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**Exploring the Feasibility  
of a Rural Broadband Cooperative  
in Northern New York**

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# Exploring the Feasibility of a Rural Broadband Cooperative in Northern New York

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## TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY</b> .....	iii
<b>BACKGROUND</b> .....	1
<b>PROJECT AREA</b> .....	1
<i>Geography</i> .....	1
<i>Population and Housing</i> .....	2
<i>Income and Employment</i> .....	2
<b>TECHNOLOGIES</b> .....	4
<i>Digital Subscriber Line</i> .....	4
<i>Cable Modem Service</i> .....	5
<i>Fiber Optic Technology</i> .....	5
<i>Satellites</i> .....	5
<i>Wireless Broadband</i> .....	5
<b>NEED FOR EXPANDED BROADBAND SERVICE</b> .....	5
<i>Business Industry Views</i> .....	7
<i>Education Industry Views</i> .....	7
<i>Tourism Industry Views</i> .....	8
<i>Homeowner Views</i> .....	8
<b>LEGAL AND REGULATORY CONSIDERATIONS</b> .....	8
<i>Federal Communications Commission</i> .....	8
<i>New York State Public Service Commission</i> .....	8
<i>New York State Department of Environmental Conservation</i> .....	8
<i>Adirondack Park Agency</i> .....	9
<b>FUNDING SOURCES</b> .....	9
<i>North Country Regional Economic Development Council (REDC)</i> .....	9
<i>New NY Broadband Program</i> .....	9
<i>Connect America Fund (CAF)</i> .....	10
<i>U.S. Department of Agriculture, Rural Development, Rural Utilities Service</i> .....	10
<i>Commercial Lending Sources and Investors</i> .....	11
<b>COOPERATIVE BUSINESS MODEL AS A SERVICE PROVIDER</b> .....	11
<i>Existing Cooperative Broadband Providers</i> .....	11
<i>Organizational Documents</i> .....	14
<b>FINANCIAL ANALYSIS</b> .....	14
<i>Financial Scenarios</i> .....	15
<i>Member Subscribers and Infrastructure</i> .....	15
<i>Broadband Cooperative Timeline</i> .....	16
<i>Capital Structure and Operational Parameters</i> .....	18
<i>Financial Results</i> .....	21
Existing Market Prices.....	21
Cash Flow Prices.....	21
Sensitivity Analysis.....	25
<b>SUMMARY</b> .....	28
<i>Suggested Next Steps</i> .....	29
<b>REFERENCES</b> .....	30

## APPENDICES

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<b>APPENDIX 1.</b> Summary of 2014 Broadband Survey in the Towns of Franklin and Harrietstown.....	31
<b>APPENDIX 2.</b> Questionnaire and Community Leader Responses.....	32
<b>APPENDIX 3.</b> Building the Success of the Broadband Enterprise, the Cooperative Experience.....	36
Module 1. Identifying the Opportunity.....	37
Module 2. Creating the Broadband Enterprise.....	50
Module 3. Launching the Broadband Business.....	63
<b>APPENDIX 4.</b> Examples of Rural Broadband Providers and Fee Structure Near the Study Area.....	69

## LIST OF TABLES

---

Table 1. Population and housing density by town in study area.	2
Table 2. Housing units by type and vacancy for towns in study area.	3
Table 3. Household characteristics by town in study area.	3
Table 4. Poverty guidelines.	4
Table 5. Household income distribution for towns in study area	4
Table 6. Characteristics of alternative business structures.	12
Table 7. Potential member subscribers and infrastructure requirements, by region.	16
Table 8. Project and financial analysis timeline.	16
Table 9. Construction costs, by town and region.	19
Table 10. Cost, revenue, and operational parameters for financial feasibility analysis.	20
Table 11. Sales projections by year and region using existing market prices (MP).	22
Table 12. Operating expense projections (excluding income taxes) by year and region.	23
Table 13. Statement of operations and cash flows by year and region using existing market prices (MP).	24
Table 14. Sales projections by year and region using cash flow prices (CFP).	26
Table 15. Statement of operations and cash flows by year and region using existing cash flow (CFP).	27
Table 16. Pricing sensitivity based on proportion of high-speed year-round subscribers, by region.	25

## LIST OF FIGURES

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Figure 1. Service providers in Town of Franklin and Town of Harrietstown.	6
Figure 2. Uses of the Internet, Towns of Harrietstown and Franklin.	7
Figure 3. Distribution of members by type of home, broadband speed demand, and region serviced.	17

## EXECUTIVE SUMMARY

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The advancement of the internet over the past few decades has been revolutionary in dissemination of information, increasing connectivity, and expanding commerce. Its societal impact is similar to that of the interstate highway system, construction of the electric grid, and advancement of television. Access to the internet can be troublesome, especially to persons residing and working in less-densely populated areas as the cost and maintenance to providers can exceed revenues generated. Cooperatively structured businesses have been formed as people with a common need join together and pool resources to secure a needed product or service. Cooperatives are owned by the people who use them, they are controlled by their member-owners through a board of directors, and profits are returned to members in proportion to their patronage or use. Electric and telephone cooperatives were formed in the early 1900s to provide needed services to residents living in rural areas throughout the United States.

Franklin County, located in Northern New York, is a rural county with the southern portion located in the Adirondack Park. Portions of the county have internet access, while other portions are either unserved or underserved. Franklin County collaborated with Slic Network Solutions to secure funds from USDA Rural Development to examine the feasibility of a cooperatively structured business to provide high-speed fiber to areas in the Towns of Fort Covington, Westville, Duane, Franklin, and Harrietstown (outside of the Village of Saranac Lake). Funding to expand broadband infrastructure in rural areas has been made available through the New NY Broadband Program, USDA Rural Development, and commercial lenders. We consider two geographic areas encompassing the Towns mentioned above and two pricing assumptions based on comparable market prices and prices necessary for the cooperative business to be financially viable.

Investigation of existing market prices for internet access near the study area ranged from \$110 for 50/5 mbps (download/upload), \$110 for 100/8 mbps, \$80 for 30/5 mbps, and \$59.99 for 15/1 mbps. For rural broadband projects to be eligible for federal and state grant funding, the provider must offer at least 25/4 mbps at or below \$59.99. Accordingly, our market pricing scenarios include a high-speed (\$100) and low-speed option (\$59.99), with customer allocations informed by household income data for the study area. The breakeven price scenarios increase the high-speed price until the projected cumulative cash flows over ten years are equal to zero.

For the market price scenarios, cash flows were highly negative each year, indicating that contemporary market pricing is insufficient to support the business enterprise, consistent with a lack of currently existing services in the study area. However, when the high-speed monthly price reached approximately \$200, the cooperative endeavor is financially feasible, albeit indicative of a high level of subsidization by high-speed users to price-constrained low-speed users to support the business. Pricing results are sensitive to the proportion of users subscribing to high-speed access. An upfront equity investment by members is also required to support the capital investment.

Concerns exist about the willingness and ability of potential members to pay the equity investment and monthly service fees. Accordingly, we suggest the following next steps:

- A. Engage with Development Authority of the North Country, local, state, and national legislators, administrators and staffers regarding financial support for broadband expansion in Franklin County and the Adirondack region.
- B. Encourage residents (year-round and seasonal) to communicate with existing providers for improved and expanded services.
- C. Consider private-public partnerships with existing broadband providers to expand service to unserved areas.
- D. Conduct more in-depth market analysis to determine quantifiable demand for broadband services based on location, willingness to switch providers, price-points, and willingness and ability to invest in a cooperative enterprise
- E. Identify a core group of people with the time, talent, willingness, and dedication to spearhead further investigation regarding the organization of a broadband cooperative, including organized opportunities for public input.

# Exploring the Feasibility of a Rural Broadband Cooperative in Northern New York

## BACKGROUND

The development of the internet on society has been compared to the growth of the interstate highway system, the construction of the electric grid, and the advancement of the television. Internet providers are less likely to offer high-speed internet to lesser-populated rural areas as the returns on investment are insufficient compared to the number of customers in more densely populated urban or semi-urban areas. Cooperatively-structured businesses have been formed as a means for people with a common need to come together to secure needed goods and services. Persons living in rural areas of the United States in the early 1900s came to the realization that electric and telephone companies located in urban areas would not extend service to less densely populated areas in the countryside. Supported by state and federal legislation, rural residents and farm businesses joined together to form electric and telephone cooperatives. Many of these cooperatives continue to exist today.

This project evaluated the opportunity to expand high-speed fiber (100 mbps) to unserved and underserved areas of Franklin County, New York. While the project had a relatively narrow geographic focus, the process and results will be beneficial more broadly for rural communities throughout the state and elsewhere in developing procedures to assess the potential for rural broadband infrastructure investments via a cooperative business model. The project was coordinated by Slic Network Solutions (SNS), a subsidiary of the employee-owned Nicholville Telephone Company. SNS provides high-speed fiber-to-the-home, along with phone service and cable television in northern New York State (NYS). The project was supported through funds received by Franklin County from the Rural Development Administration of the United States Department of Agriculture (USDA).

## PROJECT AREA

The landscape of the area influences the number of people residing in and the density of housing units with interest in broadband access. The focus area of the project includes selected areas of Franklin County, more specifically, the Towns of Fort Covington and Westville in the northern portion of the county, the Towns of Duane and Franklin in the central portion of the county, and the Town of Harrietstown (excluding the Village of Saranac Lake) in the southern end of the county. All areas except the Towns of Fort Covington and Westville are located inside the Adirondack Park.

### *Geography*

The Towns of Fort Covington and Westville are contiguous to the Canadian border and Fort Covington is adjacent to the St. Regis Indian Reservation. The land is mostly privately owned, relatively flat, and used as farmland or vacant rural land. Many of the residents live in single-family, detached homes. The area is connected with two-lane paved roads. County Route 37 is a main commuter road that runs northwest to southeast across both townships and connects the area to U.S. Route 11, and the county seat of Malone.

The Towns of Duane and Franklin are located in the center and eastern portion of Franklin County and inside the Adirondack Park. Much of the land is mountainous and forest-covered. A significant amount of land in the Town of Duane is part of the NYS Forest Preserve. NYS Route 30 runs north to south in the town connecting the area to Malone to the north and the hamlets of Paul Smiths, Clear Lake Junction, and Tupper Lake to the south and east. Deer River Flow and Meacham Lake draw campers and hikers. The Town of Franklin is a mix of privately held land and the NYS Forest Preserve. NYS Route 3 is a major commuter corridor running northeast to southwest through the town and connects the area to the Village of Saranac Lake to the south and via NYS Route 86 to the southeast. Like the Town of Duane, the Town of Franklin draws campers and seasonal residents to water bodies such as Loon Lake, Saranac River, Union Falls Pond, and Lake Kushaqua. Both towns have several named Adirondack Mountain peaks within their boundaries.

The Town of Harrietstown is located in the southeast corner of Franklin County, inside the Adirondack State Park. It includes the Village of Saranac Lake. Land in and around the village is privately owned, as is land located south of NYS Route 3 and east of the Raquette River. The remainder of the land is part of the NYS Forest Preserve. Much of the area is mountainous and tree-covered. NYS Route 3 runs east across the mid-section of the town, connecting the area to Tupper Lake to the west and to Lake Placid via NYS Route 86 to the east. The other significant commuter

corridors within the town include NYS Routes 30 and 186. Several water bodies such as Lake Clear, Saranac Lake, Kiwassa Lake, Oseetah Lake, Tupper Lake and the Raquette River are located throughout the town. Similar to the Towns of Duane and Franklin, there are several named mountains within the Town. The scenic beauty of the mountains coupled with the diversity of small lakes, ponds, rivers and streams attract canoeists, kayakers, and hikers. Many seasonal summer homes have been owned by multiple generations, and privately- and state-owned campsites are available in the area. Many of the commercial businesses located in the area are geared towards supporting those who visit the area for short periods of time.

### *Population and Housing*

Overall, the project area is characterized by low densities of populations and housing units per square mile. Each of the towns is similar in population (excluding the Village of Saranac Lake in the Town of Harrietstown) ranging from 1,100 to 1,800 people, with the exception of the Town of Duane with a population of only 174 (U.S. Census 2010, Table 1). In spite of total populations being somewhat similar across Towns, the population densities are much higher in the Towns of Fort Covington and Westville (northern portion of the county) relative to the Towns of Duane, Franklin, and Harrietstown (central and southern portions of the county). Expectedly, comparisons of housing unit densities follow similar relationships.

In terms of the proportions of year-round and seasonal residents across the towns, considerable heterogeneity exists, a characteristic not unexpected given the differences in tourism-related environmental amenities and public land (i.e., Adirondack Park, NYS Forest Preserve) across the county. In particular, around 24% of the housing units in Fort Covington are classified as seasonal, as are 39% of the housing units in Westville (Table 2). Approximately 90% of the homes in the Towns of Duane and Franklin are seasonal and over 85% of the homes are seasonal in Harrietstown outside of the Village of Saranac Lake (U.S. Census 2010, Table 2). Such differences in seasonal and year-round use are important considerations when devising cooperative business models where members (in this case, households) vary in characteristics and demands for service.

### *Income and Employment*

People benefit from increasing access to high speed broadband. Increasingly, homework assignments completed by school-aged children require access to the internet, and the internet becomes a platform for small-group projects and collaboration. Older residents in the area benefit from the internet as they connect with family and friends remotely. It is a means to engage in self-directed learning and provides access to tele-medicine resources. Other residents utilize the internet for services such as purchasing goods and online banking, or for business transactions

<b>Table 1. Population and housing density by town in study area.</b>							
<b>Town/Location</b>	<b>Population</b>	<b>Housing Units</b>	<b>Total Area</b>	<b>Water Area</b>	<b>Land Area</b>	<b>Population Density</b>	<b>Housing Density</b>
	(No.)		(Square Miles)			(No./Square Mile)	
<b>NORTHERN AREA</b>							
Fort Covington	1,676	752	36.8	0.0	36.8	45.6	20.5
Westville	1,819	843	34.8	0.0	34.8	52.2	24.2
Total	3,495	1,595	71.6	0.0	71.6	48.8	22.3
<b>CENTRAL AREA</b>							
Duane	174	208	78.0	2.9	75.1	2.3	2.8
Franklin	1,140	1,013	175.2	5.0	170.2	6.7	6.0
Total	1,314	1,221	253.2	7.9	245.3	5.4	5.0
<b>SOUTHERN AREA</b>							
Harrietstown (total)	5,709	3,521	213.6	16.8	196.8	29.0	17.9
Village of Saranac Lake	3,897	2,120	1.9	0.1	1.8	2,201.7	1,197.7
Harrietstown (net)	1,812	1,401	211.7	16.7	195.0	9.3	7.2
Source: 2010 U. S. Census, Summary File #1. Tables H1, H3, H4, H5, accessed 16 September 2016. Census data are by town, while the boundary of the proposed service area follows census tracts.							

<b>Table 2. Housing units by type and vacancy for towns in study area.</b>						
Town	Housing Units				Vacancy Rate (%) <sup>1</sup>	
	Total	Occupied	Vacant	Percent Seasonal <sup>2</sup>	For Sale	For Rent
<b>NORTHERN AREA</b>						
Fort Covington	752	666	86	24.4	2.2	15.7
Westville	843	738	105	39.0	1.5	3.4
<b>CENTRAL AREA</b>						
Duane	208	93	115	89.6	4.7	0.0
Franklin	1,013	508	505	90.9	0.9	8.3
<b>SOUTHERN AREA</b>						
Harrietstown	3,521	2,626	895	67.0	2.7	8.8
Source: 2010 U. S. Census. Summary File 1. General Housing Characteristics, County Sub-division and Place Table H2 and County Census Tract Table H1, H3, H5. Accessed 16 September 2016.						
<sup>1</sup> The home vacancy rate (For Sale) is the percentage of the home (non-rental) inventory that is vacant and for sale. The rental vacancy rate (For Rent) is the percentage of rental properties that are vacant and for rent, or have been rented but are not yet occupied.						
<sup>2</sup> Percentage of housing units deemed seasonal. For Harrietstown, the town-wide percentage of seasonal housing units (67.0%), is comprised of 21.0% in the Village of Saranac Lake and 86.1% in the remainder of the Town.						

and marketing. Approximately one-quarter of the households in the project area have children less than 18 years of age and another quarter of the households have persons older than 65 (U.S. Census 2010, Table 3).

Sufficient income is necessary to afford and access broadband service. A report of the Families and Media Project through The Joan Ganz Cooney Center (i.e., an independent research and innovation lab that focuses on the challenges and opportunities to educate children utilizing technology) found that most low- and moderate-income families have some form of Internet connection but many are under-connected, with mobile-only access and inconsistent connectivity (Rideout and Katz 2016). The Center’s research found that 40% of parents without a home computer or home Internet access say the main reason they do not have the technology is that it is too expensive. Furthermore, Older Adults Technology Services reported that 53% of seniors are online, but low-income seniors have a twelvefold lower adoption rate because of the cost and access to the technology (Kamber 2013).

Approximately three-quarters of all households in the study areas have incomes below the poverty level (Table 4 and Table 5). Sufficient income is necessary to afford and access broadband service. A report of the Families and Media Project through The Joan Ganz Cooney Center (i.e., an independent research and innovation lab that focuses on the challenges and opportunities to educate children utilizing technology) found that most low- and moderate-income families have some form of internet connection but many are under-connected, with mobile-only access

<b>Table 3. Household characteristics by towns in study area.</b>				
Characteristic	Fort Covington and Westville	Duane	Franklin	Harrietstown
Total households	1,893	720	840	2,626
Family households (%)	69.1	64.4	64.6	52.3
With children < 18 years old (%)	29.6	22.5	24.6	23.0
Non-family households (%)	30.9	35.6	35.4	47.7
Householder living alone (%)	25.0	27.8	27.1	38.0
Households w/individuals <18 years old (%)	33.1	24.3	26.7	24.7
Households w/individuals >65 years old (%)	28.4	30.6	25.4	22.2
Average household size	2.56	2.23	2.27	2.10
Source: U.S. Census Summary File 1, Profile of General Population Characteristics. Accessed 16 September 2016. Data based on census tract data that do not necessarily align with municipal boundaries. Data for Harrietstown are the sum of the two census tracts contained within the Town boundaries, with the household and family size averaged between the two tracts.				

and inconsistent connectivity (Rideout and Katz 2016). The Center’s research found that 40% of parents without a home computer or home Internet access say the main reason they do not have the technology is that it is too expensive. Furthermore, Older Adults Technology Services reported that 53% of seniors are online, but low-income seniors have a twelvefold lower adoption rate because of the cost and access to the technology (Kamber 2013).

The Towns of Duane, Franklin, and Harrietstown have significant seasonal and recreational residences. Some of these residences are rustic and designed for seasonal use. Other seasonal residences are detached, single-family homes with access to lakes and ponds or with scenic mountain views that can be used year-round. Limited access to broadband can reduce the length of stay of owners, their families, and reduce the interest of persons to whom they might rent these houses.

Persons in Family or Household	Poverty Guideline
1	\$11,770
2	\$15,930
3	\$20,090
4	\$24,250
5	\$28,410
6	\$32,570
7	\$36,750
8	\$40,890

Source: US Dept. of Health & Human Services, 2015 Poverty Guidelines

HOUSEHOLD INCOME & BENEFITS	Fort Covington and Westville	Duane	Franklin	Harrietstown
Number of households	1,942	679	860	2,662
Less than \$10,000	9.0	0.0	4.0	4.8
\$10,000 to \$14,999	9.1	8	5	8.8
\$15,000 to \$19,999	11.2	7.4	7.8	16.0
\$20,000 to \$24,999	12.0	10.3	10.6	9.3
\$25,000 to \$34,999	15.9	10.2	18.7	13.4
\$35,000 to \$49,999	19.5	19.7	20.8	21.3
\$50,000 to \$74,999	9.9	19.0	14.5	11.9
\$75,000 to \$99,999	9.0	15.3	15.0	9.6
\$100,000 to \$149,999	1.8	2.2	1.4	1.5
\$150,000 or more	2.7	1.5	2.2	3.3
Median household income	\$42,287	\$56,815	\$55,625	\$94,997
Mean household income	\$57,345	\$64,404	\$65,891	\$119,513

Source: U.S. Census Bureau American Factfinder, Selected Economic Characteristics 2010-2014 American Community Survey 5-Year Estimates DO03 Accessed 16 September 2016.

<sup>1</sup> Based on U. S Census tract data. Census tracts do not necessarily align with municipal boundaries. Data for Harrietstown is the sum of two census tracts contained within the town boundaries; mean and median household incomes were averaged across the two tracts.

## TECHNOLOGIES

There are several broadband providers currently offering various broadband technologies in the surrounding areas. These technologies are described below.<sup>1</sup>

### *Digital Subscriber Line*

Digital Subscriber Line (DSL) uses copper telephone lines to deliver broadband. DSL systems come in various levels or tiers. Transmission speeds range from several hundred Kbps to millions of bites per second (Mbps). One of the challenges of DSL is that the further the premise is from the exchange, the lower the speed. DSL can be asymmetrical – primarily used by residential customers such as Internet surfers who receive data but tend not to upload large files. Symmetrical DSL is used by businesses for services such as video conferencing, which needs significant upload and download bandwidth.

<sup>1</sup> Information adapted from Federal Communications Commission website [www.broadband.gov/broadband\\_types.html](http://www.broadband.gov/broadband_types.html).

### *Cable Modem Service*

Cable modem service allows cable companies to provide broadband using the same coaxial cables that deliver pictures and sound to televisions. They provide transmission speeds of 1.5 Mbps or more. Transmission speeds vary depending on the cable modem, cable network, and traffic load, but are generally comparable to DSL.

### *Fiber Optic Technology*

Fiber optic technology converts electrical signals carrying data to light and sends the light through transparent glass fibers. Fiber transmits data at speeds far exceeding current DSL or cable modems, usually by tens or even hundreds of megabytes per second (Mbps).

### *Satellites*

Satellites orbiting the earth can provide links for broadband access. The technology can be a useful tool for providing access to remote or sparsely populated areas. Download and upload speeds vary and are dependent on the service package purchased, consumer's line of site to the orbiting satellite, and the weather. Service can be disrupted by weather conditions. Speeds may be slower than DSL or cable modem.

### *Wireless Broadband*

Wireless broadband connects the premise to the internet using a radio link between the customer's location and the service provider's facility. Wireless broadband can be mobile or fixed. Wireless technology uses long-range directional equipment to provide broadband to remote or sparsely populated areas. Speeds are comparable to DSL and cable modem technologies. An external antenna is usually required. Fixed networks allow customers to access the Internet from a fixed point and requires a direct-line-of-sight between the wireless transmitter and receiver. Mobile wireless broadband may also be available from mobile telephone service providers. These services require a special PC card with built in antenna that plugs into a user's laptop to allow access to Wi-Fi, 'hot spots,' or areas approximately 300' from the transmitter. Developing technologies, such as WiMAX, may provide wireless broadband service over a much broader area, of up to 30 miles from the transmitter.

