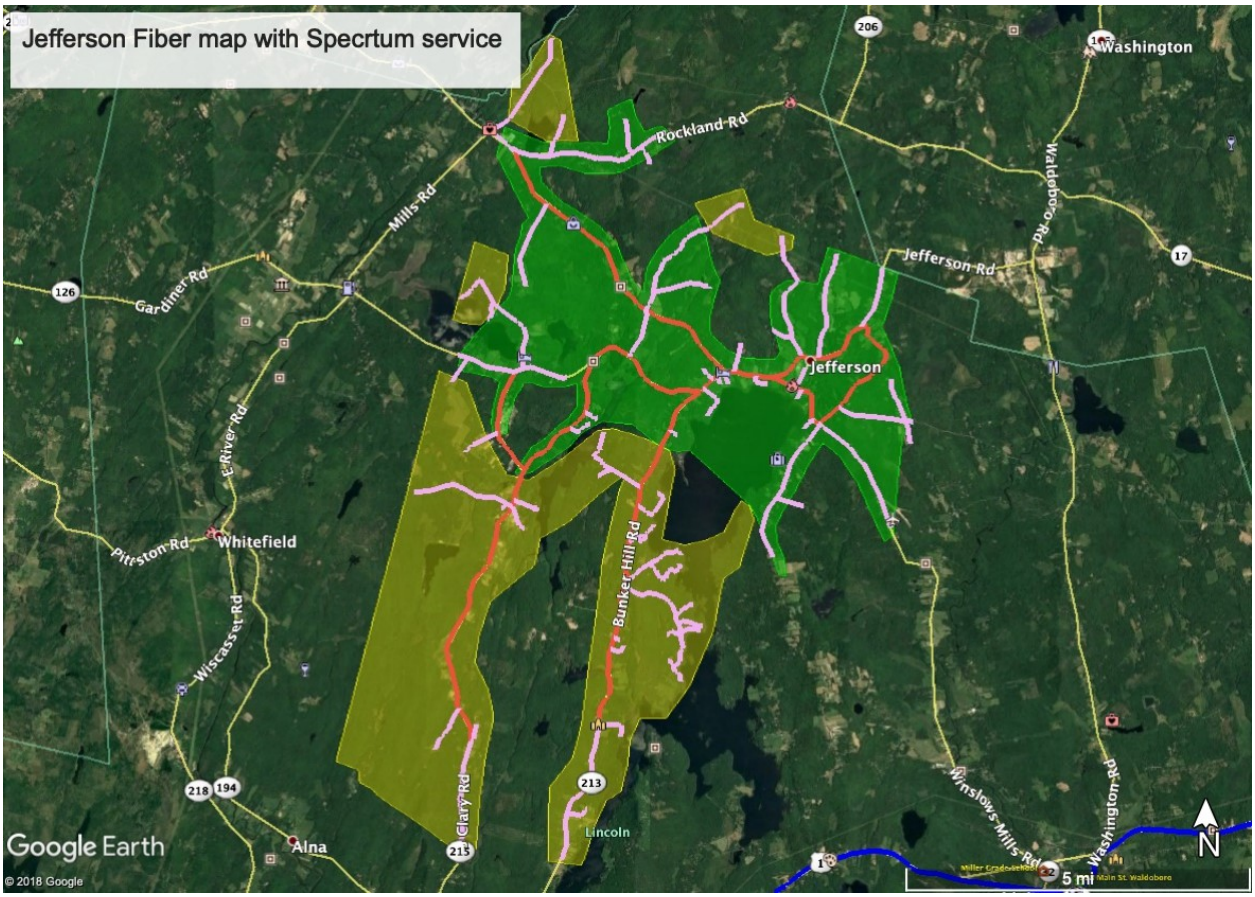
To give you a good visual perspective on where service from Spectrum is and is not, we created this map. This can help you better understand the possibility of only building a system that would serve those areas most in need, or how much uncovered areas of the town there are, if you want to engage Spectrum in a conversation about the cost of expansion.



Green area= Covered by Spectrum

Yellow areas= Not Spectrum served

Cost

The projections for this project are based on a number of assumptions. Please remember, this is a desktop estimate and additional, significant work would need to be completed to give the community a final cost that eliminates all of the variables. The different cost components will give the reader a good idea of where estimated cost would possibly change.

Category Description		Cost
Bill of Materials		$3,166,532
Pole Licensing Application		$106,924
Utility Pole Make Ready	Estimate	$517,500
Utility Pole Replacement	Estimate	$690,000
CO/ Regen Hardware		$291,535

Customer Premise Drop Cable	Estimate	$156,970
Customer Premise Installation Labor		$1,070,250
Total		$5,999,711

The total cost of the budget contains several line items that may change and lower the cost of the project overall. A lot of additional costing information will be learned by proceeding with the pole licensing process. For example, we have made some assumptions based on past experience, but the true understanding of the costs associated with pole attachments and make ready - the cost of other users of the poles moving their lines to "make ready" a space for a new cable - only will come through the licensing process. In addition, pole replacement costs are estimated and will not be known till the pole make ready work is completed.