## **NEED FOR EXPANDED BROADBAND SERVICE**

Two initiatives were recently undertaken to understand the need for high-speed broadband to unserved and underserved residents in the study area. The first was a survey conducted in 2014 by the Paul Smiths College, Business Management and Entrepreneurship Program (Litynski and Pflumm 2014). Residents of the Towns of Franklin and Harrietstown (including the Village of Saranac Lake) were asked to complete a survey. Over 400 surveys were collected, 210 from residents in the Town of Franklin and 206 from residents in the Town of Harrietstown.<sup>2</sup> Based on the survey responses, the companies with the largest market shares in the study area included: (1) Time Warner Cable (now Spectrum) (cable), (2) include Verizon (DSL), (3) Windstream (DSL and fiber), (3) Development Authority of the North Country (fiber), and (4) HughesNet (satellite) (Figure 1).

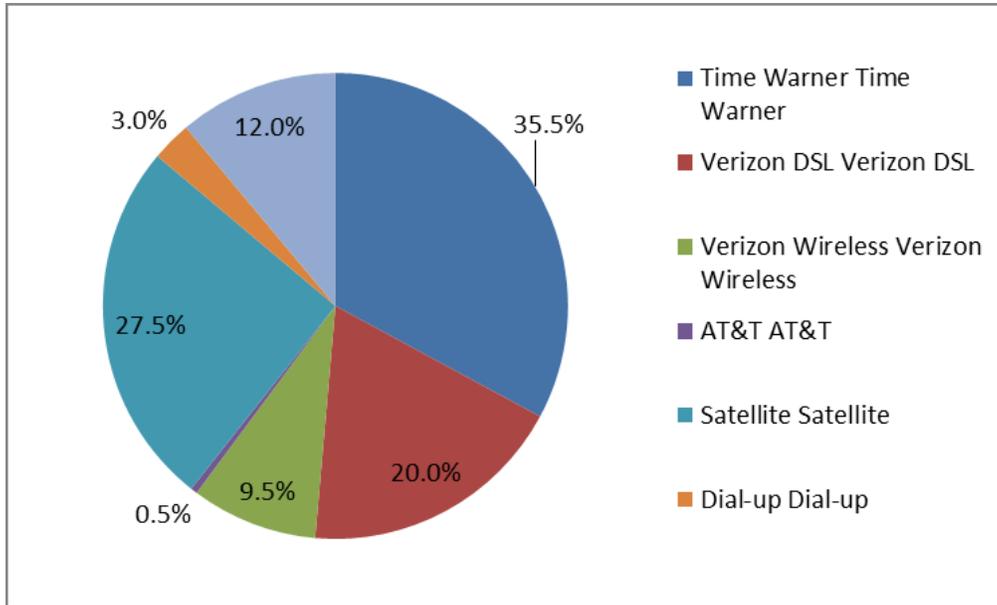
The distribution of answers between the two towns was very similar, although each respondent did not necessarily answer every question. Approximately 80% of respondents had internet access and slightly less than 50% were satisfied with the internet speed delivered by their service provider. Of those who were dissatisfied, 90% would purchase faster speed if available, 8% indicated that internet service was not available to their residence, and 2% suggested that internet access was cost prohibitive (Litynski and Pflumm 2014).

Almost all survey participants utilized the internet to connect with family and friends through email and social media platforms, while over 80% utilized the internet for online banking and access to entertainment such as television and music (Figure 2). If available, one-half would use the internet for continuing education and 40% indicated that they do or would use the internet to telecommute or as a resource to support their home-based business. Approximately 10% of respondents had children under the age of 18 in the home, compared to 25% of households as reported in the U.S. Census.

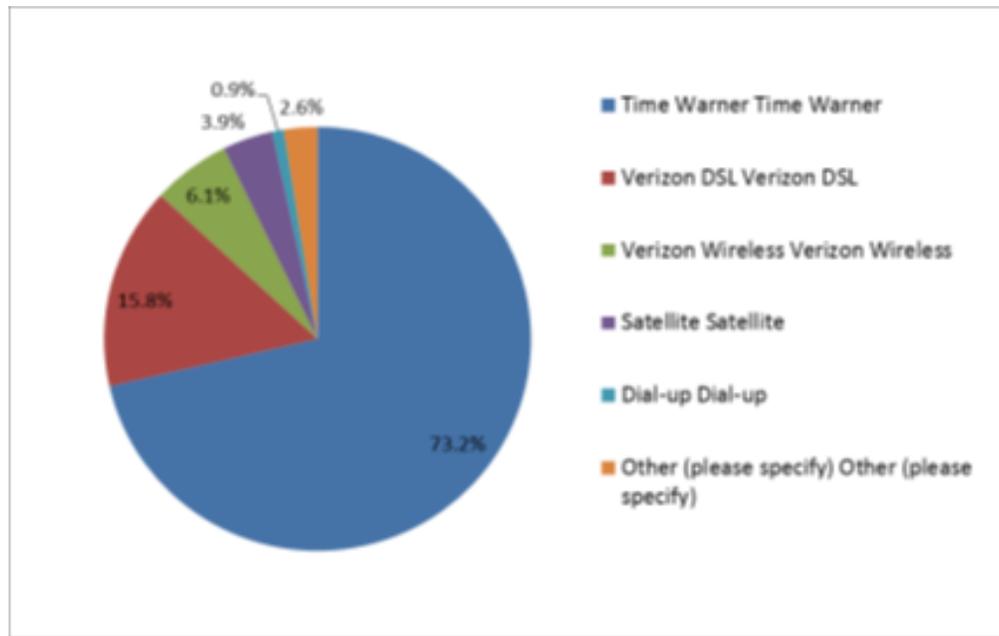
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<sup>2</sup> For more information, see Appendix 1.

**TOWN OF FRANKLIN**



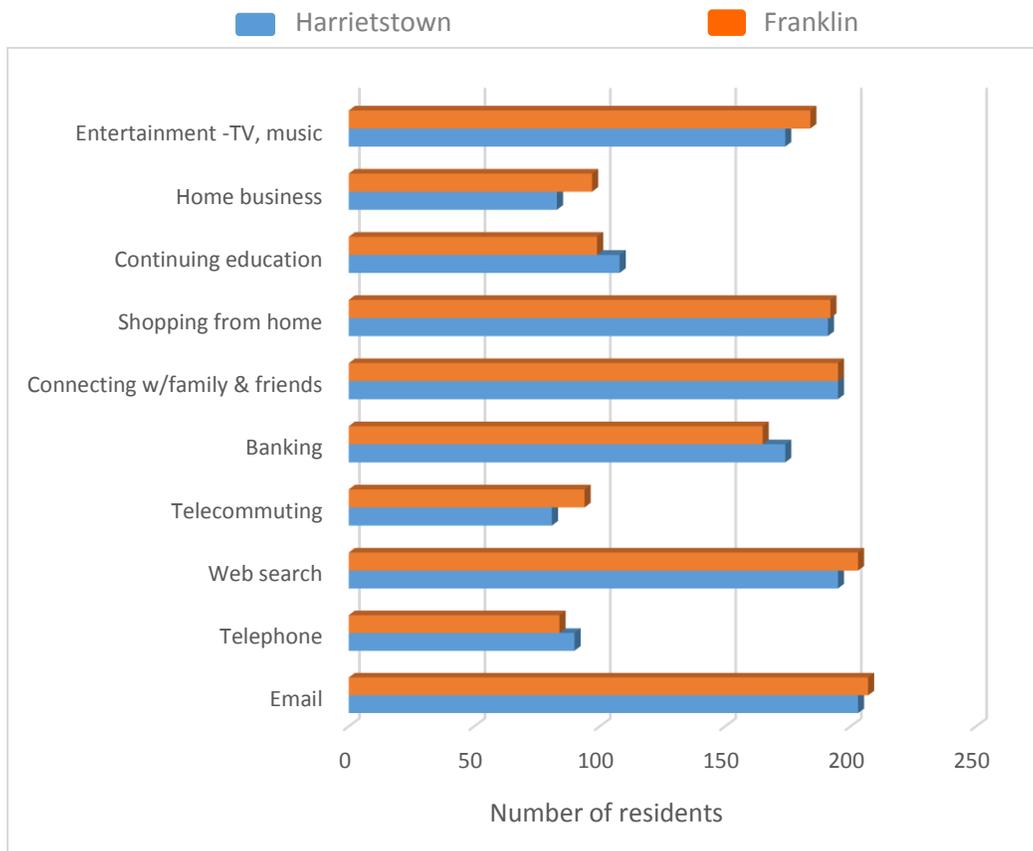
**TOWN OF HARRIETSTOWN**



**Figure 1. Service providers in Town of Franklin and Town of Harrietstown (Source: Litynski and Pflumm 2014).**

A second initiative conducted to better understand the need for high-speed broadband access was a series of interviews conducted with community leaders in or near the study area. In May 2016, Roberta Severson (Director, Cornell University Cooperative Enterprise Program) interviewed thirteen people representing a range of views from business, education, government, and community perspectives. The outcomes of those interviews, by industry area, are summarized below.<sup>3</sup>

<sup>3</sup> A copy of the questionnaire, a list of interviewees, and summarized individual responses are included in Appendix 2.



**Figure 2. Uses of the Internet, Towns of Harrietstown and Franklin. (Source: Litynski and Pflumm 2014)**

*Business Industry Views*

In the business area, interviews with representatives of the real estate, restaurant, and production agriculture communities indicated that issues associated with access and service speeds were mixed. Frustration was expressed that current upload speeds are not sufficient and often time out before the file is sent. Indeed, uploading large files can only reasonably be completed during the late evenings or in the middle of the night. Persons spearheading economic development view high-speed internet as a means to strengthen existing cottage industries, such as artisans and crafters, and as a necessary tool to establish new enterprises. Precision agriculture technologies are growing in adoption by farmers to customize crop inputs and monitor yields. This tool and other technologies, such as robotic milkers in the dairy industry, require sufficient bandwidth to transfer large volumes of data to farm managers. Businesses involved in the hospitality industry also need a stronger internet presence to promote their businesses and accept online reservations.

*Education Industry Views*

Within educational sectors, interviews with representatives of college leadership, school superintendents, and Cornell University Cooperative Extension were conducted. K-12 schools in the northern portion of the county are working towards making sure that each household with school-aged children has connectivity. This is necessary as classrooms become ‘flipped’ and where homework assignments outside of the classroom are used to prepare students to engage collaboratively in solving ‘real world’ problems in the classroom. Mention was also made of the need for students without internet access having to drive to ‘hot spots’ where they could access the internet and do their homework. Paul Smiths College and Cornell University Cooperative Extension see a need for improved connectivity to provide experiential, distance-learning opportunities for local youth, adults, and aspiring entrepreneurs.

### *Tourism Industry Views*

The Regional Office for Sustainable Tourism is based in “traditional advertising, digital marketing, public relations, harnessing the power of electronic media” with the Wild Center as a primary tourist destination. Marketing research shows that tourists, especially millennials, want to share their experiences and ‘cool adventures’ instantly via social media. This attracts other tourists and tourism dollars to the area. Tourism-based industries, and the region itself, is less competitive compared to other recreational areas because of a lack of consistent and sufficient broadband capacity.

### *Homeowner Views*

The study area includes both year-round and seasonal home owners, with approximately 30% of housing units classified as seasonal in the northern portion of the county, 60% in the southern portion of the county, near 90% in the center portion of the county. Some of the seasonal residences are rented out for short periods of time. Many of these seasonal homes have been owned by multiple generations of family members. Some seasonal residents are employed by companies that allow them to telecommute. Other seasonal residents look forward to hosting family members and entertaining their friends. A lack of high-speed broadband prevents them from working from their residence and makes it difficult for family members to access social media and various entertainment platforms (e.g., gaming, music, movies) without exceeding data caps. The baby boom generation will be transferring these properties to next-generation owners. Family members have expressed that they may not want to own the residence because it does not have sufficient connectivity. Those interested in spending time in the area want the connectivity. One of the questions asked by buyers interested in purchasing property in the area is about the quality of broadband service, suggesting that a lack thereof will negatively affect real estate markets.

## **LEGAL AND REGULATORY CONSIDERATIONS**

Federal and state agencies regulate broadband providers and provide processes to protect consumer interests. Two main avenues exist to provide broadband service. One way is through a cable modem offered by a cable company. The second way is through copper wires (DSL) or fiber offered through a wireline telephone company. The NYS Public Service Commission has jurisdiction over both types of systems unless preempted by the Federal Communications Commission. Jurisdiction is further defined based on how broadband service is defined.

### *Federal Communications Commission*

The Federal Communications Commission has classified broadband delivered via cable modem as an interstate information service and subject to its regulation. Broadband received via telephone wireline is classified as an information service and under the purview of the NYS Public Service Commission. In February 2015, the FCC’s Open internet rules were adopted to, among other things, “promote investment in broadband networks and ensure that broadband providers maintain the ability to manage the technical and engineering aspects of their networks.”

### *New York State Public Service Commission*

The New York State Public Service Commission is part of the NYS Department of Public Service. The Department of Public Service has regulatory oversight and input on policy development; its mission is to “ensure safe, secure, and reliable access to energy, telecommunications, and water services for NYS citizens and businesses.” With an emphasis on promoting competitive markets, the Department seeks to maximize customer choice and value for these services. Where competition is not present or viable, the Department will exercise regulatory authority judiciously to ensure equitable rates and high-quality service. The Commission has impacted franchise agreements between cable providers and local municipalities. In 2004, the Commission reviewed and reformed the pole attachment process that telephone and electric utility pole owners must follow to accommodate telecommunications and cable pole attachments.

### *New York State Department of Environmental Conservation*

The New York State Department of Environmental Conservation (DEC) oversees the management of forestland owned by NYS. DEC planners develop Unit Management Plans to assess the natural and physical resources present within a particular area. They identify opportunities for public use that are consistent with land classifications (forest

preserve, state forest, wildlife management area, conservation easement). Plans must be in compliance with the Adirondack Park State Land Master Plan.

### *Adirondack Park Agency*

The Adirondack Park was created in 1872 by the State of New York. At the time, concerns were raised about timber management and harvest in the Adirondack Park area. In 1894, the Adirondack Forest Preserve was established and recognized as a constitutionally protected Forever Wild area. The Towns of Duane, Franklin, and Harrietstown are located within the Adirondack Park. Any land owned or acquired by the State of New York within these towns must be kept "Forever Wild." As a result, some regulations can make the extension of utilities such as broadband connectivity a challenge. One way to mitigate this challenge is to install the fiber on existing infrastructure such as telephone and electric poles. Unit management plans in the Park denote that some areas will be maintained specifically for recreation, including skiing, hunting, fishing, hiking, camping, and mountain biking.

Municipal planning documents can provide policy guidelines to support the expansion of broadband, and zoning and building codes can impact broadband infrastructure location and construction. Local governments may own public rights-of-way, such as roads or water lines and the spaces immediately beside, above and below them and grant entities such as internet service providers access to install telecommunications infrastructure. Towns and Villages may have ordinances restricting excavation and construction and choose to serve as the lead agency for State Environmental Review (SEQRA).

Community leaders and survey respondents from the Towns of Harrietstown and Franklin indicate there is a need for broadband expansion to unserved and underserved areas. About half of those responding to the Towns of Harrietstown and Franklin survey indicated that internet speed was not adequate and most were willing to switch to another provider for improved service. Since the time of the survey, Time Warner Cable has become Spectrum. The company has indicated that it would improve service to customers. Some premises remain unable to access cable and rely on other providers. Customer satisfaction is mixed. There is mounting concern as long-held family residences transition to next-generation owners, be it within or outside of the family. New owners expect that reliable broadband will be available to meet their needs. For the region to remain competitive with other tourism options there is a need for improved connectivity. Tension exists between the desire to preserve the 'Forever Wild' nature of the area and balance the needs of persons living, visiting and working in the area.

### **FUNDING SOURCES**

Several funding sources are available to finance the expansion of broadband to unserved and underserved areas. Recent funding sources considered for these ventures are summarized below.

#### *North Country Regional Economic Development Council (REDC)*

The North Country Regional Economic Development Council (REDC) is one of ten REDCs located throughout NYS and operates under the auspices of Empire State Development. This statewide program started in 2011. Increasing access to broadband service is one of the North Country REDC goals. Since that time there have been six funding rounds with Phase I and II broadband build-outs in Hamilton County and one in Long Lake.

#### *New NY Broadband Program*

The New NY Broadband Program provides financial assistance to support broadband development (100 Mbps download and 25 Mbps upload) to unserved communities. The program is administered through the NYS Broadband Program Office, a division of Empire State Development. Funding from the program will support middle-mile fiber installation to bring last-mile broadband access to unserved and underserved populations.

In January 2016, the Broadband Program Office launched a \$500 million Phase 2 New NY Broadband Program. Incorporated organizations, local government units, cooperatives, private corporations, limited liability companies organized for-profit, or not-for-profit are eligible for funding. Governor Cuomo's goal for private-sector matching funds is 50 percent of total eligible project costs or greater. Applications for the funding must serve 250 units or all eligible unserved and underserved census blocks within an REDC region. Applicants must agree to offer minimum speeds of 25 Mbps download and 4 Mbps upload at a monthly rate not to exceed \$59.99. This rate will include connection fees, equipment fees and/or surcharges. Data-caps are not allowed. The rate may be adjusted based on

Consumer Price Index or a rate published by the Broadband Program Office. The applicant must operate at least one wired or wireless network business with at least 500 customers. Financial documents must be submitted to demonstrate the financial stability of the applicant.

Governor Cuomo announced on February 28, 2017 that Chazy and Westport Telephone Corp., Champlain Telephone Co., Frontier Communications, Mohawk Networks, LLC, Newport Telephone Co., Slic Network Solutions, and TDS Telecom had been awarded funds to expand broadband into Northern New York Counties. On April 3, 2017 the request for proposals opened for Round 3 of the New NY Broadband Program.

### *Connect America Fund (CAF)*

The Connect America Fund (CAF) Phase II is a six-year plan (through 2020) financed through a cash infusion of \$4.5 billion annually from the Universal Service Fund of the FCC. Funding is directed towards telephone companies to encourage them to provide or expand broadband access to census blocks identified by the FCC. The funding subsidizes the cost to install and operate broadband for 10 years. Funds are accessed through a reverse auction process. CAF funds have been earmarked to support broadband efforts in the Lake Clear area. The FCC plans to evaluate the areas that remain unserved near the end of the 6-year program in 2020.

### *U.S. Department of Agriculture, Rural Development, Rural Utilities Service*

The United States Department of Agriculture, Rural Development, Rural Utilities Service (RUS) administers a variety of applicable programs. Funding for these programs is made through allocations by the U.S. Congress via the Farm Bill. Congressional hearings will be held in 2017 to develop the next Farm Bill. Unknown at this time is whether similar funding streams will be available in the future as the Trump administration has indicated a need for realignment of spending and a reduction in duplicative services. Recent funded programs have included:

- **Community Connect Grants** fund broadband into rural areas where it is not currently economically feasible for private sector providers to deliver service. Funds can be used for construction and the purchase and rental of facilities, land, or buildings used to deploy broadband. Less than 10% of the grant (or up to \$150,000) may be used for improvement, expansion, construction, or acquisition of a community center providing internet access to the public. The grant requires at least a 15% match from non-federal sources.
- **Distance Learning & Telemedicine Grants** are geared toward connecting students with teachers and rural residents with the healthcare community. Awards range from \$50,000 to \$500,000 and require a 15% match. Funds may be used for audio, video, and interactive video equipment, terminal and data terminal equipment, computer hardware, network components and software, inside wiring and similar infrastructure that support distance learning technology services, acquisition of instructional programming that is a capital asset, and acquisition of technical assistance and instruction for using eligible equipment. Otsego Northern Catskills BOCES and the Finger Lakes Migrant Health Care Project, Inc. have been recipients of these funds.
- **Telecommunications Infrastructure Loans and Loan Guarantees** provide cost-of-money loans, loan guarantees of up to 80% to allow private lenders to extend credit to qualified borrowers in rural areas and hardship loans. Loan terms include:
  - Cost-of-money loans – fixed rate at current U.S. Treasury rates depending on loan maturity at time of each advance.
  - Loan guarantees – fixed rate primarily from Federal Financing Bank (FFB). Interest rates (Treasury rate plus 1/8 percent) vary depending on call options and interim maturity rate.
  - Hardship loans – fixed interest rate of 5 percent for up to 20 years
  - Borrowers must provide, construct, operate, and maintain the facilities and services. All facilities financed with aid of federal dollars must be used for a public purpose. Cannot duplicate similar services in the same area. Collaborations with other state, local, private, and non-profit entities are encouraged.
- **Rural Broadband Access Loan and Loan Guarantee Program (aka Broadband Program)** provides loans and loan guarantees to provide funds for construction costs, improvement or acquisition of facilities, and

equipment needed to provide broadband service. Corporations, limited liability companies, cooperatives, state or local governments, and tribal organizations are eligible to apply. Projects must be located in an area where at least 15% of households are unserved, there are no more than two incumbent service providers, and the area does not overlap with any projects currently funded with RUS borrowers. Loans are between \$100,000 and \$10 million.

- **USDA Rural Development Block Grants (RDBG)** is a competitive grant program providing funds to support technical assistance, training, and activities that will result in the development of small and emerging private businesses with fewer than 50 employees and gross less than \$1 million in revenues in rural areas. Local governments, authorities, non-profit organizations, institutions of higher education, federally recognized tribes, and rural cooperatives are eligible for this funding. Funding can be used for community economic development, technology-based economic development, feasibility studies and business plans, rural business incubators, and long-term business strategic planning. Applications are evaluated on job creation in one or more local businesses, percent of match, economic need in the area to be served, continuity with other local economic development initiatives, and the experience of the recipient with other similar efforts.

### *Commercial Lending Sources and Investors*

Commercial lending sources and investors can also serve as sources of funds to capitalize the business. CoBank, ACB is a national cooperative bank that provides loans, leases, and financial services to agribusiness, rural power, water and communication providers throughout the United States. It is a member of the Farm Credit System and is chartered to support the capital needs of U.S. agriculture and rural economies. The **U.S. Rural Infrastructure Opportunity Fund** is a public-private partnership between CoBank, Capitol Peak Asset Management (CPAM) and the U.S. Department of Agriculture. The fund is designed to complement existing government and grant programs by making capital investments in rural communities for, among other things, rural broadband. The fund works to recruit new sources of private capital for rural infrastructure projects, serve as a co-lender for borrowers financing projects where the government program limits or resource constraints warrant the fund's involvement, and private lending to projects capable of meeting market terms (CoBank, ACB).

### **COOPERATIVE BUSINESS MODEL AS A SERVICE PROVIDER**

This study focuses on the potential development of a cooperative to provide high-speed broadband access to unserved and underserved areas in Franklin County. Cooperatively structured businesses involve financial investments and governance responsibilities of the member user owners. Cooperatives have a history of providing services such as electricity and telephone to rural communities throughout the United States. Many utility cooperatives were formed in the 1930s when it became apparent that investor-owned utility companies serving urban areas would not extend services to rural areas as the cost of installation, projected revenues, and return on investment were not sufficient. Access to electricity and telephone services were deemed a necessity for economic development in rural America as a means to recover from the economic downturn of the Great Depression. New Deal legislation, such as the Rural Electrification Act, was passed in 1936 to channel low interest government loans to electric cooperatives to provide power to rural communities.

The Homeland Security Act of 2002 provided funding for broadband infrastructure to support the efforts of emergency responders. The American Recovery and Reinvestment Act (ARRA) was passed in 2009. Congress recognized that rural and less densely populated areas had less broadband connectivity than their urban counterparts did. ARRA funding was made available to expand broadband access to unserved and underserved areas as a means to stimulate economic recovery and development. Franklin County benefited from both sources of funding; however, additional funding from these sources is no longer available. That said, Federal and NYS government agencies continue to encourage and support the expansion of broadband to unserved and underserved areas of NYS. Table 6 examines the differences in business models between a member-owned cooperative, a corporation owned by shareholders, and a non-profit organization formed for the public good.

*Existing Cooperative Broadband Providers*

An internet search of cooperative broadband providers in rural areas was conducted, with no one specific pathway emerging. Many cooperatively owned providers are decades-old rural electric and telephone companies that own the infrastructure (poles, right-of-ways, etc.) and have the technical expertise to provide power and connectivity. Installation of fiber and subsequent high-speed broadband access is an additional service they provide to their customers. Other examples were private-public partnerships. Early efforts were focused on expanding broadband in rural areas for emergency responders, government buildings, schools, institutions, libraries, and community centers. Others focused on improving connectivity within and on the perimeter of villages to support businesses within the immediate vicinity.

Generally, larger business, schools, government customers have the means to pay for broadband service and increase profits to the provider. Fiber-to-the-home in rural, less densely populated areas is less lucrative to broadband providers. However, a combination of the three -- fiber to businesses, fiber to institutions, and fiber to the home -- is attractive to potential providers. The needs of businesses, institutions, and government have been reasonably met in the study area, leaving this project to focus more specifically on fiber-to-the-home or premise. If a competitive alternative providing high quality service such as a broadband cooperative was formed, businesses, institutions, and government entities may opt to become cooperative members.

<b>Table 6. Characteristics of alternative business structures.</b>			
<b>Characteristic</b>	<b>Cooperative</b>	<b>Corporation</b>	<b>Non-profit Organization</b>
<b>Ownership</b>	Owned by members who use the business; defined by member stock or ownership certificate	Owned by shareholders(may or may not be users) who own one or more shares of stock	No ownership
<b>Motivation to form</b>	Group of people formally organize a business to address a common shared need	People see opportunity to invest in business with sufficient returns on investment	Persons identify a community need and create an organization to address it
<b>Beneficiaries</b>	Members utilize services, receive share of profits based on patronage with the business.	Shareholders receive share of profits based on level of investment	Community benefits from the services provided.
<b>Control mechanism</b>	Members vote for directors from member-body to represent their interests. Members attend annual meetings and vote on policy proposals.	Shareholders vote for directors solicited by the company.	Board and/or nominating committee solicits persons from the community to serve on the board.
<b>Residual rights</b>	Members’ financial risk limited to equity they have in organization. Board of directors determine the amount of profit to be distributed to members. At dissolution, any financial residuals are allocated to members	Shareholders’ financial risk limited to value of stock in the company. Board of directors determine dividends paid. At dissolution, any financial residuals are allocated based on investment of shareholders	No dividends are paid. Profits retained by organization and used for public good. At dissolution, any financial residuals are contributed to another non-profit with a similar mission.

The following summaries provide selected examples of cooperative businesses and innovative collaborations meeting the challenge to provide broadband services to rural communities.

**RS Fiber (public-private partnership)**

RS Fiber is cooperatively owned by residents living in 17 villages and towns in Renville and Sibley Counties in south central Minnesota. The organization was formed because of the need for higher speed connectivity than what was currently being provided. The project evolved from a publicly owned municipal network to a community-based cooperative. The cooperative was formed in 2012 as a 308B Minnesota Cooperative. The time from concept to formal organization took seven years and involved nearly 100 people. Through inception, project leaders had to overcome the opposition of private for-profit telecom companies and conservative skepticism of municipal boards. Before the cooperative was organized, the municipalities created a *Joint Powers Board* to explore the potential for

high-speed fiber. The Board became the means for organizing the sale of a \$13.7 million Generally Obligated Tax Abatement Bond. Once the bond sale was complete, the *Joint Powers Board* made an economic development loan to the cooperative that were subordinate to other private investors and commercial banks. The cooperative will repay its loans to the municipalities with revenues from the company. Up to 6,000 premises located within 700 square miles can be served by the cooperative when the network is completed. Members of the cooperative are also the taxpayers of the municipalities in the cooperative service area. As long as taxpayers join the cooperative, the expectation is that any assessment on taxpayers is reduced. Local taxes will make up the difference if the co-op falls short. The first phase of development included laying 96 miles of fiber-optic cable that served as the backbone to connect 11 wireless towers.

Contact information: RS Fiber Cooperative, 310 Main St., PO Box 326, Gaylord, MN 55334, 800-628-1754, <http://www.rsfiber.coop/>

**Spruce Knob Seneca Rocks Telephone, Inc. (area with similar topography as the Adirondack Mountains)**

Spruce Knob Seneca Rocks Telephone is located near the Spruce Knob-Seneca Rocks National Recreation Area within the Monongahela National Forest, containing some of the highest peaks in northern West Virginia. The company was formed in 1972. In 2009, it undertook a \$7.8 million project, with funding provided from USDA Rural Development, to bring fiber-to-the-home to all subscribers in its service area. The project was completed in 2012. The company was then awarded an additional \$8.5 million to install fiber optic networks to unserved and underserved rural areas. A third build-out phase is planned. The company's website includes access to their customer policies.

Contact information: Spruce Knob Seneca Rocks Telephone, Inc. 17009 Mountaineer Drive, PO Box 100 Riverton, WV 26814, 304-567-2121, <http://spruceknob.net/index.htm>

**Maryland Broadband Cooperative, Inc. (public private partnership)**

Maryland Broadband Cooperative works as an open-access transport company to provide universal, open-access to broadband services in Eastern, Southern, and Western Maryland by providing support to members who provide last-mile service. It is organized as a 501(C) (12) organization and has approximately 70 members who are characterized as last-mile providers. The State of Maryland requested the cooperative to collect data regarding broadband availability within the state for the National Telecommunications and Information Administration (NTIA) as part of the National Broadband Plan. The Maryland State Broadband Initiative (SBI) was launched in 2009 with ARRA funding. Members of the cooperative are service providers, not home or business owners. They do not resell internet services but provide the transport components to connect their members with Tier 1 internet providers. Once completed, the network will cover 800 miles and serve over 16 counties throughout Maryland. Transport components include dark fiber, rack space for locating their equipment or locating a secure communications cabinet for back-up data storage and retrieval. Benefits from being a MDBC member include the ability to purchase telecom products and services from the cooperative to increase market share, reach new markets affordably, increase recurring revenue, reduce recurring costs, increase reliability and redundancy, enhance service offerings and increase visibility among customers. Profits accrued by the company are shared via capital credits calculated on the member's share of the profit generated for the cooperative. There are four classes of membership that include:

- **Telecommunications Service Providers**, e.g., ILEC, CLEC, MLEC, Telephone Cooperatives, ISP, IXC, Cable operators, wireless, cellular, including private and municipal providers;
- **Government and Public Sector Providers**, e. g., users of public use fiber and managed services for economic development activities, state, county, city, town federal, local agencies and higher education public and private institutions;
- **Commercial and Industrial Users** for the purpose of supporting economic development and job creation activities; evaluated on a case-by-case basis; and
- **Joint Use and Shared Resource Providers** who have agreed to share with the cooperative or agree to convey, assign, lease or license a portion of their assets, rights or privileges to benefit the cooperative.

Contact information: Maryland Broadband Cooperative, Inc. 2129A Northwood Drive, Salisbury, MD 21801, 410-341-6327, <http://mdbc.us/>

**Custer Telephone Cooperative, Inc. (developed subsidiaries and collaborations to provide services to members)**

Custer Telephone Cooperative is located in Challis, ID in the central part of the state near to the Salmon/Challis National Forest. The cooperative has been in business for over 50 years and provides telephone service, wireless service, Digital Subscriber Line (DSL) service, High Speed Internet (HIS), and Cable TV. The cooperative has a number of subsidiaries that focus on various services in specific locations. Examples include:

- **Custer Telephone Broadband Services, LLC:** a subsidiary to provide video and high-speed internet and high-speed wireless access;
- **Syringa Networks, LLC:** a joint venture with 12 rural telephone companies to improve telecommunication and broadband services to deliver voice video, high-speed internet; and
- **Independent Cable Systems of Idaho, LLC:** provides cable TV services to smaller communities.

Contact information: Custer Telephone Cooperative, Inc., PO Box 324, 1101 East Main Ave., Challis, ID 83226, 208-879-2281, [http://www.custertel.net/ctci\\_about\\_us.html](http://www.custertel.net/ctci_about_us.html)

**Valley Telephone Cooperative Inc. (VTCI) (crosses an international border)**

Valley Telephone Cooperative Inc. (VTCI) was incorporated in 1952 in Lyford, TX. Located along the Rio Grande River in south Texas near Brownsville, the cooperative covers 7,300 square miles and serves 14,000 members with 5,200 route miles of buried fiber optic and copper cable. Subsidiary companies were established to reach new communities and diversify services to those communities. Subsidiaries provide 1,500 route miles of fiber optic transport service to other telecommunication companies, including eight of the largest telecommunication companies in the United States.

Contact information: Raymondville Corporate Headquarters and Business Office, 881 E. Hidalgo Ave., Raymondville, TX 78580, 800-446-2031, <http://www.vtx1.net/>

*Organizational Documents*

Three detailed modules were developed as part of this project to assist communities with the organizing efforts of a steering committee tasked with the process of evaluating and establishing broadband cooperative. In summary, each model includes:

- **Module 1. Identifying the Opportunity:** Identifying a steering committee to frame and guide a feasibility analysis of the proposed cooperative.
- **Module 2. Creating the Broadband Enterprise:** Identifying a board of directors, developing a business plan, and examples of needed legal documents (for demonstration and discussion purposes only, legal counsel should advise the steering committee and board of directors)
- **Module 3. Launching the Broadband Business:** Securing offices, hiring staff, and identifying business systems for cooperative begins operations.

More detailed information on the processes and activities involved in each module are included in Appendix 3.

**FINANCIAL ANALYSIS**

The lower density of subscribers in rural communities is one of the biggest challenges confronting businesses interested in broadband distribution. Even within rural communities, there can be large disparities in the number of potential subscribers per mile of infrastructure. For example, based on information provided by Slic Network Solutions, the Fort Covington/Westville area has 9.8 potential subscribers per mile of construction compared to Harrietstown with only 0.9 per mile. In addition, the number of member-subscribers may not be sufficient to allow a broadband cooperative to be financially viable at existing market rates, requiring fees that are higher than competitor rates in adjacent geographical areas. An added layer of complexity involves the use of state and/or federal grants for construction or operational expenses that has covenants including maximum service prices for a minimum set of broadband services, and essentially implying a cross-subsidization by members to support financial operations.

### *Financial Scenarios*

To address the financial implications of alternative customer densities, we consider two geographic areas within the study area. Region A4 includes the Towns of Fort Covington, Westville, Duane and Franklin. The Towns in this region have potential subscribers per mile of construction ranging from 4.9 to 9.8. Region A5 includes A4 plus the Town of Harrietstown (excluding the Village of Saranac Lake). Harrietstown has less than one potential subscriber per mile. We also consider two monthly service-pricing options for high and low speed users. First, we use comparable market prices near the study area combined with a common grant covenant. This assesses the financial feasibilities for the cooperative enterprise at existing prices (hereafter referred to as Market Prices or MP). Investigation of existing market prices for internet access near the study area ranged from \$110 for 50/5 mbps (download/upload), \$110 for 100/8 mbps, \$80 for 30/5 mbps, and \$59.99 for 15/1 mbps.<sup>4</sup> For rural broadband projects to be eligible for federal and state grant funding, the provider must offer at least 25/4 mbps at or below \$59.99. Accordingly, our market pricing scenarios include a high-speed option (\$100) and a low-speed option (\$59.99), with the customer type allocation by household income data for year-round residents in the study area. Given that at these prices the enterprise is infeasible (discussed in detail later), our second pricing option increases the 'high speed' monthly service price until the project cash flows over a ten-year planning horizon (hereafter referred to as Cash Flow Prices or CFP).

In addition to a monthly charge, members make an upfront equity investment that is indifferent across members. The initial capital investment cost is covered 80% by a grant, 10% by a term loan, and 10% by member investments. The individual member investment is computed by dividing the total member investment requirement by the expected number of initial members.<sup>5</sup> Subscribers joining the co-op in subsequent years are expected to make the same upfront equity investment. All scenarios assume that the member capital campaign and legal arrangements are handled in year 0, build out of the system occurs in year 1, and operations and sales begin in year 2.

### *Member Subscribers and Infrastructure*

Estimating the number of member subscribers, service speed demands (high versus low speed), availability (year-round versus seasonal), and penetration rates (percent of potential subscribers that join) are crucial to the size, type, and cost of infrastructure needed to meet member demands. The baseline assumptions are displayed in Table 7 for the individual town areas and the combined regions as delineated above (A4 and A5). The maximum number of subscribers are 1,547 and 1,604 for A4 and A5, respectively. The miles of fiber construction is almost double in the Fort Covington/Westville area compared to Franklin and Harrietstown; however, the number of potential subscribers is significantly higher in the Fort Covington and Westville than in the other locations, as indicated by the relative subscriber density levels.

It is estimated that 20% of homes are seasonal in all towns except Harrietstown (excluding the Village of Saranac Lake), where all homes are assumed to have year-round occupancy.<sup>6</sup> Based on the initial penetration rate, the initial of member subscribers in A5 (A4) is estimated to be 992 (935), with 485 (463) high-speed subscribers and 507 low-speed subscribers. With an assumed 2% annual growth rate in subscribers, the total number of members would reach 1,154 (1,088) by year 10 of operation (Figure 3). Subscriber growth is a key factor in improving the long-run financial condition of the cooperative. Note, that combining individual towns does not affect the miles of construction of the backbone and distribution components, suggesting no opportunity for gains in scale economies.

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<sup>4</sup> See Appendix 5 for detailed prices by service provider.

<sup>5</sup> Additional options may include differential member investments by type of customer (high versus low speed) or household income level. Since our cash flow pricing scenario computes the differential level of member payments by speed, we leave differential capital investment levels for future research, which will depend on additional data and assumptions about the distribution of members by household income level.

<sup>6</sup> This assumption differs from the seasonal home estimates provided in Table 2 (range of 24-91%), but was suggested by Slic Network Solutions. Note, that increasing the percentage of subscribers that are seasonal will reduce annual sales, as service charges for seasonal homes are only for six months per year. The distribution of seasonal versus year-round homes does not affect the expected upfront member equity investment.

<b>Table 7. Potential member subscribers and infrastructure requirements, by region.<sup>1</sup></b>						
<b>Descriptor</b>	<b>Towns</b>				<b>Regions</b>	
	<b>Fort Covington &amp; Westville</b>	<b>Duane</b>	<b>Franklin</b>	<b>Harriets -town</b>	<b>A4<sup>2</sup></b>	<b>A5<sup>3</sup></b>
Potential subscribers	1,086	146	315	57	1547	1,604
Penetration percent	65%	50%	50%	100%	61%	62%
Total subscribers (year 1)	705	73	157	57	935	992
Percent homes seasonal	20%	20%	20%	0%	20%	19%
Subscribers – year-round	564	59	126	57	749	806
Subscribers – seasonal (6 mos.)	141	14	31	0	186	186
Percent year-round high speed users	40%	40%	40%	40%	40%	40%
Percent seasonal high speed users	90%	90%	90%	90%	90%	90%
Subscribers Year High Speed	225	23	50	22	298	320
Subscribers Seasonal High Speed	126	12	27	0	165	165
Subscribers Year Low Speed	339	36	76	35	451	486
Subscribers Seasonal Low Speed	15	2	4	0	21	21
Miles of construction - Backbone	11.80	4.40	16.50	45.40	32.70	78.10
Miles of construction - Distribution	99.45	16.50	47.40	15.00	163.35	178.35
Miles of construction - Total	111.25	20.90	63.90	60.40	196.05	256.45
Subscriber density, maximum per mile	9.76	6.99	4.93	0.94	7.89	6.26
Subscriber density, actual per mile, year 1	6.34	3.49	2.46	0.94	4.77	3.87

<sup>1</sup> All information provided by Slic Network Solutions, but for distribution of subscribers to high- and low-speed customers. High-speed year-round members were estimated by authors based on the distribution of household incomes in the study area (Table 5). Most seasonal users were anticipated to be high-speed users.

<sup>2</sup> A4 includes the Towns of Fort Covington, Westville, Duane, and Franklin

<sup>3</sup> A5 includes the Towns of Fort Covington, Westville, Duane, Franklin, and Harrietstown (excl. Village of Saranac Lake).

### *Broadband Cooperative Timeline*

Many activities occur when organizing a cooperatively structured business.<sup>7</sup> For the process of this financial analysis, we assume that Year 0 focuses on organizing the cooperative and securing the necessary financing, Year 1 includes the build out of the system, and full system operations and member sales initiated in Year 2 (Table 8). Some operational expenses are prorated in year 1 prior to system operation (e.g., property taxes, insurance, cooperative management) and are assumed covered by the initial grant, loan, and member investment. The financial analysis generates 10-year pro forma financial statements.

<b>Table 8. Project and financial analysis timeline.</b>			
<b>Year 0</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3 - 10</b>
<ul style="list-style-type: none"> <li>Organize public meetings</li> <li>Secure grant</li> <li>Member equity drive</li> <li>File legal papers to organize co-op</li> <li>Establish initial Board of Directors</li> </ul>	<ul style="list-style-type: none"> <li>Complete equity drive</li> <li>System construction</li> <li>Hire co-op management &amp; staff</li> </ul>	<ul style="list-style-type: none"> <li>System fully functional</li> <li>Initial member sales</li> <li>Net surplus (if any) allocated to unallocated reserves, cash patronage refund, and qualified member stock</li> </ul>	<ul style="list-style-type: none"> <li>Annual subscriber growth = 2%</li> <li>Annual monthly service fee growth = 1%</li> <li>Expense inflation rate = 1.5%</li> <li>Reinvestment in depreciable assets occurs</li> <li>Net surplus allocated to unallocated reserves, cash patronage refund, qualified member stock.</li> <li>Redeem equity when appropriate (5 year revolving period)</li> </ul>

<sup>7</sup> For a detailed set of activities and processes involved, see the Modules presented in Appendix 4.

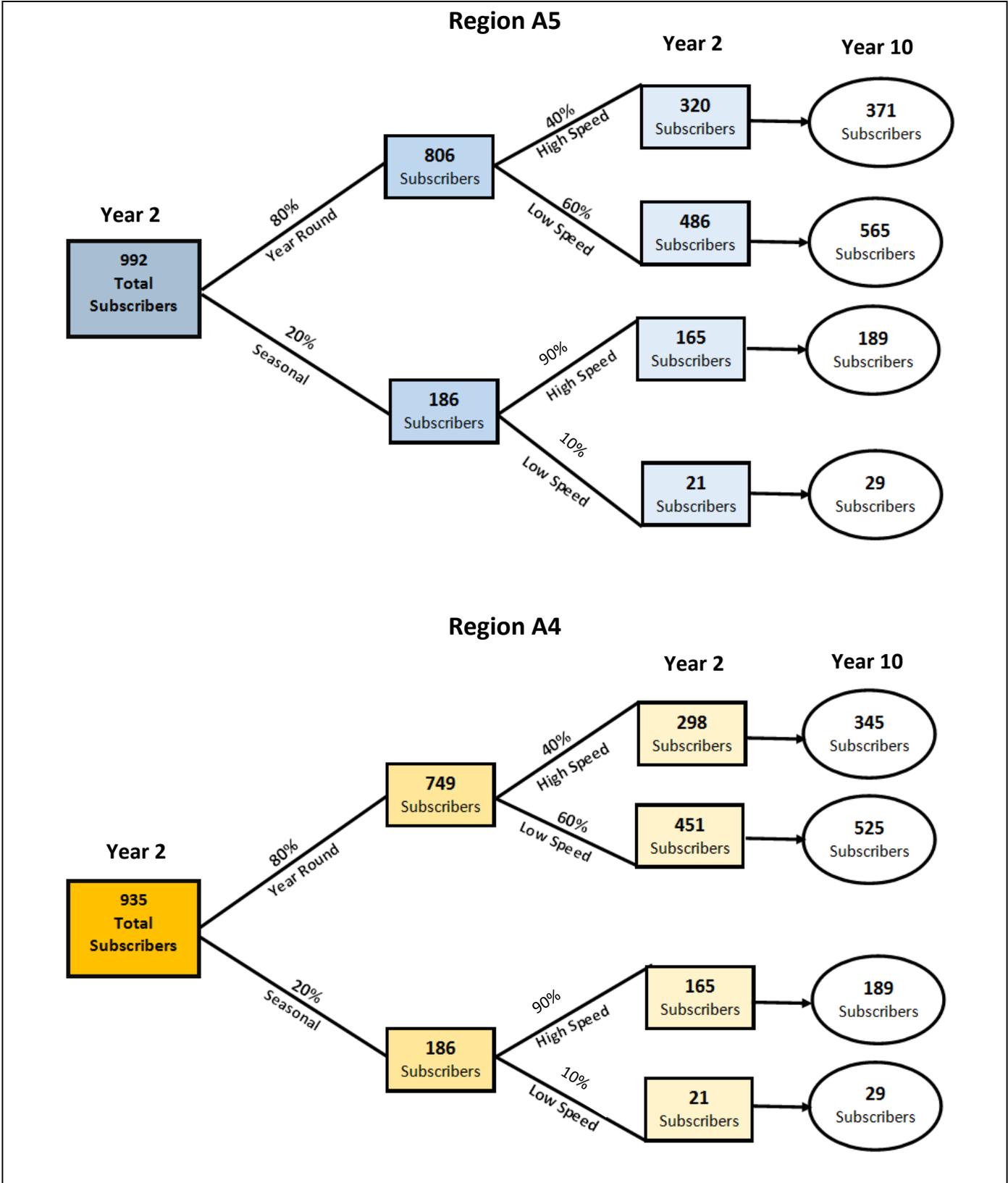


Figure 3. Distribution of members by type of home, broadband speed demand, and region serviced.

### *Capital Structure and Operational Parameters*

Recently, internet providers in Northern New York have secured grant funding for broadband projects through the New NY Broadband Program. Through this program, up to 80 percent of the project costs have been funded through the grant, with the remaining 20 percent sourced from other funders. Cooperative-structured businesses require members to purchase membership rights, often included as one share of common stock for their ownership investment in the cooperative. The sum of all the shares of common stock is the total member equity in the cooperative. Common stock signifies a member's commitment to utilizing the services provided by the cooperative. Funding from commercial lending sources is often necessary to capitalize the cooperative and where lenders often require that business owners, in this case members, have some minimal level of investment in the business; i.e., skin in the game. We assume that members provide 10% of the capital required, lenders provide an additional 10%, and grant funds cover the balance (80%).