This budget contains the hardware for 100% of homes to be connected, however, we calculate a take rate of 40% in year one, which would reduce the up-front cost of customer premise installations by approximately $600,000. Along with other potential reductions, we would expect the cost of construction to be closer to $5M.

Breakdown of Cost Components

Bill of Materials
This is the materials and equipment cost for the whole project with the exception of CO/Regen Hardware & Installation and the cost of the drop cable, which are separate line items.

Pole Licensing Application
This plan requires the placement of fiber optic cabling to be placed on existing utility poles across the community. In order to receive approval, a several step process of several months is required, but begins with the application. The cost of the application is based on the number of utility poles you would like to attach to.

Utility Pole Make Ready
Make Ready is the cost of making the poles ready (make ready) to accept a new fiber cable. In order to install new fiber optics cable on utility poles, a licensing process is in place that evaluates each pole for readiness to accept a new cable. Each provider (other than the electrical) would move the current lines to accommodate a space for a new cable. The cost of this process is estimated in our calculations and can change depending on the application process costs associated with each pole.

Replacement Poles (10%)
We estimate that 10% of the poles, through the licensing process might need replacement. There are two major reasons for pole replacements. First, the amount of equipment or utility lines on a pole deem it necessary to increase the height of the current pole to allow for an additional line to be placed on it (pole too short). Or the current pole is aged to the point where it would be unsafe to place the additional line strain on the pole without a replacement pole. (Aged poles). We make an estimate, but these the evaluation of each pole will take place during the pole licensing process.

CO/Regen Hardware & Installation

CO refers to Central Office, which is a term of art that Internet Service Providers use to describe where the equipment that would be needed to power the system and where the internet would be distributed from to each home. Regen hardware is the equipment that would be used to power the internet system and control each individual connection through this central system. These costs also include a heated and cooled utility shack that would house the equipment.

Customer Premise Cable
This is an estimated cost of the fiber to connect each home from the street to the home.

Customer Premise Installations
These costs are associated with the equipment needed at each home. This is the cost of connection 100% of the homes.

Revenue and Expense Model

As part of Axiom's commitment to our mission to help rural communities more fully understand what ISPs are facing serving a small community, we have created a revenue and operational expense budget that helps the community and the ISP better negotiate an operating agreement through a Public-Private Partnership, should the community choose to own the fiber network.

It's important to understand that these are just an illustration of how Axiom would envision the feasibility of operating a system and what potential customer rates could look like. The potential revenue is based on service levels and take rates that are solely Axiom projections and are intended for illustration only, each provider would have their own revenue and cost models. However, these numbers can show you generally what a provider might expect if the town were to build a new fiber system and importantly, how much capital participation, if any, might be expected from the provider.

Revenue

Rate Group	# of Subscribers	Monthly Rate	Annual Revenue
25/5Mbps	400	$69.99	$335,952
50/10Mbps	114	$79.99	$109,426
100/20Mbps	57	$109.99	$75,233
Business Class-50/50M	5	$109.99	$6,599
TOTALS	576 (40%)		$520,611

- The Rate Groups and monthly cost are entirely Axiom's and may differ depending on provider
- Take rate is the estimated number of homes we believe would take service. In Jefferson's case we believe a 40% take rate is achievable- in year one, with a steady rise as people in town convert slowly from Spectrum and Consolidated.

Expenses

Yearly Operating Expenses			Yearly Cost

Bandwidth			$83,592
Phone Technical support			$7,455
Administrative support			$3,929
FC support (local)			$26,531
FC support (Remote)			$101,037
5% gross Rev returned to Community	(negotiated amount)		$26,031
	TOTAL		$248,575

Bandwidth is the cost of bulk wholesale internet.

Phone tech support is the estimated cost to maintain phone support for customers for the year.

Administrative Support is the cost of billing/collections and support for billing questions.

Local Field Crew is the cost of Axiom hiring a local person to conduct simple trouble shooting at the home. Field Crew (Remote) is the cost of dispatching FC from Machias to deal with more serious issues- breakage, splicing, etc.

Revenue return of 5% is Axiom's commitment to give 5% of Gross revenue- $26,031/year- back to the community for the life of any contract.

Three important takeaways of this section:

- à How critical take rate is to the overall viability of the project (less subscribers, less opportunity for profits)- In the case of Jefferson, the number of homes would be attractive to a provider
- à The monthly operating expenses are generally fixed, no matter the number of subscribers (there is not a direct correlation between subscriber counts and expenses)
- à The yearly profits within industry standards (50% plus)

Final Thoughts

- Jefferson is large enough to attract an outside provider ○ If LCI is interested in serving Jefferson that is a partnership worth exploring
- Given that Spectrum serves half of the town, you could build a solution that serves only the unserved and underserved portion of the town ○ It's possible that the underserved portion of the community could be eligible for a USDA ReConnect grant- worth exploring
- Expanding Spectrum service is a viable option, but unlikely given the scale of the expansion ○ Expensive
    - ○ Requires a significant public subsidy for a private company to own the expanded infrastructure