Total construction costs are shown in Table 9. Backbone, distribution, electronics, and subscriber installs are summed across towns for each respective region (A4 and A5). As mentioned above, this implies constant returns to scale in construction; i.e., no scale economies.<sup>8</sup> Total construction costs for regions A4 and A5 are approximately \$6.5 and \$8.3 million, respectively. These totals include accounting for year 0 expenses associated with the member capital campaign and legal fees, as well as year 1 expenses for cooperative management and prorated expenses for utilities, pole rental, insurance, property taxes, and other miscellaneous. The broadband system becomes operational at the beginning of year 2. The total upfront member equity requirement is approximately \$652 and \$929 thousand for regions A4 and A5, respectively, implying individual member equity investments of \$697 and \$836, respectively. The higher member equity investment for A5 is due to higher construction costs per subscriber in the less densely populated Town of Harrietstown that are spread over the entire membership.

Depreciation of capital assets is accounted for in the financial analysis using the modified accelerated cost recovery system (MACRS).<sup>9</sup> Note that the depreciable basis of the initial assets is reduced the amount of the grant used to purchase them. Fiber is assumed to have a useful life of 20 years, while electronics and subscriber installs are assumed to have a useful life of 7 years. No vehicles are included as maintenance and customer service costs are assumed to be covered under contractual relationships. We also include asset reinvestments each year for electronics and subscriber installs based on 14% (1/7) of the initial capital costs. These assets follow the same depreciation schedule (7-year MACRS).<sup>10</sup>

Numerous assumptions related to annual cooperative operations are necessary to facilitate the financial projections (Table 10). Since customer service and maintenance are assumed to be contracted out, the employees of the cooperative are limited to a General Manager, an Administrative Assistant, and an Accountant (part time). Initial salary/wage and employee benefits costs are included in Table 11, along with an assumed increase in wage rates of 2.5% per year.

When profits are earned by the cooperative, 10% of profits are distributed to unallocated reserves, 25% distributed as cash patronage refunds, and 65% distributed as qualified stock patronage refunds.<sup>11</sup> Retaining portions of current year profits (in allocated or unallocated form) is useful to support future growth and asset reinvestments. Qualified stock is assumed to be redeemed to members on a five-year revolving cycle (subject to the financial condition of the cooperative and approval by the cooperative's Board of Directors).

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<sup>8</sup> Note, electronics costs were provided for each town by Slic Network Solutions. The algorithm in calculating them is uncertain to the authors and deserves additional attention. For example, note that the electronics costs for Franklin and Harrietstown are virtually identical, even though subscriber densities are quite different across the two towns. That said, total miles of construction are quite similar.

<sup>9</sup> Depreciation schedules are available at <http://accountingexplained.com/financial/non-current-assets/macrs>.

<sup>10</sup> We do not include asset reinvestments for backbone and distribution fiber. If included, annual costs will increase relative to those presented in the forthcoming sections.

<sup>11</sup> All percentages of profits are related to before tax income. The final allocation to unallocated reserves will be net of income taxes. Distributions to unallocated reserves are taxable to the cooperative in the year of distribution. Cash and qualified patronage refunds are taxable to cooperative member in the year of distribution.

<b>Table 9. Construction costs, by town and region.<sup>1</sup></b>						
	<b>Towns</b>				<b>Regions</b>	
<b>Construction Cost Component</b>	<b>Fort Covington &amp; Westville</b>	<b>Duane</b>	<b>Franklin</b>	<b>Harrietstown</b>	<b>A4<sup>2</sup></b>	<b>A5<sup>3</sup></b>
Fiber cost and installation - Backbone	\$318,600	\$118,800	\$445,500	\$1,225,800	\$882,900	\$2,108,700
Fiber cost and installation - Distribution	\$2,436,525	\$404,250	\$1,161,300	\$367,500	\$4,002,075	\$4,369,575
Cost of electronics	\$103,574	\$42,974	\$47,374	\$47,375	\$193,922	\$241,297
Subscriber installations	\$705,000	\$73,000	\$157,000	\$57,000	\$935,000	\$992,000
<b>Total capital construction cost</b>	<b>\$3,563,699</b>	<b>\$639,024</b>	<b>\$1,811,174</b>	<b>\$1,697,675</b>	<b>\$6,013,897</b>	<b>\$7,711,572</b>
Supplemental expenses prior to and during construction	na	na	na	na	\$501,919	\$578,637
<b>Total project construction cost</b>	<b>na</b>	<b>na</b>	<b>na</b>	<b>na</b>	<b>\$6,515,816</b>	<b>\$8,290,209</b>
Grant Amount (80%)					\$5,212,653	\$6,632,167
Loan Amount (10%) <sup>4</sup>					\$651,582	\$929,021
Member investment (10%) <sup>5</sup>					\$651,582	\$929,021

<sup>1</sup> Construction costs provided by Slic Network Solutions. Supplemental expenses estimated by authors for year 0 expenses (legal fees, capital campaign expenses) and year 1 prorated expenses (cooperative management, utilities, pole rental, insurance, property taxes, and other miscellaneous).

<sup>2</sup> A4 includes the Towns of Fort Covington, Westville, Duane, and Franklin

<sup>3</sup> A5 includes the Towns of Fort Covington, Westville, Duane, Franklin, and Harrietstown (excl. Village of Saranac Lake).

<sup>4</sup> Term loan, 10 years, 5% interest rate.

<sup>5</sup> Implies individual member investment (common stock) of \$697 for A4 and \$836 for A5. Common stock not eligible for redemption until member leaves the cooperative. Subscribers subsequent to year 2 are assumed to make the same level of upfront member investment.

<b>Table 10. Cost, revenue, and operational parameters for financial feasibility analysis.</b>	
<b>System construction</b>	
System bandwidth capacity	1 gigabyte
Construction cost - backbone fiber, \$/mile	\$27,000 (useful life 20 years)
Construction cost - distribution fiber, \$/mile	\$24,500 (useful life 20 years)
Cost of per premise installation	\$1,000 (useful life 7 years)
<b>Revenue</b>	
Year round subscriber months per year	12
Seasonal subscriber months per year	6
Annual subscriber growth	2%
Annual subscriber fee increase	1%
<b>Expenses</b>	
Billing and technical support (percent of capital cost)	0.50%
Pole rental (percent of capital cost)	2.98%
Maintenance (percent of capital cost)	3.90%
Insurance (percent of capital cost)	3.00%
Property taxes (percent of capital cost)	2.66%
Annual expense inflation rate	1.50%
Cooperative office facilities (lease & utilities), \$/month	\$1,550
Cost of bandwidth (supply and delivery), \$/month	\$3,000
Member/community outreach and supplies, \$/year	\$5,000
Miscellaneous expenses (mileage, travel costs, meetings), \$/year	\$10,000
<b>Personnel</b>	
General Manager (annual salary)	\$65,000
Clerical/administrative Assistant (annual salary)	\$40,000
Accountant, part time (annual cost, no benefits)	\$20,000
<b>Payroll</b>	
Benefits = Payroll tax (5%) + Retirement (15%) + Employee Insurance (15%)	35%
Annual wage inflation	2.5%
<b>Financing and loan terms</b>	
Percent capital investment by grants	80%
Percent capital investment by term loan	10%
Percent capital investment by member investment	10%
Operating loan/working capital	\$100,000, 8.0%
Term loan	5.0%, 10 years
<b>Income taxes</b>	
Income tax rate (cooperative)	35%
Income tax rate (member)	25%
<b>Profit allocation (all percentages relate to before tax income)</b>	
Percent to Unallocated Reserve	10%
Percent to Cash Patronage Refund	25%
Percent to Qualified Stock Patronage Refund	65%
<b>Miscellaneous</b>	
Upfront legal fees, permits, licenses (Year 0)	\$50,000

## *Financial Results*

Recall that years 0 and 1 include organizational activities and system construction. The total cost for these activities are covered by the initial grant, loan, and member funding. System operations begin in year 2. Accordingly, sales and expense projections are shown for years 2 through 10, along with cumulative cash flows over this time horizon as our primary indication of financial feasibility.

### Existing Market Prices

Table 11 shows sales projections by year and region assuming market-based monthly service prices (i.e., \$100 high speed and \$59.99 low speed for year 2). The top section for each region displays the number of subscribers by type (demand speed and residence type), and reflect the assumptions defined earlier regarding annual growth in subscribers over time (increased penetration) and distribution of members. For region A4 (A5), this implies gross sales ranging from \$788,880 (\$840,480) in year 2 to \$991,723 (\$1,056,695) in year 10. The increase in sales is a result of annual increases in monthly service charges (1%) and number of subscribers (2%).

Operating expense projections (excluding income taxes) do not change based on the level of monthly service charges to subscribers, only by the size of the region examined (Table 12). For completeness, we include the expenses incurred during years 0 and 1 that are covered by the initial funding sources. Total operating expenses for years 2 through 10 for region A4 (A5) range from \$1,283,520 (\$1,558,327) to \$1,464,366 (\$1,748,817). In each year, under existing market prices, operating expenses exceed total sales. This is not surprising given the lack of service already in this area and, due in part, to no scale economies in construction from combining the individual towns into more aggregate regions.

The degree of financial infeasibility at existing market prices is clearly articulated in the statement of operations and estimates of annual cash flows (Table 13). The negative net operating surpluses (sales less operating expenses) in regions A4 and A5 are around \$480,000 and \$700,000 each year. The increase in losses when going to region A5 is indicative of the higher costs per subscriber due to the addition of the less densely populated Harrietstown area and the same monthly service charges for high- and low-speed users relative to region A4. When accounting for depreciation (non-cash), principle payments on the term debt, and asset reinvestment, net cash flows are equally poor resulting in ten-year cumulative cash flows of nearly \$-4.5 and \$-6.5 million, respectively. Note, that even without asset reinvestment of depreciable assets (a poor strategy), cash flows would still be considerably negative each year.

It is also worth emphasizing that the high degree of financial infeasibility at existing market prices is NOT due to burdensome capital loan servicing requirements. Recall that we assume that 90% of the capital costs to construct the system are covered by grant and member investment sources. Removing the principle and interest payments on the term loan would still result in large negative cash flows each year. Thus, financial infeasibility has less to do with the high construction costs for broadband services in rural areas, than the annual operational and maintenance costs required to sustain the system long term.

### Cash Flow Prices

To determine at what prices the cooperative venture is financially feasible, we increase the year 2 price for high-speed users until the 10-year cumulative cash flows were equal to zero.<sup>12</sup> To maintain consistency with the initial grant restrictions, the low-speed price was kept at \$59.99 in year 2. While not only allowing us to determine prices for which the business cash flows, the price results imply the level of cost subsidization needed by high-speed users (arguably higher income households) to low-speed users (arguably lower income households) in order to have broadband service available to both types.<sup>13</sup>

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<sup>12</sup> Other financial feasibility criterion may also be used; e.g., net present value analysis or setting a rate of return on assets to some predetermined level. We chose the cumulative cash flow criterion for ease of exposition and a clearer transparency of monetary flows over each year of analysis.

<sup>13</sup> As stated earlier, an additional avenue for this type of subsidization is to have high-speed users pay a higher upfront capital investment for membership than low-speed users. We argue that our approach with monthly service charges is more tractable and allows users to choose the speed demanded that may change over time.

**Table 11. Sales projections by year and region using existing market prices (MP).<sup>1</sup>**

<b>REGION A4</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>	<b>Year 7</b>	<b>Year 8</b>	<b>Year 9</b>	<b>Year 10</b>
<b>Number of Subscribers:</b>									
High speed - year-round	298	303	309	315	321	327	333	339	345
High speed – seasonal	165	168	171	174	177	180	183	186	189
Low Speed – year-round	451	460	469	478	487	496	505	515	525
Low Speed – seasonal	21	22	23	24	25	26	27	28	29
<b>Total Subscribers</b>	<b>935</b>	<b>953</b>	<b>972</b>	<b>991</b>	<b>1,010</b>	<b>1,029</b>	<b>1,048</b>	<b>1,068</b>	<b>1,088</b>
<b>Sales:</b>									
High speed - year-round	\$357,600	\$367,236	\$378,253	\$389,454	\$400,841	\$412,416	\$424,183	\$436,145	\$448,303
High speed - seasonal	\$99,000	\$101,808	\$104,662	\$107,563	\$110,512	\$113,509	\$116,555	\$119,650	\$122,796
Low Speed – year-round	\$324,720	\$334,512	\$344,467	\$354,588	\$364,877	\$375,337	\$385,969	\$397,548	\$409,320
Low Speed - seasonal	\$7,560	\$7,999	\$8,446	\$8,902	\$9,365	\$9,837	\$10,318	\$10,807	\$11,305
<b>Total Sales</b>	<b>\$788,880</b>	<b>\$811,555</b>	<b>\$835,829</b>	<b>\$860,507</b>	<b>\$885,596</b>	<b>\$911,100</b>	<b>\$937,025</b>	<b>\$964,150</b>	<b>\$991,723</b>

<b>REGION A5</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>	<b>Year 7</b>	<b>Year 8</b>	<b>Year 9</b>	<b>Year 10</b>
<b>Number of Subscribers:</b>									
High speed - year-round	320	326	332	338	344	350	357	364	371
High speed – seasonal	165	168	171	174	177	180	183	186	189
Low Speed – year-round	486	495	504	514	524	534	544	554	565
Low Speed – seasonal	21	22	23	24	25	26	27	28	29
<b>Total Subscribers</b>	<b>992</b>	<b>1,011</b>	<b>1,030</b>	<b>1,050</b>	<b>1,070</b>	<b>1,090</b>	<b>1,111</b>	<b>1,132</b>	<b>1,154</b>
<b>Sales:</b>									
High speed - year-round	\$384,000	\$395,112	\$406,408	\$417,890	\$429,561	\$441,424	\$454,755	\$468,309	\$482,088
High speed - seasonal	\$99,000	\$101,808	\$104,662	\$107,563	\$110,512	\$113,509	\$116,555	\$119,650	\$122,796
Low Speed – year-round	\$349,920	\$359,964	\$370,174	\$381,294	\$392,599	\$404,092	\$415,776	\$427,653	\$440,506
Low Speed - seasonal	\$7,560	\$7,999	\$8,446	\$8,902	\$9,365	\$9,837	\$10,318	\$10,807	\$11,305
<b>Total Sales</b>	<b>\$840,480</b>	<b>\$864,883</b>	<b>\$889,690</b>	<b>\$915,649</b>	<b>\$942,038</b>	<b>\$968,863</b>	<b>\$997,404</b>	<b>\$1,026,420</b>	<b>\$1,056,695</b>

<sup>1</sup> Existing monthly service prices are assumed to be \$100 per month for high-speed users and \$59.99 for low-speed users in year 2, for both defined regions. Monthly service prices are assumed to increase 1% annually for both high- and low-speed subscribers. Increases in the number of subscribers reflect an assumed annual increase in members of 2% per year.

**Table 12. Operating expense projections (excluding income taxes) by year and region.**

<b>REGION A4</b>	<b>Year 0</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>	<b>Year 7</b>	<b>Year 8</b>	<b>Year 9</b>	<b>Year 10</b>
<b>Variable Expenses:</b>											
Co-op Labor		\$161,750	\$165,794	\$169,939	\$174,187	\$178,542	\$183,005	\$187,580	\$192,270	\$197,077	\$202,004
Bandwidth (COGS)			\$36,000	\$36,540	\$37,088	\$37,644	\$38,209	\$38,782	\$39,364	\$39,954	\$40,554
Co-op office utilities		\$18,600	\$18,879	\$19,162	\$19,450	\$19,741	\$20,037	\$20,338	\$20,643	\$20,953	\$21,267
Co-op supplies		\$5,000	\$5,075	\$5,151	\$5,228	\$5,307	\$5,386	\$5,467	\$5,549	\$5,632	\$5,717
Miscellaneous	\$50,000	\$10,000	\$10,150	\$10,302	\$10,457	\$10,614	\$10,773	\$10,934	\$11,098	\$11,265	\$11,434
<b>Total Variable</b>	<b>\$50,000</b>	<b>\$195,350</b>	<b>\$235,898</b>	<b>\$241,094</b>	<b>\$246,410</b>	<b>\$251,848</b>	<b>\$257,411</b>	<b>\$263,102</b>	<b>\$268,925</b>	<b>\$274,881</b>	<b>\$280,975</b>
<b>Fixed Expenses:</b>											
Maintenance			\$238,125	\$242,519	\$247,038	\$251,637	\$256,319	\$261,085	\$265,936	\$270,924	\$276,002
Billing/Tech support			\$30,312	\$31,351	\$32,452	\$33,579	\$34,732	\$35,912	\$37,120	\$38,396	\$39,702
Pole rental		\$87,940	\$178,519	\$181,196	\$183,914	\$186,673	\$189,473	\$192,315	\$195,200	\$198,128	\$201,100
Insurance		\$90,208	\$183,123	\$186,426	\$189,819	\$193,271	\$196,784	\$200,359	\$203,997	\$207,733	\$211,535
Property tax		\$78,420	\$159,193	\$162,064	\$165,013	\$168,014	\$171,068	\$174,176	\$177,339	\$180,586	\$183,892
Depreciation			\$217,772	\$172,410	\$193,913	\$209,289	\$225,835	\$241,677	\$247,897	\$250,450	\$255,316
Interest			\$40,579	\$37,989	\$35,269	\$32,414	\$29,415	\$26,267	\$22,961	\$19,490	\$15,845
<b>Total Fixed</b>		<b>\$256,569</b>	<b>\$1,047,622</b>	<b>\$1,013,956</b>	<b>\$1,047,418</b>	<b>\$1,074,877</b>	<b>\$1,103,627</b>	<b>\$1,131,792</b>	<b>\$1,150,450</b>	<b>\$1,165,708</b>	<b>\$1,183,391</b>
<b>Total Expenses</b>	<b>\$50,000</b>	<b>\$451,919</b>	<b>\$1,283,520</b>	<b>\$1,255,051</b>	<b>\$1,293,828</b>	<b>\$1,326,725</b>	<b>\$1,361,038</b>	<b>\$1,394,895</b>	<b>\$1,419,375</b>	<b>\$1,440,589</b>	<b>\$1,464,366</b>

<b>REGION A5</b>	<b>Year 0</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>	<b>Year 7</b>	<b>Year 8</b>	<b>Year 9</b>	<b>Year 10</b>
<b>Variable Expenses:</b>											
Co-op Labor		\$161,750	\$165,794	\$169,939	\$174,187	\$178,542	\$183,005	\$187,580	\$192,270	\$197,077	\$202,004
Bandwidth (COGS)			\$36,000	\$36,540	\$37,088	\$37,644	\$38,209	\$38,782	\$39,364	\$39,954	\$40,554
Co-op office utilities		\$18,600	\$18,879	\$19,162	\$19,450	\$19,741	\$20,037	\$20,338	\$20,643	\$20,953	\$21,267
Co-op supplies		\$5,000	\$5,075	\$5,151	\$5,228	\$5,307	\$5,386	\$5,467	\$5,549	\$5,632	\$5,717
Miscellaneous	\$50,000	\$10,000	\$10,150	\$10,302	\$10,457	\$10,614	\$10,773	\$10,934	\$11,098	\$11,265	\$11,434
<b>Total Variable</b>	<b>\$50,000</b>	<b>\$195,350</b>	<b>\$235,898</b>	<b>\$241,094</b>	<b>\$246,410</b>	<b>\$251,848</b>	<b>\$257,411</b>	<b>\$263,102</b>	<b>\$268,925</b>	<b>\$274,881</b>	<b>\$280,975</b>
<b>Fixed Expenses:</b>											
Maintenance			\$301,090	\$306,474	\$311,952	\$317,573	\$323,291	\$329,110	\$335,080	\$341,155	\$347,388
Billing/Tech support			\$32,364	\$33,471	\$34,603	\$35,800	\$37,025	\$38,278	\$39,600	\$40,953	\$42,379
Pole rental		\$115,033	\$233,517	\$237,020	\$240,575	\$244,184	\$247,847	\$251,565	\$255,338	\$259,168	\$263,056
Insurance		\$115,674	\$234,817	\$238,927	\$243,107	\$247,390	\$251,747	\$256,180	\$260,722	\$265,342	\$270,077
Property tax		\$102,580	\$208,237	\$211,882	\$215,589	\$219,387	\$223,251	\$227,182	\$231,209	\$235,307	\$239,506
Depreciation			\$262,952	\$203,406	\$225,104	\$240,301	\$257,248	\$273,510	\$279,590	\$282,201	\$287,456
Interest			\$49,451	\$46,155	\$42,695	\$39,062	\$35,247	\$31,241	\$27,035	\$22,619	\$17,982
<b>Total Fixed</b>		<b>\$333,287</b>	<b>\$1,322,429</b>	<b>\$1,277,336</b>	<b>\$1,313,625</b>	<b>\$1,343,697</b>	<b>\$1,375,657</b>	<b>\$1,407,065</b>	<b>\$1,428,574</b>	<b>\$1,446,745</b>	<b>\$1,467,842</b>
<b>Total Expenses</b>	<b>\$50,000</b>	<b>\$528,637</b>	<b>\$1,558,327</b>	<b>\$1,518,430</b>	<b>\$1,560,035</b>	<b>\$1,595,545</b>	<b>\$1,633,068</b>	<b>\$1,670,168</b>	<b>\$1,697,499</b>	<b>\$1,721,626</b>	<b>\$1,748,817</b>

**Table 13. Statement of operations and cash flows by year and region using existing market prices (MP).**

<b>REGION A4</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>	<b>Year 7</b>	<b>Year 8</b>	<b>Year 9</b>	<b>Year 10</b>
<b>Statement of operations:</b>									
Total sales	\$788,880	\$811,555	\$835,829	\$860,507	\$885,596	\$911,100	\$937,025	\$964,150	\$991,723
Total operating expenses	\$1,283,520	\$1,255,051	\$1,293,828	\$1,326,725	\$1,361,038	\$1,394,895	\$1,419,375	\$1,440,589	\$1,464,366
Net surplus	(\$494,640)	(\$443,495)	(\$457,999)	(\$466,217)	(\$475,442)	(\$483,795)	(\$482,350)	(\$476,439)	(\$472,643)
Cash patronage refunds									
Qualified patronage refunds									
Before tax income	(\$494,640)	(\$443,495)	(\$457,999)	(\$466,217)	(\$475,442)	(\$483,795)	(\$482,350)	(\$476,439)	(\$472,643)
Income taxes									
After tax profit (Unalloc. Res.)	(\$494,640)	(\$443,495)	(\$457,999)	(\$466,217)	(\$475,442)	(\$483,795)	(\$482,350)	(\$476,439)	(\$472,643)
<b>Estimate of cash flows:</b>									
After tax profit	(\$494,640)	(\$443,495)	(\$457,999)	(\$466,217)	(\$475,442)	(\$483,795)	(\$482,350)	(\$476,439)	(\$472,643)
Depreciation	\$217,772	\$172,410	\$193,913	\$209,289	\$225,835	\$241,677	\$247,897	\$250,450	\$255,316
Principle payments	\$51,804	\$54,394	\$57,114	\$59,969	\$62,968	\$66,116	\$69,422	\$72,893	\$76,538
Asset purchases	\$161,275	\$179,275	\$182,846	\$185,560	\$188,275	\$190,989	\$193,703	\$197,417	\$200,275
Stock patronage refunds									
Stock redemptions									
Cash flow	(\$489,946)	(\$504,753)	(\$504,046)	(\$502,458)	(\$500,850)	(\$499,222)	(\$497,578)	(\$496,299)	(\$494,140)
Cumulative cash flow	(\$489,946)	(\$994,700)	(\$1,498,746)	(\$2,001,204)	(\$2,502,054)	(\$3,001,276)	(\$3,498,854)	(\$3,995,153)	(\$4,489,293)
<b>REGION A5</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>	<b>Year 7</b>	<b>Year 8</b>	<b>Year 9</b>	<b>Year 10</b>
<b>Statement of operations</b>									
Total sales	\$840,480	\$864,883	\$889,690	\$915,649	\$942,038	\$968,863	\$997,404	\$1,026,420	\$1,056,695
Total operating expenses	\$1,558,327	\$1,518,430	\$1,560,035	\$1,595,545	\$1,633,068	\$1,670,168	\$1,697,499	\$1,721,626	\$1,748,817
Net surplus	(\$717,847)	(\$653,546)	(\$670,345)	(\$679,896)	(\$691,030)	(\$701,304)	(\$700,095)	(\$695,207)	(\$692,123)
Cash patronage refunds									
Qualified patronage refunds									
Before tax income	(\$717,847)	(\$653,546)	(\$670,345)	(\$679,896)	(\$691,030)	(\$701,304)	(\$700,095)	(\$695,207)	(\$692,123)
Income taxes									
After tax profit (Unalloc. Res.)	(\$717,847)	(\$653,546)	(\$670,345)	(\$679,896)	(\$691,030)	(\$701,304)	(\$700,095)	(\$695,207)	(\$692,123)
<b>Estimate of cash flows</b>									
After tax profits	(\$717,847)	(\$653,546)	(\$670,345)	(\$679,896)	(\$691,030)	(\$701,304)	(\$700,095)	(\$695,207)	(\$692,123)
Depreciation	\$262,952	\$203,406	\$225,104	\$240,301	\$257,248	\$273,510	\$279,590	\$282,201	\$287,456
Principle payments	\$65,911	\$69,207	\$72,667	\$76,300	\$80,115	\$84,121	\$88,327	\$92,743	\$97,380
Asset purchases	\$176,185	\$195,185	\$197,900	\$201,614	\$204,471	\$207,328	\$211,185	\$214,185	\$218,185
Stock patronage refunds									
Stock redemptions									
<b>Cash flow</b>	<b>(\$696,991)</b>	<b>(\$714,532)</b>	<b>(\$715,807)</b>	<b>(\$717,508)</b>	<b>(\$718,367)</b>	<b>(\$719,244)</b>	<b>(\$720,017)</b>	<b>(\$719,935)</b>	<b>(\$720,232)</b>
<b>Cumulative cash flow</b>	<b>(\$696,991)</b>	<b>(\$1,411,523)</b>	<b>(\$2,127,330)</b>	<b>(\$2,844,839)</b>	<b>(\$3,563,206)</b>	<b>(\$4,282,450)</b>	<b>(\$5,002,467)</b>	<b>(\$5,722,402)</b>	<b>(\$6,442,634)</b>

The high-speed prices required to cash flow are \$201.79 for region A4 and \$236.18 for region A5 (year 2 prices). The resulting annual sales projections, statement of operations, and estimates of cash flows follow in Tables 14 and 15. In both regions, net surplus is positive in year 3 and beyond, implying distributions of patronage refunds (in cash and equity) to members each year, as well as some allocation to unallocated reserves of after tax profits. Given the 5-year revolving cycle assumed, patronage refunds held as member equity begin redemption in year 8.

The increases in high-speed prices are considerable, representing increases of 102% and 136%, respectively, in regions A4 and A5. Again, the relatively higher increase for A5 is a reflection of the higher average costs per subscriber. Whether these levels of prices are acceptable to the potential membership deserves further study. The willingness to pay such prices is of particular concern since the cash flow prices for high-speed users estimated here exceed prices currently existing in nearby areas (Appendix 4).

### Sensitivity Analysis

The proportion of users demanding high-speed versus low-speed service importantly affects financial feasibility, particularly when the low-speed price is held fixed per grant requirements. Our analysis assumed that most (90%) of seasonal home owners would demand high-speed service. While these users may well be ‘getting away’ from the demands of everyday work life to vacation in the county, it is expected that, when connected, they will demand comparable service to what they are used to. Uploading and downloading work-related files, gaming, and music and video capabilities are arguably still important to this set of users. As such, monthly revenues from seasonal subscribers are generally high, albeit for only 6 months of the year.

Based on household income distributions in the study area, we estimated that 40% of year-round subscribers would demand high-speed access, leaving 60% utilizing the lower speed and lower priced service. To address the sensitivity of this assumption, we evaluated an alternative set of scenarios where we assume that 80% of year-round subscribers would choose the high-speed option, doubling our initial assumption. While this may be extreme given the median household income in the study area, it does provide useful bracketing of the financial results. The resulting monthly service prices are shown in Table 16.<sup>14</sup>

	<b>40% High Speed</b>		<b>80% High Speed</b>	
<b>Monthly Price Category</b>	<b>A4</b>	<b>A5</b>	<b>A4</b>	<b>A5</b>
Market price – high speed	\$100	\$100	\$100	\$100
Market price – low speed	\$60	\$60	\$60	\$60
Market price – weighted average	\$80	\$80	\$93	\$93
Cash flow price – high speed	\$202	\$236	\$139	\$157
Cash flow price – low speed	\$60	\$60	\$60	\$60
Cash flow price – weighted average	\$130	\$146	\$125	\$139

<sup>1</sup> Prices are year 2 prices (before annual adjustment), rounded to the nearest dollar.

Using existing market prices still results financially infeasible results; however, as expected, the prices at which the operation cash flows are substantially reduced - \$139 versus \$202 for region A4 and \$157 versus \$236 for region A5. In so doing, the weighted average price across all users is lower, with comparable levels of financial performance. Further investigation is necessary in determining more accurately what service speeds are demanded by prospective members, along with a more accurate accounting of year-round versus seasonal subscribers.

<sup>14</sup> Detailed sales and expense projections, statement of operations, and estimated cash flows are available upon request.

**Table 14. Sales projections by year and region using cash flow prices (CFP).<sup>1</sup>**

<b>REGION A4</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>	<b>Year 7</b>	<b>Year 8</b>	<b>Year 9</b>	<b>Year 10</b>
<b>Number of Subscribers:</b>									
High speed - year-round	298	303	309	315	321	327	333	339	345
High speed – seasonal	165	168	171	174	177	180	183	186	189
Low Speed – year-round	451	460	469	478	487	496	505	515	525
Low Speed – seasonal	21	22	23	24	25	26	27	28	29
<b>Subscribers</b>	<b>935</b>	<b>953</b>	<b>972</b>	<b>991</b>	<b>1,010</b>	<b>1,029</b>	<b>1,048</b>	<b>1,068</b>	<b>1,088</b>
<b>Sales:</b>									
High speed - year-round	\$721,582	\$741,026	\$763,257	\$785,858	\$808,835	\$832,193	\$855,938	\$880,073	\$904,606
High speed - seasonal	\$199,767	\$205,433	\$211,192	\$217,047	\$222,997	\$229,044	\$235,190	\$241,436	\$247,784
Low Speed – year-round	\$324,720	\$334,512	\$344,467	\$354,588	\$364,877	\$375,337	\$385,969	\$397,548	\$409,320
Low Speed - seasonal	\$7,560	\$7,999	\$8,446	\$8,902	\$9,365	\$9,837	\$10,318	\$10,807	\$11,305
<b>Total Sales</b>	<b>\$1,253,629</b>	<b>\$1,288,971</b>	<b>\$1,327,363</b>	<b>\$1,366,395</b>	<b>\$1,406,075</b>	<b>\$1,446,412</b>	<b>\$1,487,414</b>	<b>\$1,529,864</b>	<b>\$1,573,015</b>

<b>REGION A5</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>	<b>Year 7</b>	<b>Year 8</b>	<b>Year 9</b>	<b>Year 10</b>
<b>Number of Subscribers:</b>									
High speed - year-round	320	326	332	338	344	350	357	364	371
High speed – seasonal	165	168	171	174	177	180	183	186	189
Low Speed – year-round	486	495	504	514	524	534	544	554	565
Low Speed – seasonal	21	22	23	24	25	26	27	28	29
<b>Total Subscribers</b>	<b>992</b>	<b>1,011</b>	<b>1,030</b>	<b>1,050</b>	<b>1,070</b>	<b>1,090</b>	<b>1,111</b>	<b>1,132</b>	<b>1,154</b>
<b>Sales:</b>									
High speed - year-round	\$906,924	\$933,168	\$959,846	\$986,965	\$1,014,530	\$1,042,547	\$1,074,032	\$1,106,043	\$1,138,586
High speed - seasonal	\$233,816	\$240,448	\$247,189	\$254,041	\$261,005	\$268,084	\$275,277	\$282,588	\$290,017
Low Speed – year-round	\$349,920	\$359,964	\$370,174	\$381,294	\$392,599	\$404,092	\$415,776	\$427,653	\$440,506
Low Speed - seasonal	\$7,560	\$7,999	\$8,446	\$8,902	\$9,365	\$9,837	\$10,318	\$10,807	\$11,305
<b>Total Sales</b>	<b>\$1,498,220</b>	<b>\$1,541,579</b>	<b>\$1,585,656</b>	<b>\$1,631,202</b>	<b>\$1,677,500</b>	<b>\$1,724,561</b>	<b>\$1,775,404</b>	<b>\$1,827,091</b>	<b>\$1,880,414</b>

<sup>1</sup> Monthly Cash Flow Prices (CFP) represent the monthly service prices at which the cooperative enterprise cash flows over the 10-year planning horizon, holding the low speed price at \$59.99 per month in year 2. For regions A4 and A5, the prices for high-speed users are \$202 and \$236 per month, respectively, in year 2. Monthly service prices are assumed to increase 1% annually for both high- and low-speed subscribers. Increases in the number of subscribers reflect an assumed annual increase in members of 2% per year.

**Table 15. Statement of operations and cash flows by year and region using existing cash flow (CFP).**

<b>REGION A4</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>	<b>Year 7</b>	<b>Year 8</b>	<b>Year 9</b>	<b>Year 10</b>
<b>Statement of operations</b>									
Total sales	\$1,253,629	\$1,288,971	\$1,327,363	\$1,366,395	\$1,406,075	\$1,446,412	\$1,487,414	\$1,529,864	\$1,573,015
Total operating expenses	\$1,283,520	\$1,255,051	\$1,293,828	\$1,326,725	\$1,361,038	\$1,394,895	\$1,419,375	\$1,440,589	\$1,464,366
Net surplus	(\$29,891)	\$33,920	\$33,535	\$39,671	\$45,037	\$51,517	\$68,040	\$89,275	\$108,648
Cash patronage refunds		\$8,480	\$8,384	\$9,918	\$11,259	\$12,879	\$17,010	\$22,319	\$27,162
Qualified patronage refunds		\$22,048	\$21,798	\$25,786	\$29,274	\$33,486	\$44,226	\$58,029	\$70,621
Before tax income	(\$29,891)	\$3,392	\$3,354	\$3,967	\$4,504	\$5,152	\$6,804	\$8,928	\$10,865
Income taxes		\$1,187	\$1,174	\$1,388	\$1,576	\$1,803	\$2,381	\$3,125	\$3,803
After tax profit (Unalloc. Res.)	(\$29,891)	\$2,205	\$2,180	\$2,579	\$2,927	\$3,349	\$4,423	\$5,803	\$7,062
<b>Estimate of cash flows</b>									
After tax profit	(\$29,891)	\$2,205	\$2,180	\$2,579	\$2,927	\$3,349	\$4,423	\$5,803	\$7,062
Depreciation	\$217,772	\$172,410	\$193,913	\$209,289	\$225,835	\$241,677	\$247,897	\$250,450	\$255,316
Principle payments	\$51,804	\$54,394	\$57,114	\$59,969	\$62,968	\$66,116	\$69,422	\$72,893	\$76,538
Asset purchases	\$161,275	\$179,275	\$182,846	\$185,560	\$188,275	\$190,989	\$193,703	\$197,417	\$200,275
Stock patronage refunds		\$22,048	\$21,798	\$25,786	\$29,274	\$33,486	\$44,226	\$58,029	\$70,621
Stock redemptions							\$22,048	\$21,798	\$25,786
<b>Cash flow</b>	<b>(\$25,197)</b>	<b>(\$37,005)</b>	<b>(\$22,069)</b>	<b>(\$7,877)</b>	<b>\$6,794</b>	<b>\$21,407</b>	<b>\$11,372</b>	<b>\$22,174</b>	<b>\$30,401</b>
<b>Cumulative cash flow</b>	<b>(\$25,197)</b>	<b>(\$62,203)</b>	<b>(\$84,272)</b>	<b>(\$92,148)</b>	<b>(\$85,354)</b>	<b>(\$63,947)</b>	<b>(\$52,575)</b>	<b>(\$30,401)</b>	<b>\$0</b>
<b>REGION A5</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>	<b>Year 7</b>	<b>Year 8</b>	<b>Year 9</b>	<b>Year 10</b>
<b>Statement of operations</b>									
Total sales	\$1,498,220	\$1,541,579	\$1,585,656	\$1,631,202	\$1,677,500	\$1,724,561	\$1,775,404	\$1,827,091	\$1,880,414
Total operating expenses	\$1,558,327	\$1,518,430	\$1,560,035	\$1,595,545	\$1,633,068	\$1,670,168	\$1,697,499	\$1,721,626	\$1,748,817
Net surplus	(\$60,107)	\$23,150	\$25,621	\$35,657	\$44,432	\$54,393	\$77,905	\$105,465	\$131,597
Cash patronage refunds		\$5,787	\$6,405	\$8,914	\$11,108	\$13,598	\$19,476	\$26,366	\$32,899
Qualified patronage refunds		\$15,047	\$16,653	\$23,177	\$28,881	\$35,356	\$50,638	\$68,552	\$85,538
Before tax income	(\$60,107)	\$2,315	\$2,562	\$3,566	\$4,443	\$5,439	\$7,790	\$10,546	\$13,160
Income taxes		\$810	\$897	\$1,248	\$1,555	\$1,904	\$2,727	\$3,691	\$4,606
After tax profit (Unalloc. Res.)	(\$60,107)	\$1,505	\$1,665	\$2,318	\$2,888	\$3,536	\$5,064	\$6,855	\$8,554
<b>Estimate of cash flows</b>									
After tax profits	(\$60,107)	\$1,505	\$1,665	\$2,318	\$2,888	\$3,536	\$5,064	\$6,855	\$8,554
Depreciation	\$262,952	\$203,406	\$225,104	\$240,301	\$257,248	\$273,510	\$279,590	\$282,201	\$287,456
Principle payments	\$65,911	\$69,207	\$72,667	\$76,300	\$80,115	\$84,121	\$88,327	\$92,743	\$97,380
Asset purchases	\$176,185	\$195,185	\$197,900	\$201,614	\$204,471	\$207,328	\$211,185	\$214,185	\$218,185
Stock patronage refunds		\$15,047	\$16,653	\$23,177	\$28,881	\$35,356	\$50,638	\$68,552	\$85,538
Stock redemptions							\$15,047	\$16,653	\$23,177
<b>Cash flow</b>	<b>(\$39,251)</b>	<b>(\$44,433)</b>	<b>(\$27,144)</b>	<b>(\$12,118)</b>	<b>\$4,431</b>	<b>\$20,952</b>	<b>\$20,732</b>	<b>\$34,026</b>	<b>\$42,805</b>
<b>Cumulative cash flow</b>	<b>(\$39,251)</b>	<b>(\$83,684)</b>	<b>(\$110,828)</b>	<b>(\$122,946)</b>	<b>(\$118,515)</b>	<b>(\$97,563)</b>	<b>(\$76,831)</b>	<b>(\$42,805)</b>	<b>\$0</b>

## SUMMARY

This study examined the feasibility of a cooperative-structured business as a vehicle to extend broadband to unserved and underserved people living in Franklin County, New York, in the areas of Fort Covington, Westville, Duane, Franklin, and Harrietstown (not including the Village of Saranac Lake). As with many rural areas, the density of potential subscribers can be a limiting factor in the profitability to businesses providing utility services. Cooperatively structured businesses have a long history of providing electricity and telephone service to rural areas throughout the United States. Comparably, our application here was with a rural broadband cooperative.

Early conversations with community leaders indicated that there is a need for high-speed broadband in the area and an informal market study (by researchers at Paul Smiths College) in The Towns of Harrietstown and Franklin indicated that people are dissatisfied with current broadband service and accessibility. If an alternative was to emerge, survey respondents indicated a willingness switch providers. At the same time, established competitors in the market place may become motivated to improve service to existing customers or extend services to new customers if they felt threatened by a new player in the marketplace. Presently, residents have taken a 'wait and see' approach to see if current service improves before working through the process to organize themselves as a broadband cooperative. If customers become more satisfied, there will be less desire to switch to another provider resulting in less persons than projected to become a member-subscriber of a broadband cooperative.

Concerns have been raised within the communities considered here about the long-term impact to the area without sufficient broadband service. Tourism is an important economic driver in the area and people visiting the area expect access to broadband to meet their needs. Seasonal-use property owners need broadband of size and speed that allows them to telecommute. Lack of broadband or sub-standard performance of broadband reduces the length of stays and, ultimately, will negatively impact property values. Cottage industries and established businesses need improved connectivity to conduct business and expand sales to allow the region to remain economically competitive and viable.

The number and location of potential subscribers have been identified and the requirements and costs to install a new broadband service system have been identified. Depending on region size considered, construction costs range \$6.5 to \$8.3 million. The individual towns considered in this study have a wide range of resident densities and household income characteristics. Following recent grant funding awards via the New NY Broadband Project and USDA Rural Development, we assumed that 80% of construction costs are covered by a grant, 10% by a 10-year term loan, and 10% as upfront equity investments by members. Individual member equity requirements ranged from \$697 to \$836.

Market rates for broadband service vary based on download and upload speeds. For the purposes of this study, we assume one high-speed (\$100) and one low-speed option (\$59.99), consistent with market rates in nearby areas and accounting grant stipulations that require a maximum monthly price for a more limited (lower speed) option. For both regions, using existing market prices were shown to be highly infeasible, resulting in large losses each year by the prospective enterprise. On one hand, losses were to be expected given that no service providers are currently in operation in the study area. On the other hand, the sizes of losses were larger than anticipated and are a reflection of the low population densities, limited to no opportunities for scale economies in construction, and high annual operational and maintenance requirements for the broadband system proposed.

Fixing the low-speed price, the high-speed price was increased until the cooperative venture became financially feasible; i.e., had a cumulative cash flow of zero over ten years. Monthly high-speed prices had to more than double for the project to become financially feasible. Whether high-speed users are willing to pay this price is unknown and deserves further study. The willingness to pay is likely a combination of the need for the high-speed service and the acceptance of high-speed users in subsidizing low-speed users in order to make broadband service available to both groups. The degree to which the high-speed price must increase for the business to cash flow is determined, in part, by the relative number and type of users. Our initial projections assumed that 40% of year-round residents would utilize high-speed service. If this percentage doubled (to 80%), cash flow prices reduce substantially, representing increases from existing market prices by 39% to 57% (relative to 102% to 136%).

To provide more confidence in the financial projections, clear estimates of the number of potential seasonal versus year-round subscribers, along with the demand speeds and willingness to pay for them. A closer examination of the annual operating and maintenance costs would also be advised, along with further consideration of any scale economies in construction (none assumed here) that would offset diseconomies in the distribution of services. We close with some suggested next steps.

*Suggested Next Steps*

- F. Engage with Development Authority of the North Country, local, state, and national legislators, administrators and staffers regarding financial support for broadband expansion in Franklin County and the Adirondack region.
- G. Encourage residents (year-round and seasonal) to communicate with existing providers for improved and expanded services.
- H. Consider private-public partnerships with existing broadband providers to expand service to unserved areas.
- I. Conduct more in-depth market analysis to determine quantifiable demand for broadband services based on location, willingness to switch providers, price-points, and willingness and ability to invest in a cooperative enterprise
- J. Identify a core group of people with the time, talent, willingness, and dedication to spearhead further investigation regarding the organization of a broadband cooperative, including organized opportunities for public input.

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## APPENDIX 1

### Summary of 2014 Broadband Survey in the Towns of Franklin and Harrietstown

Source: Litynski and Pflumm 2014

Q3. Do you currently have Internet service?			
	Harrietstown	Franklin	Total
Yes	179	157	336
No	27	53	80

Q4. If yes, who is your provider? (Some reported more than one.)			
	Harrietstown	Franklin	Total
Time Warner	138	52	190
Verizon DSL	23	30	53
Verizon Wireless	9	16	25
Satellite	7	49	56
Dial-up	3	5	8
ATT Cell	1	1	2
Comcast	2	0	2
Frontier DSL	1	8	9
HughesNet		6	6
Wild Blue		1	1
Excede		1	1
Cox		1	1

Q5. If yes, is your Internet speed adequate for your current usage pattern?			
	Harrietstown	Franklin	Total
Yes	108	96	204
No	71	91	162

Q6. If not adequate, would you purchase faster service, if available?			
	Harrietstown	Franklin	Total
Yes	65	87	152
No	6	4	10

Q7. Any school-aged children using the service?			
	Harrietstown	Franklin	Total
Households			
One child	13	16	29
Two children	22	14	36
Three children	3	1	4
Four children	1	4	5
Five children	1	0	1
Households with children not reporting number of children	5	1	6

Q8. If you don't have Internet service, please indicate the reason?			
	Harrietstown	Franklin	Total
Not available	15	26	41
Price	4	6	10
No reason to use	0	0	0

Q9. If you have or were able to get it at your location, what would you use it for?			
	Harrietstown	Franklin	Total
Email	203	207	410
Telephone	90	84	174
Web search	195	203	398
Telecommuting	81	94	175
Banking	174	165	339
Connecting with family and friends	195	195	390
Shopping from home	191	192	383
Continuing education	108	99	207
Home business	83	97	180
Entertainment - TV, music, etc.	174	184	358

## APPENDIX 2

### Questionnaire and Community Leader Responses (Source: R. Severson, May 2016)

Name: \_\_\_\_\_ Constituent Group: \_\_\_\_\_

Institution/Company: \_\_\_\_\_

Phone: \_\_\_\_\_ Email: \_\_\_\_\_

#### 1. How do you (or people like you) access the Internet at present?<sup>15</sup>

- **Agriculture** -Bigger growers using yield monitors on larger equipment. Not having issues uploading at present, smallest operators using precision agriculture 750 to 1,000 acres, probably have 25% adoption rate at present, expect to grow to 50 to 75% and then will need grid soil sampling and prescriptions to improve yields for specific areas (3 ac.) to increase adoption; utilizing satellite technology;
- **OATS –Senior Citizens** - Provides 10-week ‘tech’ classes for Sr. citizens. Exit interviews show that following a training 19% of trainees went out and signed up or expanded use of technology. Provide training for corporations on how to deal with issues faced by Sr. citizen, e.g. local bank branch will be closing, how can the bank still provide services to senior customers. Most of seniors get broadband through local provider (not by going to library, wi-fi hotspot),
- **Business/Legislature** – DANC has fiber that runs throughout the village and has the big customers, SLIC contracts with DANC and got the municipalities hooked together; cable, spurs from Time Warner fiber and franchise with the municipality, DSL, Hughes.net satellite has improved, but not the best,
- **Development/ Planning** – have access,
- **Education** – K-12 students drive down the road to access ‘hot spot;’ continue to feel at risk and system down or spotty in spite of having redundancy (two internet service providers), have grant from NYS will be placing ‘towers’ throughout district in areas with no to little connectivity (resident to purchase router and pay for service); installing infrastructure on towers (Owl Head).
- **Recreation/Tourism** – DANC has the fiber that runs through the village; used for email, post to social media; understood that some people utilize satellite;

#### 2. Is this sufficient? If not, what is lacking or frustrating?

- **Agriculture** - Internet access difficult outside of Route 11 corridor; will need high speed to manage milking robots; barrier to younger farmers trying to bring family farm into the 21<sup>st</sup> century; improved Internet access could allow for information sharing around farm/non-farm issues; difficult to communicate –requires expensive paper-based newsletters/communications

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<sup>15</sup> Specific interviewees included: (1) Barbara Rice, Franklin County legislator and business owner, (2) Jeremy Evans, Director, Community Development, Village of Saranac Lake, (3) Hillarie Logan-Dechene, Director of Philanthropy, The Wild Center, (4) Michelle Clement, Regional Office of Sustainable Tourism, (5) James LaValley, LaValley Real Estate, (6) Jerry Griffin, Superintendent of Schools, Malone Central School District, (7) Kathleen Dove, President, Paul Smiths College, (8) Rick LiVitre, Executive Director, Cornell University Cooperative Extension - Franklin County, (9) Chad McCarthy, Older Adults Technology Services, (10) Art Willman, Supervisor, Town of Franklin, (11) Jennifer Tierney-Bosley, County Executive Director, USDA Farm Service Agency, (12) Chasity Miller, District Manager, Franklin County Soil and Water Conservation District, and (13) Kim Farnum, Region 7 Field Advisor, NY Farm Bureau.

## APPENDIX 2

### Questionnaire and Community Leader Responses (Source: R. Severson, May 2016)

- **OATS – Senior Citizens** - Half complain about existing service, don't have to go too far to get 'no' service; ask their grandchild to teach them how to use the technology – grandchild 'does it' for them and not at a pace that they can understand or repeat;
- **Business/Legislature** – Need has existed but strength of the need is getting stronger. Uploading files is extremely difficult, need to upload large files overnight when more bandwidth is available, free service to town hall and town garage as there is no public library; data limitations and cost require that big files are uploaded for free between midnight and 5:00 am.
- **Development/ Planning** – Not sufficient, we don't know what we don't know, crafts people/artisans need to find market for their product, need to move beyond the seasonal nature of their business; people/business owners are not using what they could take advantage of to grow their businesses;
- **Education** – Not sufficient, classrooms are 'flipped' as early as 4<sup>th</sup> grade, need access in less densely populated areas;
- **Recreation/Tourism** – Not sufficient, critical need for tourism and access across the region; need capability to 'book online'

### 3. What is the need for broadband in the area?

- **OATS** – there is a high need for broadband.
- **Business/Legislature** – Not sure, people may not feel empowered to contact their representatives about their needs; Lack of broadband to second home owners is having adverse impact on economy, people inquire about connectivity before purchasing or renting a home in the area. Can no longer afford to be disconnected. Believe that people would double the time they spend in the area if they had adequate connectivity. More emphasis being placed on the Region; Adirondack Club bundles the fiber nicely.
- **Development/ Planning** – Need capacity for tele-commuting, most people are willing to pay for speeds that they need;
- **Education** – children/students cannot access the Internet, some drive to Paul Smiths, they are the 'lucky kids'; need to retain college students to become residents and they require connectivity; Paul Smiths founded on experiential learning and need enhanced ability to access distance systems for programs, i.e. externships. Would create opportunities for distance learning or remote classrooms. Advanced Placement classes hooked into classes and institutions Downstate, need connectivity; needed broadband access near 4-H camp.
- **Recreation/Tourism** – way the area has been promoted in the past does not mesh with millennials and their use of social media; millennials want an 'experience' to share with friends or are looking for 'cool adventures' that they find via social media; need to promote local food, culture and some of the whimsical things in the area. Tourist-based businesses are missing out. Utilize online contests 'enter to win' with response through email in order to build contacts of persons outside of the region. Second homes of the region have the weakest connections, people choose not to rent these properties for extended periods of time because of poor or no connectivity; digital upload is a significant problem;

### 4. Why might people not sign up?

- **Agriculture** – Cost
- **OATS** – Lack of availability, cost with fixed incomes; confusion over bundling – difficult to compare apples to apples; need to have clear understanding of the language that is used; attend class first and buy technology second;
- **Business/Legislature** – People are on fixed income, some with pensions, businesses and household with school-aged children would sign up
- **Development/ Planning** – Need to be clear on the concept; translate it into real world experience that they can understand; upfront costs, and finding the dollars to pay for it; bring in professionals to get it done –

## APPENDIX 2

### Questionnaire and Community Leader Responses (Source: R. Severson, May 2016)

volunteers don't always get out of their own way; need to understand the benefits of good broadband and what it can do for your business;

- **Recreation/Tourism** – Learning curve as broadband access not universally available

#### 5. Ignoring costs for this discussion, do you think a community ownership model (will need to describe what that is) could have traction?

- **Agriculture** – Don't know if they can see current/future benefit;
- **OATS** – older generation would be involved, they are a socially savvy group.
- **Business/Legislature** – there is a culture of volunteerism here, The Community Store seems successful, good model to follow and shows the ability to 'do it our way'; people are desperate for the service; there is a willingness for people to think outside of the box and investigate alternative solutions
- **Development/ Planning** – If it is a good product, broadband is a useful tool to develop the business; fiber already exists to municipal buildings – how can potential users connect through the municipalities?
- **Education** – Culture of Adirondack 'stoic, pride' is changing, while there would be divergent opinions, local ownership (as opposed to absentee corporate ownership) would have traction
- **Recreation/Tourism** – People are independent thinkers, would sign up as long as there was not an easier competitive option;

#### 6. What do you see as barriers to people that would prevent them from being owners/members?

- **Agriculture** – Co-op business model mixed. Some people see it as not a problem, others as 'necessary evil.' Area does not have large farm/small farm dynamic.
- **OATS** – Senior citizens – lack of understanding of the concept of what community ownership would be; people of the 70s and 80s understand what a food co-op is;
- **Business/Legislature** – misinformation; not enough understanding of what the concept is understanding of technology; 60% of county property taxes comes from south end of the county, some groups will act in their own self-interests and could break away from any organized effort
- **Development/ Planning** – Need to build the understanding of how availability of the service will benefit them along with the costs.
- **Education** – Trying to engage people in the process; generational poverty can be embraced; some people have defeatist attitudes about the area, and aspire that their children leave the area; people seem to be 'angry.'
- **Recreation/Tourism** – cost of the service is the biggest factor and lack of knowledge; occupancy rate can be a challenge because of number of seasonal residents

#### 7. Any ideas on how these barriers might be overcome?

- **Agriculture** - Farmer-to-farmer learning groups to understand the "why" this is important would build traction about the idea.
- **OATS** – utilize The Community Store as a local cooperative example; Expose seniors to what they would find of interest; relieve their fear of being 'hacked'; help them to use technology relevant to their lives; use Internet as a way to reduce isolation and as a tool to build a community;
- **Business/Legislature** – consider using artist community, people think outside of the box here; they are willing to look for alternative solutions; the Community Store is an example of 'doing it our way' (less than 5 years old, alternative to Wal-Mart); bring in other service providers as part of the conversation to stave off negativity; utilize ADK Action (D. Wolff), Adirondack Econ. Dev. Corp., ANCA, Saranac Lake Down Town Group, local or regional chambers of commerce; simple messages – for those who own real estate would they benefit or would it enhance property value, is current access, do they care and how much it will cost?
- **Development/ Planning** – Fiber is connecting municipalities, can we access that fiber through a co-op? Have to build understanding of how availability of service will benefit them and what the costs will be. Need

## APPENDIX 2

### Questionnaire and Community Leader Responses (Source: R. Severson, May 2016)

to watch out that we are not perceived as a 'hostile takeover.' Look at the benefits and the risks and let them connect the dots. Churches might be considered an institutional buyer not currently being served. Examine the power of social media for interactive government. Chamber could assist in how to build and Internet-based business. .??Roof top highway project, Watertown ad Plattsburg.

- **Education** – Need to partner with parents to show how their children will benefit from Internet access
- **Recreation/Tourism** – Websites of businesses are not optimized as bandwidth is limited; Wild Center conducted research and subsequently developed a toolkit for businesses to strengthen web presence. Trainings on the toolkit are provided in the early spring/summer.

#### 8. We plan to hold some community meetings. What is the best way to get word about these meetings to your constituency?

- **Agriculture** -- Useful North County meeting spaces – FSA/SWCD offices, Moria/Fort Covington Fire Departments
- **OATS Senior Citizens** – high rate of community involvement in the area. There is a Sr. center in the area. Town hall a good place to meet; where people vote; there is a Gadabout bus. T/O Franklin has motivated community leaders.
- **Business/Legislature** – Town or village hall a good place to meet; local senior center is a comfortable place to meet, have a gad-about bus; have motivated government officials that can communicate with their respective residents;
- **Development/ Planning** – Village of Saranac Lake office building can be a place to hold a meeting. Localism is strong, need a 3<sup>rd</sup> party like Cornell Cooperative Extension or Chamber to allow residents 'to meet under their own terms.'
- **Recreation/Tourism** – The Wild Center could host a meeting; ROOST can promote events
- Steering group invite all providers to attend a community meeting and provide examples of the services they provide that are currently not being used by customers;

## **APPENDIX 3**

Building the Success of the Broadband Enterprise, the Cooperative Experience

# **BUILDING THE SUCCESS OF THE BROADBAND ENTERPRISE – THE COOPERATIVE EXPERIENCE**

## **Module 1. Identifying the Opportunity**

## **Module 2. Creating the Broadband Enterprise**

## **Module 3. Launching the Broadband Business**

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## APPENDIX 3

Building the Success of the Broadband Enterprise, the Cooperative Experience

# BUILDING THE SUCCESS OF THE BROADBAND ENTERPRISE - THE COOPERATIVE EXPERIENCE

## MODULE 1. IDENTIFYING THE OPPORTUNITY

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### Module contents:

#### Part 1.1. Building the Wave

- Exploratory Event #1 – Network Survey
- Exploratory Event #2 – Forming a Project Steering Committee
- Exploratory Event #3 – Framing the Feasibility Analysis
- Pitfalls to Avoid
- Exploratory Event #4 – Public Outreach

#### Part 1.2. Useful Resources

- Resource #1. Developing a Lasting and Effective Committee
- Resource #2. Useful Questions When Framing the Feasibility Analysis
- Resource #3. Feasibility Study Outline
- Resource #4. Business Structure

#### Part 1.3. Supplemental Information

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## APPENDIX 3

Building the Success of the Broadband Enterprise, the Cooperative Experience

### MODULE 1. IDENTIFYING THE OPPORTUNITY

(Estimated time for completion 3 to 6 months)

**Actions:** Develop an organizing or steering committee of persons interested in developing a broadband cooperative. Explore the market or economic need. Convene meetings of steering committee, identify business concept, conduct feasibility analysis, and share findings.

#### Outcomes:

- Broadband project steering committee formed with members committed to determining the need for broadband
- Need for broadband enterprise quantified
- Scope and nature of broadband enterprise identified
- Public meetings held to explain concept of broadband cooperative and opportunities for community members to become members
- Funds (\$0 to \$10,000) raised to support feasibility analysis
- Consultant hired, feasibility analysis completed



#### Who is involved:

- Project steering committee
- Community members
- Advisors and consultants

<b>Module contents:</b>
<b>Part 1.1 Building the Wave</b> <ul style="list-style-type: none"><li>• Exploratory Event #1 – Network Survey</li><li>• Exploratory Event #2 – Forming a Project Steering Committee</li><li>• Exploratory Event #3 – Framing the Feasibility Analysis &amp; Pitfalls to Avoid</li><li>• Exploratory Event #4 – Public Outreach</li></ul>
<b>Part 1.2. Useful Resources</b> <ul style="list-style-type: none"><li>• Resource #1. Developing a Lasting and Effective Committee</li><li>• Resource #2. Useful Questions When Framing the Feasibility Analysis</li><li>• Resource #3. Feasibility Study Outline</li><li>• Resource #4. Business Structure</li></ul>
<b>Part 1.3. Supplemental Information</b>

### APPENDIX 3

Building the Success of the Broadband Enterprise, the Cooperative Experience

## PART 1.1 BUILDING THE WAVE

### EXPLORATORY EVENT #1: NETWORK SURVEY

A broadband enterprise will only be successful if it has sufficient customers to utilize the services that it will provide. Network surveys are informal conversations in which one can determine whether an idea has traction. A broadband organizer should talk to community members, organizations, business owners, and government officials interested in upgrading or purchasing internet access. The organizer can connect with the networks of others by sharing information about a broadband concept with others; i.e., community or economic developers, chamber of commerce leaders, or cooperative extension educators, etc.

Measuring traction is difficult. Gauge traction by:

- Do the people who you talk to think there is a need?
- Who else would they suggest you talk to?
- Do they appear to be genuinely enthusiastic about the idea?
- Would they be interested in coming to a meeting for further discussion about the opportunity? Or engage through a virtual platform?
- Would they be interested in being part of a leadership team focused on broadband development?

The goal of the network survey is to determine if there is sufficient interest to hold a meeting and develop a list of persons who could be interested in supporting the proposed concept. If the idea of a broadband business has traction, the person proposing the concept should convene a meeting of interested individuals.

Who did I talk to? Contact information	Date of conversation	Location of conversation	Conversation summary
Name:			
Email or phone			
Name:			
Email or phone			
Name:			
Email or phone			

## APPENDIX 3

Building the Success of the Broadband Enterprise, the Cooperative Experience

### PART 1.1 BUILDING THE WAVE

#### EXPLORATORY EVENT #2: FORMING A PROJECT STEERING COMMITTEE

Convene a meeting of **all persons interested in the concept of alternative broadband access** to discuss the need of a new enterprise. Summarize the information gleaned through the network survey. Ask for additional comments. Consider bringing in someone who can serve as a meeting facilitator. Discuss if there is a true need for an alternative delivery provider. Explain that the next steps could require a feasibility analysis and that funds need to be raised to support the study. Be aware that there may be naysayers in the audience. Naysayers do have a part to play in any discussion as they may raise issues of legitimate concern that should be addressed as the project moves forward. Remember that one cannot address all of the concerns of the naysayers. In many cases people are not willing to share publically what they think privately. Suggest that the group vote by paper ballot to see if there is a need to proceed. If the vote or consensus of the group is that there is merit in the idea, then select a steering committee. Steering committee members should be well respected within the community and have talent, knowledge, and experience useful to the development of the broadband enterprise. Steering committees are a useful tool when forming a cooperative or non-profit organization. An advisory team can be useful when developing a broadband cooperative.

*(SEE PART 1.2, RESOURCE #1: DEVELOPING A LASTING AND EFFECTIVE COMMITTEE)*

The steering committee will need to organize itself.

If worthy of further investigation, the group needs to decide:

- Who should provide the leadership for the group?
- What are the decisions that the steering committee needs to make to move forward?
- Who makes what sort of decisions?
- What sub-committees and coordinators are needed?
- What responsibilities and decisions will be delegated, and to whom?
- How will these decisions be made and communicated within the group and to the larger community?
- What additional expertise outside of the group is needed?
- Who can provide that expertise?
- If a feasibility study is to be conducted, what is the scope of the study?
- Are there costs involved? How much? How will funds be secured?

*“Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it’s the only thing that ever has.”*  
– Margaret Mead

The steering committee may need to meet several times. Outside experts can be invited to attend to share useful information relevant to the formation and development of a broadband cooperative. The steering committee can utilize the Internet to learn about existing broadband providers – what they do and how they operate. This information is collected and shared with other committee members.

## APPENDIX 3

Building the Success of the Broadband Enterprise, the Cooperative Experience

### PART 1.1 BUILDING THE WAVE

#### EXPLORATORY EVENT #3: FRAMING THE FEASIBILITY ANALYSIS & PITFALLS TO AVOID

Through this process, some broadband concepts, i.e. business structure, services provided, location, etc. will be worthy of further investigation and others will not. Relevant concepts can be further refined and explored through a feasibility analysis. Answering the following questions and identifying appropriate assumptions provides a means by which the steering committee or investor-owners can frame the feasibility analysis.

*(SEE PART 1.2, RESOURCE #2: USEFUL QUESTIONS TO DEVELOP ANALYSIS FRAMEWORK)*

A feasibility analysis will evaluate the viability of a new broadband enterprise. Ideas are tested through financial analysis, surveys and focus groups. Taking an idea from concept to an operational stage is complex. Even with a feasibility analysis there is a high failure rate. While the costs of a feasibility analysis may seem high, they are relatively minor compared to the total project investment. The study is based on assumptions identified by the steering committee. A feasibility analysis presents the risks and returns associated with the project. Most start-ups require some debt capital early on. Lending sources require an objective evaluation of the start-up when they consider making a loan.

The broadband steering committee should consider the following criteria when hiring a consultant:

- Previous experience conducting feasibility analyses
- Experience in the industry or access to industry professionals
- Ability to work independently and objectively
- Willingness to listen to the ideas of the project steering committee
- Works closely with the steering committee or designated contact person
- Willing to revise study upon feedback from the steering committee
- Accomplishes study within designated time frame and budget
- Strong writer with analytical skills
- Provides clear, useful information in the final study

Feasibility studies do have some limitations. It is not an academic research paper, nor is it a business plan. It is not intended to identify new avenues for the project as those ideas should have been clarified before the study was initiated. Studies with negative conclusions can be useful to the project steering committee. The result of the study is to collect project-specific information to assist the steering committee in making decisions.

**Several pitfalls can emerge in this process. They are:**

- *Group may have lack of agreement on the problem the broadband cooperative can address.*
- *Lack of confidence in leadership can emerge.*
- *Steering committee has limited understanding of roles and responsibilities.*
- *Poor quality feasibility analysis.*



### APPENDIX 3

Building the Success of the Broadband Enterprise, the Cooperative Experience

## PART 1.1 BUILDING THE WAVE

### EXPLORATORY EVENT #4: PUBLIC OUTREACH

The steering committee for a proposed cooperative will convene successive events for **persons interested in forming a broadband enterprise**. The results of the feasibility survey will be shared. Continue discussion on the merits and need for a broadband enterprise at these events. The steering committee will work with the feasibility study consultant to refine the assumptions, analysis and conclusions. The steering committee will accept the final report. The steering committee should examine the following questions before moving forward to organize a broadband enterprise.

### BROADBAND BUSINESS CONCEPT VIABILITY - CRITICAL QUESTIONS

<b>The broadband feasibility analysis is complete. Does the analysis show:</b>	<b>Yes</b>	<b>No</b>
That within the service area there a critical mass of customers with the desire to purchase broadband services provided by a cooperative?		
What is necessary to attract customers to purchase services provided by the cooperative?		
That there is a provider with the desire to provide broadband connectivity?		
That broadband services can be provided at a competitive price?		
There are qualified leaders committed to forming and directing the business enterprise?		
That if a cooperative structured business, then member needs will be balanced with achieving cooperative profitability?		
Sufficient business volume and repayment capacity of the enterprise to make it financially viable?		

If participants agree to proceed, they need to identify who will serve as the founding board for the organization if the business is to be organized as a cooperative, corporation, or non-profit organization. If a cooperative, it is appropriate to solicit memberships.

Recognize and accept that not everyone will be supportive of the idea. Others may be supportive but unwilling to commit publicly. Others may be interested but unable to attend public outreach events. And still others may take a “wait and see” attitude before willing to commit.

## APPENDIX 3

Building the Success of the Broadband Enterprise, the Cooperative Experience

### PART 1.2. USEFUL RESOURCES

#### RESOURCE #1: DEVELOPING A LASTING AND EFFECTIVE COMMITTEE<sup>16</sup>

An effective Steering Committee will be the driving force behind a well-organized cooperative development effort. It will also be an important organization for carrying the effort beyond the planning phase. There are a few basic, yet often overlooked methods for turning a group of volunteers into an effective, enduring organization.

##### **Select an effective chairperson**

The ideal chairperson is a good meeting facilitator, skilled at delegating tasks and monitoring progress. The chairperson should be a respected member of the community, able to serve as a spokesperson for the planning effort, and skilled at building coalitions and collaborative efforts.

##### **Build committee skills**

Community projects such as a broadband can falter when a key individual leaves. Share tasks and cultivate skills to ensure that no one person is indispensable.

##### **Establish set meeting times**

Frequent meetings at regularly scheduled times give the committee continuity and stability. Keeping your meetings at the same time and place will encourage consistent attendance.

##### **Communicate, communicate, communicate!**

Sending out agendas, meeting notes, and background materials keeps members informed and prepared for upcoming meetings. These mailings also lend professionalism to your efforts.

##### **Make every meeting count**

At each meeting, have an agenda and stick to it. See that the group makes decisions to move forward and that members leave with assignments to be completed within specific time frames.

##### **Reinforce and celebrate the spirit of collaboration**

If multiple groups are involved in a collaborative broadband project, then it is essential that all groups receive credit for their participation in the coalition. Publicize the diversity of the people involved and make sure that single individuals or groups do not get credit for what is a collaborative endeavor.

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<sup>16</sup> Provided by the Cooperative Development Institute, PO Box 422, Shelburne Falls, MA, 01370 and adapted from Hubbard, Alice and Clay Fong. 1995. Community Energy Workbook: Guide to Building a Sustainable Economy, Rocky Mountain Institute, Snowmass, CO. pages 22-23.

## APPENDIX 3

Building the Success of the Broadband Enterprise, the Cooperative Experience

### PART 1.2. USEFUL RESOURCES

#### RESOURCE #2: USEFUL QUESTIONS TO DEVELOP ANALYSIS FRAMEWORK

1. **Who are the current broadband providers?**
  - a. What services do they currently offer?
  - b. What is the likelihood that they would expand services to customers in underserved areas?
  - c. What is the likelihood that they would expand services to customers in unserved areas?
  - d. What other services are needed by current or future customers?
2. **What is the need for a new internet-provider?**
  - a. What is the competitive advantage for the proposed broadband enterprise?
  - b. Where might the upgraded or new services provided by the broadband cooperative be located?
  - c. How many customers might a new internet-provider be expected to provide service for?
3. **How does the new broadband enterprise fit into the market place?**
  - a. What are expected costs to provide services?
  - b. What are the industry profit margins?
  - c. How much market share might the broadband enterprise expect to serve?
  - d. What are the strategic alliances that the broadband enterprise might develop?
4. **What are the delivery mechanisms by which broadband might be delivered by the new broadband enterprise?**
  - a. Cable
  - b. Fiber optic (100 mbps)
  - c. Wireless
  - d. Satellite
  - e. Other
5. **What is the best organizational business structure to meet the goals of the owners? (See PART 2, Resource #4: Business Structure)**
  - a. Limited Liability Corporation (LLC)
  - b. Corporation
  - c. Cooperative

### **APPENDIX 3**

#### Building the Success of the Broadband Enterprise, the Cooperative Experience

##### **6. What are the financial and organizational needs of the broadband?**

- a. What are the capital needs of the cooperative?
- b. What is the level of needed financing?
- c. Who might provide that financing?

##### **7. What about the decision to be made**

- a. If a bad decision is made, what is the cost?
- b. If no decision is made, what would be the cost?
- c. If the cost of a poor decision is small, spend little time, money or effort on the decision
- d. If the cost of a poor decision or error is large, then spend additional time and resources for additional information.

## APPENDIX 3

### Building the Success of the Broadband Enterprise, the Cooperative Experience

## PART 1.2. USEFUL RESOURCES

### RESOURCE #3: FEASIBILITY STUDY OUTLINE FOR BROADBAND OPERATION<sup>17</sup>

(Note: Feasibility study based on the concept that develops from answering the 8 critical questions.)

#### 1) Executive Summary

- a) Summary of key findings and recommendations

#### 2) Introduction

- a) Description of project, the need for a broadband
- b) Work already completed, relevant dates, persons involved

#### 3) Industry background

- a) Basic background of internet access within study area
- b) Economic conditions of the study area relevant to broadband development
- c) Implications and feasibility of a broadband enterprise entering the sector

#### 4) Methodology

- a) Informant surveys and interviews
- b) Data analysis (supply by producers and demand from buyers)
- c) Focus groups

#### 5) Marketing

- a) Market potential for service volume provided by the broadband
- b) Market channels to be served (current, future, location) and their attributes
- c) Ease and challenges of broadband in entering the market
- d) Service bundles
- e) Summary of marketing situation and opportunities

#### 6) Operations

- a) Business structure
- b) Current providers – present service area served
- c) Sensitivity analysis
- d) Staff requirements – management, employees

#### 7) Regulatory Issues and Risk Factors

#### 8) Financial statements (pro forma statements)

- a) Projected income, operating costs and net income
- b) Capital requirements (sources of equity, sources of debt capital, grants, philanthropy)
- c) Pro forma cash flow statement
- d) Income statement, balance sheet, and sources and uses of funds
- e) Equity accumulation plan and financial ratio analysis
- f) Breakeven Analysis, Financial Plan Summary

#### 9) Summary

- a) Concise summary of major findings
- b) Recommendations for next steps

#### 10) Appendix

- a) Copies of surveys, focus group and interview questions
- b) Additional financial spreadsheets
- c) Relevant supplemental information

A feasibility plan is used to determine if an idea has merit and viability and worthy of the investment in time, effort and resources to be successful. A business plan is an action plan with strategies and tactics useful to grow the enterprise and contribute to its sustainability.

<sup>17</sup> Adapted from: Brockhouse, John W. Jr. and James J. Wadsworth. 2010. Vital Steps: A cooperative feasibility study guide. U.S. Department of Agriculture, Rural Business-Cooperative Service. Washington, D.C. Service Report 58. December.

## APPENDIX 3

### Building the Success of the Broadband Enterprise, the Cooperative Experience

d) Notes, persons involved, credentials, and references, etc.

## PART 1.2. USEFUL RESOURCES

### RESOURCE #4: BUSINESS STRUCTURE

Several business structures have been utilized to deliver broadband services. Many are formed as corporations, cooperatives or non-profit organizations. When considering the best business structure for the enterprise consider the goals of the business, property ownership, earnings distribution, and the system of governance.

#### Who owns the business?

In corporations, shareholders own one or more shares of stock, which is an intangible form of property interest. The shareholder has an indirect interest in the business. The corporation may place limitations on how shares might be transferred from one owner to another. Shareholders are not obligated to do any business with the corporation.

In cooperatives, members own shares of stock or member interest in the business depending on how the business is organized. The cooperative may issue different types of equity interests to its members depending on the patronage capital system. Such interests are intangible and represent indirect ownership of the business. Charter documents, applicable laws and agreements among members may limit transfers of such interests. Members (the owners) of a cooperative utilize the services provided by the business.

In non-profit organizations, there are no ownership interests. If the non-profit was to cease operations, any assets of the organization must be distributed to other non-profits fulfilling similar missions.

#### How are earnings distributed?

In a corporation, earnings are distributed to shareholders based on the ownership interest. The board of directors could decide to pay a dividend on each share of stock.

In cooperatives, earnings are distributed to the members who utilize the business in proportion to use. This distribution is commonly known as a patronage refund or for agricultural cooperatives can be known as the 13<sup>th</sup> check.

In non-profit organizations, profits are not allowed to be distributed. Net earnings are used to support the mission of the organization and for the betterment of society. It is appropriate for non-profits to be profitable.

#### What about personal liability associated with business ownership?

In a corporation, shareholders generally do not have personal liability. Shareholders cannot be forced to use personal assets to pay the debts of a corporation. Shareholders could lose their money invested in the corporation.

In a cooperative, members are afforded the same liability protections as those of a shareholder in a corporation. Cooperative members can be called upon to make additional capital contributions when requested by the board of directors.

In a non-profit organization, the directors of the organization are shielded by the organization. They cannot be forced to use personal assets to pay the debts of the non-profit.

#### What about the system of governance?

In a corporation, management is through the board of directors. Control is exercised by shareholders who vote for directors. Directors may or may not be shareholders.

In a cooperative, the business is controlled by the member/owners who vote for the directors (they have to be members of the cooperative). The directors hire the general manager who manages the organization.

## APPENDIX 3

### Building the Success of the Broadband Enterprise, the Cooperative Experience

In a non-profit organization, the board of directors act as the managers. They can hire staff to perform management functions.

#### **What about organizational leadership?**

Corporations, cooperatives, and non-profit organizations are led by boards of directors. The board of directors has a 'duty of care' or a fiduciary responsibility to exercise good business judgement, due diligence, and act in good faith in the operation of the company. They also have a 'duty of loyalty' or refrain from conflict of interest where the personal interests of a board member would supersede the interests of the company.

Failure to exercise the duty of care and duty of loyalty can make the directors and managers personally liable for losses that might occur. To mitigate this risk many companies will purchase directors and officers (D & O) liability insurance.

## APPENDIX 3

Building the Success of the Broadband Enterprise, the Cooperative Experience

### PART 1.3. SUPPLEMENTAL INFORMATION

Brockhouse, John W. Jr. and James J. Wadsworth. 2010. Vital Steps: A cooperative feasibility study guide. U.S. Department of Agriculture, Rural Business-Cooperative Service. Washington, D.C. Service Report 58. December.

Rapp, Galen, and Gerald Ely. 2010 (revised). How to start a cooperative. U.S. Department of Agriculture, Rural Business-Cooperative Service. Washington, D.C. Cooperative Information Report 7. November.

**This completes Module 1. Identifying the Opportunity.**

**Please see Module 2. Creating the Broadband Business.**

Components of Module 2 include development of a business structure and associated documents, completing a business plan, capitalization plan, and securing member commitment.

**Please see Module 3. Launching the Broadband Business**

Components include identification of operating systems, staffing and services, and the business lifecycle.

# BUILDING THE SUCCESS OF THE BROADBAND ENTERPRISE

## THE COOPERATIVE EXPERIENCE

### MODULE 2. CREATING THE BROADBAND ENTERPRISE

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Module contents:	Module contents:
<b>Part 2.1. Leadership Team</b> <ul style="list-style-type: none"> <li>• Characteristics of a Project Leader</li> <li>• Securing a Board of Directors</li> <li>• Management and Staffing</li> </ul>	<b>Part 2.3. Membership Commitment</b> <ul style="list-style-type: none"> <li>• Securing Membership Agreement</li> <li>• Pre-membership Agreement</li> <li>• Charter Member Meeting</li> <li>• Pitfalls to Avoid</li> </ul>
<b>Part 2.2. Building the Business</b> <ul style="list-style-type: none"> <li>• Organizational Documents</li> <li>• Developing a Business Plan</li> <li>• Shared Vision, Mission, Values and Strategies</li> <li>• Capitalization</li> </ul>	<b>Part 2.4. Useful Resources</b> <ul style="list-style-type: none"> <li>• Bylaw Considerations</li> <li>• Business Plan Components</li> </ul> <b>Part 2.5. Supplemental Information</b>

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## APPENDIX 3

Building the Success of the Broadband Enterprise, the Cooperative Experience

# MODULE 2. CREATING THE BROADBAND ENTERPRISE

(Estimated time for completion 3 to 6 months)

**Actions:** Review feasibility analysis for the broadband enterprise. Hold meetings of steering committee to finalize the scope and nature of the business. If a cooperative or corporation, host information meetings for potential members or shareholders. For corporations, cooperatives, and non-profit business structures identify persons to serve as the ‘founding board’ to adopt articles of incorporation and bylaws. Identify and secure the location for the business. Develop capitalization plan.

### Outcomes:

- Steering committee reviews and accepts or rejects feasibility analysis
- If accepted, tasks will be identified to organize business
- Timeline to complete tasks developed
- Legal identity established, board of directors seated
- Business plan and marketing plans developed
- Promotional materials developed, distributed to customers
- Convene charter member/shareholder meeting
- Conduct equity drive
- Fundraising continues (\$10,000 to \$30,000)



### Who is involved:

- Steering committee
- Stockholders or members
- Attorney, Advisors, consultants
- Community members

Module contents:	Module contents:
<p><b>Part 2.1. Leadership Team</b></p> <ul style="list-style-type: none"> <li>• Characteristics of a Project Leader</li> <li>• Securing a Board of Directors</li> <li>• Management and Staffing</li> </ul>	<p><b>Part 2.3. Membership Commitment</b></p> <ul style="list-style-type: none"> <li>• Securing Membership Agreement</li> <li>• Pre-membership Agreement</li> <li>• Charter Member Meeting</li> <li>• Pitfalls to Avoid</li> </ul>
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## APPENDIX 3

### Building the Success of the Broadband Enterprise, the Cooperative Experience

## PART 2.1. THE LEADERSHIP TEAM

Activities of the broadband enterprise project steering committee described in *Module 1. Identifying the Opportunity* will overlap and transfer to activities conducted by the broadband enterprise's Module 2, Part 2.1. The Leadership Team. Broadband enterprises can be organized as investor-owned firms or as a cooperative corporation or non-profit organization. Broadband enterprises formed as a cooperative, corporation or non-profit enterprise require a board of directors. In a cooperative, the board of directors represent the interests of the members and make policy decisions in the best interests of the organization. Some of the broadband enterprise project steering committee members may continue to support the project and serve as members of the broadband enterprise's founding board of directors. Others may choose to relinquish their responsibilities. The following actions regarding leadership and organization are dependent on the type of business structure of the broadband enterprise.<sup>18</sup>

Critical to the success of a new broadband enterprise moving from concept to reality is the need for one or more **project champions**. Boards of directors and broadband enterprise organizers will be project champions. They should have understanding of the broadband service sector with command of the information in the feasibility analysis and understanding of the goals and anticipated operations of the broadband enterprise.

## CHARACTERISTICS OF A PROJECT CHAMPION

### 1. Credibility

- a. Respected for their judgement, common sense perspective
- b. Ability to complete tasks
- c. Ability to have a long-term perspective

### 2. Financial stability

- a. Viewed as a successful business person in their own right
- b. Have sufficient people to manage their personal business so they are available to spearhead the development of the cooperative

### 3. Basic knowledge of the broadband sector

- a. Familiarity with the broadband sector
- b. Understanding of marketing trends
- c. Understanding of finance
- d. Ability to learn about the industry or seek out experts

### 4. A developer

- a. Neither thin-skinned or quick tempered, able to take misplaced criticism and occasional insults, patient
- b. Efforts and actions do not normally receive financial compensation
- c. Sense of humor and sense of the ridiculousness

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<sup>18</sup> Adapted from: Patri, Bill. 1998. *Creating Co-op Fever: A Rural Developer's Guide to Creating Cooperatives*. United States Department of Agriculture, Rural Business-Cooperative Service. Washington, D.C. RBS Service Report 54, July.

## APPENDIX 3

### Building the Success of the Broadband Enterprise, the Cooperative Experience

#### SECURING A BOARD OF DIRECTORS

The board of directors plays an important part in guiding the organization. They need to be respected members of the community. They should be successful business persons with knowledge or familiarity of the broadband sector. Early on they will assist with member recruitment.

##### **An effective board member:**

- Approaches responsibilities in the spirit of a director on behalf of the members
- Maintains loyalty to the organization
- Welcomes information and best available advice, but reserves the right to arrive at decisions based on own judgement.
- Honors commitments.
- Supports board decisions (internally and externally) even when he or she may disagree with the majority opinion. Promotes unity within the organization.
- Offers opinions honestly and in a constructive way and respects the opinions of others.
- Understands legal and fiduciary responsibilities and avoids potential conflicts of interest.
- Gives respect and consideration to other board members and president or chairperson.
- Focuses on issues, not personalities and offers constructive feedback.
- Asks informed questions.
- Clearly understands her/his responsibilities.
- Is willing to actively serve on at least one committee.
- Comes to meetings on time, well prepared and actively participates.

#### MANAGEMENT AND STAFFING

Proper staffing of the broadband enterprise is critical to its early and future success. Adequate capital must be available to compensate the staff until sufficient volume of internet service is built out to secure acceptable cash flow for the business to pay expenses and pay down debt in a timely manner.

A cooperative-structured broadband enterprise board of directors directs the search and hires the general manager. A dedicated general manager with understanding of the broadband service sector will enhance the likelihood of the broadband enterprise's success. Any additional employees are hired by the general manager.

A broadband cooperative owned by customers could choose to contract with internet providers to deliver services.

Non-profit organizations can utilize volunteers in some circumstances. They need to make sure they are in compliance with labor regulations. It can be challenging to rely on volunteers for an extended period of time. Volunteers may have scheduling conflicts that prevent them from reliably helping at the broadband enterprise. There is a need for constant training. Broadband enterprises that are organized as 'for-profit' businesses cannot utilize volunteers. Staff need to be paid for their labor.

## APPENDIX 3

Building the Success of the Broadband Enterprise, the Cooperative Experience

### PART 2.2. BUILDING THE BUSINESS

#### ORGANIZATIONAL DOCUMENTS

The steering committee will determine the best business structure for the broadband enterprise. Each business structure has limitations. The decision will be based on ownership of the business, distribution of earnings (non-profits do not distribute earnings), and the system of governance (See Module 1). Official organization of the enterprise builds trust and confidence with potential customer-members and those who will serve in a future leadership capacity. When a business becomes incorporated, the personal liability of each member or shareholder for losses suffered by the enterprise is limited to the member or shareholder's equity in the organization.

The steering committee should seek out assistance with an attorney and an accountant as the enterprise becomes more formalized. Legal counsel can provide guidance on the state statutes to be addressed with forming the enterprise and the development of the organizational documents (articles of incorporation, bylaws, contractual agreements, etc.). An accountant can assist the steering committee to build knowledge of the tax implications and Internal Revenue Service regulations impacting the owners of the broadband enterprise.

There is no Federal incorporation statute with which to comply to organize the business. Cooperatives, corporations, LLCs and non-profits incorporate under the appropriate State law. In most cases the enterprise will incorporate within the state in which it is headquartered. When more flexibility is desired than the state's laws provide, the enterprise may consider incorporating in another state. The articles of incorporation and bylaws of the proposed enterprise will be submitted and reviewed by the Department of State. The corporation derives its legal authority from the State. Once the review is complete the enterprise will be 'chartered' by the state. At that time the corporation is a "person" in the eyes of the law. It can do the same things that a person would do such as sign contracts, borrow money, own property, sue and be sued. Like a 'person,' it must obey the law.

Cooperatives are unique in that they are owned by members – the persons who own a minimum of one share of stock, have voting rights, and utilize the services that that business will provide. They have equity in the business and have the privilege to share in the profits of the business in proportion to use. If the broadband enterprise is to be organized as a cooperative, the steering committee and founding board members will define who is eligible to be a member of the cooperative (*See Part 4. Useful Resources, Bylaw Considerations, Defining Membership*).

#### ARTICLES OF INCORPORATION

The Articles of Incorporation is a legal document and binding to the directors, officers, and managers of the enterprise. Conduct beyond what is authorized in the articles can pose liability to the enterprise and to its leaders. The Articles of Incorporation tend to have the same components regardless of the business structure of the broadband enterprise. They include:

- Name of the enterprise
- Principal place of business
- The purpose for which it is formed
- Powers of the corporation
- Limitations of the corporation
- Period of duration
- Directors (Founding Board members names and signatures)
- Capital structure (stock or non-stock)
- Amendment process of the articles
- Notarized signatures of Founding Board members

In many cases it is possible to include information in the articles beyond what the statute requires and it is possible to amend the articles. It is recommended that excess information should not be included in the articles as amendments will need to be submitted and reviewed by the Department of State in which the business is

## APPENDIX 3

### Building the Success of the Broadband Enterprise, the Cooperative Experience

incorporated. Other information can be included in other documents (bylaws or membership agreements) which can then be amended by the members, shareholders or board of directors.

#### BYLAWS

The bylaws describe how the entity will conduct business or govern itself. They must be consistent with the statute under which the business is chartered and consistent with the articles of incorporation. Failure of the leadership to follow the bylaws can lead to legal liability. Bylaws address issues not spelled out in the articles or in the statute but needed to make the entity an effective, well designed organization. While any activity of importance can be contained in the bylaws, **the document should contain broad issues of long-term significance.**

Directors are responsible for making sure the enterprise adheres to the articles of incorporation and to the bylaws. The bylaws should include language on how they can be amended and may contain penalties for violation of the document. The bylaws are a living document - as the environment in which the enterprise changes, it is appropriate to periodically update the document. Depending on the statute, the bylaws should be adopted by the founding board or at the first meeting of charter members or shareholders (*See Part 4. Useful Resources, Bylaw Considerations*). Components of the bylaws document may include:

- Membership requirements (if a cooperative)
- Meetings of members
- Directors and officers
- Duties of directors
- Duties of officers and manager
- Executive committee or other standing committees
- Membership/equity/stock certificates
- Operation of membership/stockholders capital investment
- Dissolution and property interests
- Unclaimed money
- Fiscal year
- Miscellaneous provisions
- Amendment process
- Date of adoption

#### DEVELOPING THE BUSINESS PLAN

The feasibility analysis investigates the need and opportunity for the business. The feasibility analysis answers the questions, “Will this succeed? Is it worth the time, effort and resources to organize?” Alternatively, a business plan addresses the questions, “How will this work? How do we grow the business? How do we make it sustainable into the future?” **A business plan is developed after the feasibility plan concludes that the concept has merit.**

The feasibility plan includes calculations and estimates. A business plan focuses on marketing and operation processes needed to grow the business. In the early life of the broadband enterprise the plan answers the questions, how will the business be launched, what will it cost, what are the sources of funds to capitalize the business? A solid business plan is important to attract commercial credit (*See Part 5 Useful Resources – Business Plan Components*).

Components of the business plan include:

- Vision and mission statements
- Marketing strategies to attract farmers and buyers
- Analysis of competition and pricing
- Identify regulations requiring compliance
- Identify internal processes and protocols
- Define physical and spatial needs

## APPENDIX 3

### Building the Success of the Broadband Enterprise, the Cooperative Experience

- Identify human resource needs
- Define finance strategies and risks
- Evaluate long-term outlook and contingency plans

## DEVELOPING SHARED VISION, MISSION, VALUES AND STRATEGY

Numerous business management books suggest that mission and vision statements are important when a business begins and when it considers a major transformation. Development of mission and vision statements provides the leadership team the opportunity to articulate the goals of the organization and determine the appropriate business structure. These statements are useful to brand the business, differentiate the business from its competitors, develop strategies, develop business culture, and hire employees.

Vision statements describe the broadband enterprise when it achieves future success. Vision statements reflect the values and goals of the owners of the business and the reason for the broadband enterprise's existence. Vision statements describe the stakeholders of the broadband enterprise and products and services it will provide. A vision statement is a commitment to the future. Shared values and goals of the broadband enterprise's owners reduce conflict, provide direction for the business and a framework to make decisions when resources are limited.

Mission statements describe the present state of the business, its essential elements – what is the broadband enterprise, what does the broadband enterprise do, why does the broadband enterprise exist or what is its purpose. Mission statements can improve strategic alignment. Mission statements articulate the “how does it get done,” “who will do it,” “when will it get done,” and where it will be done.” People will be attracted to work for a business whose values are similar to their own. Employees of the business can be evaluated through performance goals that help the business accomplish its mission. Mission statements can be guides when making decisions and provide a clear sense of what matters most.

When developing vision and mission statements, consider the following.

- List the assumptions that you hold.
- Identify the challenges for moving forward.
- List core values/principles that guide the broadband enterprise.
- What is the vision you hold for the broadband enterprise?
- What do you want the enterprise to accomplish? What would success look like in the long-term future?
- What is the near future purpose of the enterprise?
- If a cooperative, who are the members of the cooperative?
- What are needs of the co-op members that the cooperative is designed to meet?
- Who will serve as the founding or ‘start-up’ board of directors to oversee the development activities?

There is usually a gap between the present; i.e., the mission of the broadband enterprise, and the future; i.e., the success of the broadband enterprise. The gap between present activity and future success is addressed through identifying and implementing strategies developed in a business plan.

## CAPITALIZATION PLAN

Capitalization is the amount and source of money to start and operate the business. The founding board will determine whether the capital structure will be stock or nonstock. If stock (risk capital), then the board will determine the amount of member investment (if a cooperative) or shareholder equity (if a corporation) and the amount and source of borrowed money (debt capital). An initial infusion of capital will be required to pay the bills as expenses will be incurred before revenues are generated. A ‘prospectus’ document (whether a cooperative or corporation) can be a useful tool to define the risks and the potential rewards to cooperative members or shareholders who would become owners of the business.

### **APPENDIX 3**

#### **Building the Success of the Broadband Enterprise, the Cooperative Experience**

The feasibility analysis identifies the capital requirements, the level of financing needed and the potential sources of the capital. The highest risk is in the early stages of the business and profitability can be non-existent to limited for the first 3 years in the start-up phase. It is important to manage the expectations of cooperative members or shareholders and they will need to be 'patient' until patronage refund (if a cooperative) or dividends (if a corporation) are paid on their investment. The best source of financing for a broadband enterprise is from its owners, cooperative members or shareholders. Commercial lending institutions expect that the owners of the business will have an equity stake in the business or 'skin in the game' before they are willing to commit to financing the organization. The business plan must be realistic to attract funding.

Some broadband enterprises have utilized grant funds sourced from the government or charitable foundations as a means to support the organization, especially during the start-up phase. Utilizing grant funds is appropriate. It is important for the broadband enterprise organizers to make sure that the conditions (administration, time line, objectives, and goals) of the grant are in alignment with the goals and time line of the broadband enterprise. Grant funds can limit and will stipulate what the funds are to be used for. Some grant sources provide for reimbursement for expenses after they're incurred. Thus, there can be a time lag between when the expenses are incurred and when payment is made.

## APPENDIX 3

### Building the Success of the Broadband Enterprise, the Cooperative Experience

## PART 2.3. MEMBERSHIP COMMITMENT

### SECURING MEMBER AGREEMENT

A new cooperative must have a sufficient number of members to start the business and justify its existence. More members may be needed in the future to strengthen the organization. People join cooperatives for the services they provide or the economic benefits that they receive. **Prospective members will want to understand how their participation will benefit them.** If the benefits are not obvious, few prospects will join and if dissatisfied will seek out other service providers.

It is both logical and expected that potential members the new broadband enterprise would be skeptical about investing in the emerging enterprise. Most of the concerns are related to the cost of membership, the cost of installation, and the potential for fee structures higher than existing competitors through time. The project champions need to be confident, honest, and prepared to answer the questions related to the benefits of joining, risks, governance, and operations of the broadband enterprise. Addressing the concerns of potential members builds credibility of the organization.

New members may be asked to join the cooperative by purchasing stock or paying a membership fee and by signing a membership application. The prospective member should receive a receipt for the funds collected and the cooperative should follow up with membership or stock certificates and other relevant membership materials. Precise accounting of money is a critical and sensitive issue. The organization should retain an independent accounting firm and put controls in place to assist with recording funds prior to the sale of stock or the collection of significant amounts of money.

Membership Agreements (if a cooperative) include:<sup>19</sup>

- What will members receive?
- What will members agree to give?
- How will money change hands?
- How will quality be evaluated?
- How will the membership agreement be enforced?
- How will the agreement be terminated or renewed?

### PRE-MEMBERSHIP AGREEMENT

Once the feasibility analysis is complete and when consensus indicates that the enterprise should move forward, it is appropriate to solicit members/shareholders for the new broadband enterprise. If the broadband enterprise is a cooperative-structured business, a pre-membership agreement includes:

1. Statement of purposes for which the broadband cooperative is to be formed.
2. Description of the steering organization committee/founding directors and its powers.
3. Statement of what the new cooperative's bylaws will contain when formed.
4. Notice that the steering committee/founding directors may call a meeting of prospective members.
5. Duties of steering committee/founding directors to keep records and make accounting to the business when formed.
6. Subscription agreement for membership or shareholder certificate of stock.

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<sup>19</sup> Adapted from Rapp, Galen and Gerald Ely. 1996. How to Start a Cooperative. USDA Rural Development. Washington, D.C. Cooperative Information Report 7. November.

## APPENDIX 3

### Building the Success of the Broadband Enterprise, the Cooperative Experience

#### CHARTER MEMBER MEETING

According to most statutes (check with an attorney for clarification), when a cooperative is organized the articles of incorporation and bylaws must be adopted by a majority of the members or stockholders. For the convenience of establishing the business, only the persons named in the articles (known as the charter members) must vote and adopt the bylaws. These persons are considered members or stockholders as soon as the articles of incorporation are filed. It is appropriate and best practice that all persons who signed pre-membership agreements be invited to a meeting to approve of the bylaws.

#### CHARTER MEMBER MEETING AGENDA

1. Temporary presiding officer conducts first meeting and reports articles of incorporation have been filed.
2. Draft of proposed bylaws presented, discussed, and adopted as presented or amended.
3. Accept the membership of those persons not named in the articles of incorporation
4. Select first board of directors – suggested election process
  - a. Create a nominating committee to develop a panel of candidates (select only members), nominating committee should consider those persons who have demonstrated leadership, sound business practices, good communication skills, ability to reason and make appropriate decisions in a timely manner
  - b. Nominate two candidates for each position
  - c. If necessary and for continuity, stagger terms of office for the first board, i.e. some elected for 3-year terms, others for 2-year terms, others for 1-year term
  - d. Vote by secret ballot

#### ***PITFALLS TO AVOID***

- Leadership team is unstable during transition from concept phase to business launch
- Unrealistic expectations by shareholder (if a corporation) or member (if a cooperative) roles and responsibilities
- Inability to discipline persons not meeting responsibilities
- Lack of sufficient customer base
- Inadequate business planning
- Lag in attracting sufficient equity or operating capital
- Ineffective pricing policies
- Poorly designed governance structure



## APPENDIX 3

Building the Success of the Broadband Enterprise, the Cooperative Experience

### PART 2.4. USEFUL RESOURCES

#### BYLAW CONSIDERATIONS

Answer these questions before consulting with an attorney to help design the legal documents. Some questions are more relevant to cooperative-structured businesses than other.

1. DEFINING MEMBERSHIP (if a cooperative-structured broadband enterprise):
  - a. Who is eligible for membership?
  - b. What equity will members contribute?
  - c. Will members each have one vote? Or will there be weighted voting?
  - d. Are all members treated the same? Or are their classes of members?
  - e. How can a member terminate his/her membership?
  - f. On what grounds can a co-op terminate a member's membership?
2. MEMBERSHIP OR SHAREHOLDER MEETINGS
  - a. How often will members meet? Who can call a special meeting? What notice is required? What quorum is required?
  - b. What issues will members decide?
  - c. How can members vote? By proxy, by mail, electronically?
  - d. How will the by-laws be amended?
3. DIRECTORS
  - a. Who is eligible to serve on the board?
  - b. What are the duties of a board member?
  - c. How many seats should there be on the board?
  - d. Will there be board members from outside of the organization?
  - e. How long is each term of the director following election?
  - f. How many terms can a director serve in succession?
  - g. How are board members elected? Removed?
  - h. Are they paid? Are expenses reimbursed?
  - i. How will vacancies be filled?
  - j. How often does a board meet? What quorum is required? What meeting notice is required?
4. OFFICERS
  - a. What are the titles of the offices?
  - b. What is the term of office?
  - c. What are the duties of each office?
  - d. How are the officers chosen?
5. COMMITTEES
  - a. Will there be standing committees of the board? (Examples: executive, audit, finance, governance, nominating)
  - b. If yes, what are they and what are their functions?
6. CAPITAL STRUCTURE
  - a. What is the capital structure of the organization? (Will the company issue shares of stock, membership or common stock, preferred stock, how many shares and at what value?)
  - b. What are the rights and responsibilities of each stockholder?
  - c. Will shares earn dividends?
  - d. What will the redemption procedure be?

## APPENDIX 3

### Building the Success of the Broadband Enterprise, the Cooperative Experience

#### BUSINESS PLAN COMPONENTS

1. Vision and values statements
  - a. Mission statement
  - b. Goals statement
2. Market strategy
  - a. To attract members/shareholders/producers
  - b. To attract buyers
  - c. Customer segmentation and what each segment values or requires
  - d. Competition – who are they, how does the broadband enterprise position itself in the marketplace
  - e. Distribution – service area
  - f. Pricing – how is product priced
  - g. Promotion – image of the broadband enterprise, image of the services and products provided by the broadband enterprise, promotional messages and frequency and mechanism of distribution, costs
3. Operations strategy
  - a. Product aggregation process, identified quality standards
  - b. External regulations – government
  - c. Internal regulations – based on policies protocols developed by enterprise board of directors and management
4. Resource needs
  - a. Physical or spatial needs of product handled for present business, expectations for future business
  - b. Identification of resource gaps and strategies to mitigate them – land, buildings, machinery or equipment
5. Human resources
  - a. Management – tasks to be completed, workload
  - b. Staff – skill requirements
  - c. Gaps – examine need for contractual agreements for outside service providers
  - d. Compensation – wages, benefits, labor law compliance
  - e. Communication between management and staff
6. Finance strategy
  - a. Equity requirements for cooperative members, stock options for shareholders
  - b. Risk assessment – *See Considering Cooperation – A Guide for New Cooperative Development*
  - c. Potential lenders
  - d. Debt service requirements
  - e. Auditing and controlling mechanisms
7. Evaluate strategic alternatives
  - a. Long-term outlook
    - i. Profitability – strategy to increase net income
    - ii. Liquidity – strategy to increase cash flow and pay down debt
    - iii. Solvency – strategy to grow net worth
    - iv. Risk – impact of strategic alternative to business threats
  - b. Contingency plans

## APPENDIX 3

Building the Success of the Broadband Enterprise, the Cooperative Experience

### PART 2.5. SUPPLEMENTAL INFORMATION

Brockhouse, John W. Jr. and James J. Wadsworth. 2010. Vital Steps: A cooperative feasibility study guide. U.S. Department of Agriculture, Rural Business-Cooperative Service. Washington, D.C. Service Report 58. December.

Henehan, Brian M. and Bruce L. Anderson. 2001. Considering Cooperation: A Guide For New Cooperative Development. Cornell University, Department of Applied Economics and Management. Ithaca, NY.

Rapp, Galen, and Gerald Ely. 2010 (revised). How to start a cooperative. U.S. Department of Agriculture, Rural Business-Cooperative Service. Washington, D.C. Cooperative Information Report 7. November.

**This completes Module 2. Creating the Broadband enterprise Business.**

**Please see Module 1. Identifying the Opportunity.**

Components of Module 1 include forming a steering project steering committee, framing a feasibility analysis, and considerations for business structure.

**Please see Module 3. Launching the Broadband enterprise Business**

Components include identification of operating systems, staffing and services, and the business lifecycle.

**BUILDING THE SUCCESS OF THE BROADBAND ENTERPRISE**  
**THE COOPERATIVE EXPERIENCE**

**MODULE 3. LAUNCHING THE BROADBAND BUSINESS**

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<b>Module contents</b>
Part 3.1. Business systems
Part 3.2. Staffing & services
Part 3.3. Governance
Part 3.4. The Future & Avoiding Pitfalls
Part 3.5. Useful Resources
Part 3.6. Supplemental Resources

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## APPENDIX 4

Building the Success of the Broadband Enterprise, the Cooperative Experience

# MODULE 3. LAUNCHING THE BROADBAND ENTERPRISE

(Estimated time for completion 2 to 6 months)

**Actions:** Set up the office and hire staff. Cross-train staff if necessary. Make sure office is ready to address communications with members and potential members. Communicate with members to build trust and understanding of the process to deliver service.

### Outcomes:

- Business office established
- Website launched
- General manager hired (may have occurred earlier)
- Staff hired
- Inventory/accounting systems in place
- Payment and billing systems in place
- Sales materials finalized and distributed
- Relationships established with service providers
- Number of cooperative members increases
- Operating funds secured



### Who is involved?

- Manager
- Staff
- Accountants
- Business advisors
- Board of directors

Module contents <sup>20</sup>
Part 3.1. Business systems
Part 3.2. Staffing & services
Part 3.3. Governance
Part 3.4. The Future & Avoiding Pitfalls
Part 3.5. Useful Resources
Part 3. 6. Supplemental Resources

<sup>20</sup> Adapted from: Henehan, Brian M. and Bruce L. Anderson. 2001. Considering Cooperation: A Guide for New Cooperative Development. Cornell University, Department of Applied Economics and Management. Ithaca, NY.

## APPENDIX 4

### Building the Success of the Broadband Enterprise, the Cooperative Experience

#### **PART 3.1. BUSINESS SYSTEMS**

Several systems need to be fully operational well in advance of when the broadband enterprise opens for business. These systems may or may not be specific to broadband enterprises. Billing systems are necessary to issue statements and monitor accounts receivable. Accounting software should be chosen that can generate useful reports to manage the business, provide information for a board of directors and allow for budget projections useful to lenders.

Payroll systems should be in place to compensate employees and document payroll deductions. Employees need to be skilled or trained to efficiently and accurately enter data into any given system. Databases should be created with contact information of customer-members. Software packages need to be created or adapted to reflect the unique needs of the business (*See Part 5. Useful Resources - Business systems*)

#### **PART 3.2. STAFFING & SERVICES**

Depending on the business structure and the size and scale of the broadband enterprise, when it begins operations, managers (and the board of directors) will need to determine what functions of the business will be provided by hired staff and functions that will be provided through service providers. Position descriptions need to be created and a hiring process completed in advance of the enterprise formally opening for business.

Management will have to determine which service providers they will rely for outside support. Will there be an employee to handle financial transactions? Who will be responsible for completing and filing income taxes? Is there a need for an internal bookkeeper or is it more cost effective to contract with a vendor who provides those services? How much redundancy is needed to operate the broadband enterprise effectively, efficiently, and profitably?

#### **PART 3.3 GOVERNANCE**

Broadband enterprises organized as cooperatives, corporations, or non-profit organizations are required to hold an annual meeting each year. For corporations and cooperatives, financial information is shared with members or shareholders and directors of the organization are elected based on criteria stipulated in the bylaws. Cooperative board members should strive to promote the business and build membership.

Board members, regardless of business structure are bound the 'duty of care' or a fiduciary responsibility to exercise good business judgement, due diligence and act in good faith in the operation of the company. They also have a 'duty of loyalty' or refrain from conflict of interest where the personal interests of a board member would supersede the interests of the company. The failure to exercise the duty of care and duty of loyalty can make the directors and managers personally liable for losses that might occur. To mitigate these risks many companies will purchase directors and officers (D & O) liability insurance.

#### **PART 3.4. THE FUTURE**

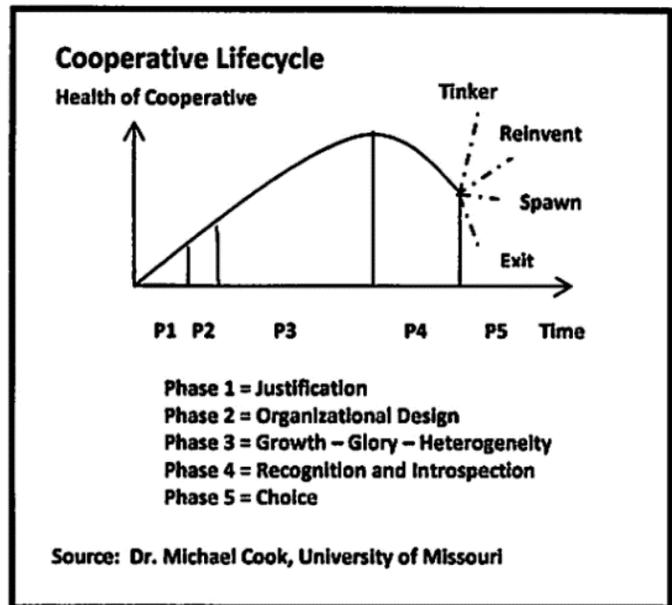
Broadband enterprises are a means for un-served and under-served customers to gain or improve access to the Internet. Starting a broadband enterprise is a daunting challenge. When starting a broadband enterprise it is important that governance documents allow flexibility to achieve long-term goals of the organization. Investments need to be made to ensure short-term success with an eye towards long-term viability. The leadership team needs to be inspired and committed to the long-term vision of the organization. Resources will occasionally be short. The competitive environment will change. Regulations will change. The competition will adapt to the new and different needs of consumers. The circumstances of customer-members will change. Some members will expand their need for services. New members will choose to join the enterprise and others will move out of the area. Changes in electronic technology will provide new opportunities. Broadband enterprises will need to periodically consider the

## APPENDIX 4

### Building the Success of the Broadband Enterprise, the Cooperative Experience

services that they provide in order to remain competitive. They may seek to expand the existing services to current customers or expand the territories into which they will provide services. Joint ventures and other collaborative opportunities may emerge. In short, the broadband enterprise will need to change to remain viable for its members.

Businesses move through a life cycle. A business life cycle predicts that an organization moves from inception to growth, to maturity, to decline OR redevelopment. These phases are sequential in nature and become increasingly complex through time. The three modules have focused on starting a broadband enterprise. The leadership team needs to be cognizant that operations of the broadband enterprise will plateau at some point and there will be a need to devise new strategies to remain in business. The founders of the broadband enterprise have an obligation to embrace this change and identify and train new leaders who will move the business forward.



### **Pitfalls:**

- Ineffective board of directors
- Unqualified manager
- Poor marketing plan to secure additional members
- Under-capitalized, operating capital, cash flow
- Sub-standard quality of products or services
- Weak sector or industry down turn
- Poorly trained employees
- Business systems not properly tested or fully operational



## APPENDIX 4

Building the Success of the Broadband Enterprise, the Cooperative Experience

# PART 3.5. USEFUL RESOURCES

## BUSINESS SYSTEMS

1. Legal
  - a. Corporate documents – Articles of incorporation, bylaws
  - b. Contracts – Marketing agreements, rental agreements, service provider agreements
  - c. Litigation
  - d. Inspections
  - e. Certifications
2. Financials
  - a. Profit and Loss: Annual, monthly, weekly
  - b. Balance Sheet: Annual, monthly, weekly
  - c. Accounts payable
  - d. Accounts receivable
  - e. Bank accounts established
3. Human Resources
  - a. Payroll
  - b. Benefits
  - c. Personnel
4. Forms/database
  - a. Customer database
  - b. Supplier database
  - c. Vendor database
5. Sales & Marketing
  - a. Advertising materials
  - b. Website
  - c. Sales brochures
6. Information Technologies
  - a. Online banking
  - b. Firewalls
  - c. Identify who has access to what
7. Communication systems
  - a. Phone
  - b. Internet
  - c. Social media platforms
8. Inventory
  - a. Tracking mechanism
9. Fleet vehicles
  - a. Monitoring system
  - b. Maintenance schedule

## APPENDIX 4

Building the Success of the Broadband Enterprise, the Cooperative Experience

### **PART 3.6. SUPPLEMENTAL RESOURCES**

Henehan, Brian M. and Bruce L. Anderson. 2001. Considering Cooperation: A Guide For New Cooperative Development. Cornell University, Department of Applied Economics and Management. Ithaca, NY.

Rapp, Galen, and Gerald Ely. 2010 (revised). How to start a cooperative. U.S. Department of Agriculture, Rural Business-Cooperative Service. Washington, D.C. Cooperative Information Report 7. November.

**This completes Module 3. Launching the Broadband enterprise Business.**

**Please see Module 1. Identifying the Opportunity.**

Components of Module 1 include forming a steering project steering committee, framing a feasibility analysis, and considerations for business structure.

**Please see Module 2. Creating the Broadband enterprise Business**

Components include identification of the leadership team, organizational documents, and securing farmer and buyer commitment.

## APPENDIX 4

Examples of Rural Broadband Providers and Fee Structures near the Study Area

### Examples of rural broadband providers and fee structure in the study area<sup>21</sup>

#### Residential Service Providers

Provider	Download	Upload	Price	Circumstances	Service Area
Verizon (DSL) >90% available	3.0	0.768	34.99	Modem w/WiFi, One-time purchase	Constable, Malone, Vermontville, Saranac Lake,
	1.0	0.384	24.99		
Time Warner (cable) >90% available	15	1.0	59.99	No data cap, modem fee of \$10/mo.	Constable, Malone, Vermontville, Saranac Lake
	30	5.0	79.99		
	50	5.0	109.99		
Frontier 2% available	12	1.0	44.99	2-year promotion rate, modem and Wi-Fi included	Malone
	24	1.0	54.99		
HughesNet (Satellite)	10	1.0	59.99	2-year contract w/\$400 ETF; additional 50 GB from 2:00 – 8:00 am, modem \$9.99/mo.	Constable, Malone, Vermontville, Saranac Lake
	15	2.0	129.99		
PrimeLink 1% available	10	10	84.95	3-year contract, bundled with local telephone, free install, modem w/Wi-Fi included	Saranac Lake
	15	15	94.95		
<b>Other residential service providers:</b> Westelcom, Slic Network Solutions					

#### Small Business Service Providers

Provider	Download	Upload	Price	Circumstances	Service Area
Verizon (DSL) 66% availability	3.0	0.768	52.99	Modem with Wi-Fi, one-time set up fee \$149.00	Constable, Malone, Vermontville, Saranac Lake
Windstream	10 (DSL)	2.0	49.99	Contract 1-year term; set-up free; professional installation	Saranac Lake
	25 (fiber)	4.0	69.99		
	100 (fiber)	8.0	109.99		
HughesNet (satellite)	10	1.0 w/30 GB data cap/mo.	79.99	Contract 2-year term, data allowance 8:00am-6:00pm; anytime allowance 10 GB; modem \$19.99	Constable, Malone, Vermontville, Saranac Lake, Tupper Lake, Paul Smiths
	15	2.0 w/60 GB data cap/mo.	159.99		
<b>Other business providers:</b> Westelcom, Earthlink Business, CornerStone					

#### Mobile Internet Providers

ATT Wireless (4G LTE)	[250 Mbps @\$14.99]	[3.0 GB @\$29.99]	[5.0 GB @ \$49.99]
Verizon	5-12 Mbps download, 2-5 Mbps upload with 10 GB data cap. 2-year contract; 12 Mbps \$59.99		
Sprint (4G LTE)	[6 GB @ \$49.99]	[30 GB @\$109.99]	

<sup>21</sup> The list above serves as examples of broadband services and potential providers in the study area and taken from Broadband.com (accessed 17 August 2016). Accuracy is not guaranteed.

## OTHER A.E.M. EXTENSION BULLETINS

EB No	Title	Fee (if applicable)	Author(s)
2017-04	Dairy Farm Business Summary, New York Large Herd Farms, 300 Cows or Larger, 2016	(\$20.00)	Karszes, J., Knoblauch, W.A. & Dymond, C.
2017-03	Workforce Issues and the New York Dairy Industry, Focus Group Report		Maloney, T.R. & Eiholzer, L.
2017-02	Economic Benefits and Risks for Harvest Platform Adoption for NY Fruit Farms		Ifft, J., Freedland, J., and Wells, M.
2017-01	A Practitioner's Guide to Conducting an Economic Impact Assessment of Regional Food Hubs using IMPLAN: A Systematic Approach		Schmit, T. and B. Jablonski
2016-12	Survey of Hispanic Dairy Workers in New York State 2016		Maloney, T., Eiholzer, L., and Ryan, B.
2016-11	Dairy Farm Business Summary, New York Dairy Farms, 300 Cows or Fewer, 2015		Knoblauch, W., Dymond, C., Karszes, J.
2016-10	Cost of Loading, Mixing, & Delivering Feed New York State, 2014-2015		Karszes, J. and Howlett, A.
2016-09	The Economic Contributions of Agriculture in New York State (2014)		Schmit, Todd M.
2016-08	Dairy Farm Business Summary, Northern New York Region, 2015	(\$16.00)	Knoblauch, W., Dymond, C., Karszes, J., Howland, B., Murray, P., Manning, J. and Kimmich, R.
2016-07	Dairy Farm Business Summary, Hudson and Central New York Region, 2015	(\$16.00)	Knoblauch, W., Dymond, C., Karszes, J., Howland, B., Buxton, S., Kiraly, M., Kimmich, R., Shoen, K., and Overton, R.
2016-06	An Analysis of Opportunities For Food Hub Development In Northern New York		Severson, R., Schmit, T., and Shin, P.
2016-05	Business Transfer Guide for the Junior Generation		Richards, S., Shipman, L., Welch, D. and Leubner, E.

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