

Request for Information

Town of Cranberry Isles

Submitted by:

Mark Ouellette & Susan Corbett

Axiom

January 10, 2017

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Dear Cranberry Isles Officials,

Thank you for the opportunity to submit a proposal to your community. As we read the RFI, we are excited to bring a different level of service and commitment; beginning in Islesford in 2017 and to Great Cranberry and Sutton islands in 2018. We understand that we will need to meet and be in a position to exceed federal/state minimum speed requirements of 25/10Mbps and that the total project should not surpass \$1M.

Axiom's mission from its beginnings over 10 years ago is our core belief that every person in Maine deserves a connection. We believe in working with partners that share our passion and goal to serve rural customers in Maine and bridge the Digital Divide.

As I hope you will see from this proposal, we care deeply about the communities we work with and our Rural Broadband Deployment Kit brings the process to life. It is our goal to be the Internet Provider for all of Cranberry Isles for many years to come and to work in partnership to ensure that the Cranberries continue to have access to the latest technologies to help keep the community vibrant and connected.

Last, Axiom has won acclaim nationally and internationally with our work to connect and support last-mile customers with groundbreaking technology and educational services and brings a host of experience to these types of projects.

Please communicate any questions to:

Mark Ouellette, President

Axiom Technologies

3 Water Street

Machias, ME 04654

(207)255-0679 x100 (o) (207)272-5617 (m)

mark@connectwithaxiom.com



We look forward to meeting with you, should we be given an opportunity to discuss in more detail our credentials and commitment to rural connectivity.

Sincerely,

A handwritten signature in blue ink that reads "Mark Ouellette". The signature is fluid and cursive, with a prominent initial "M" and a long, sweeping underline.

Mark Ouellette, President

6.1 Company Information and Experience

At Axiom, we believe rural broadband deployment is about much more than a fast connection - it's about people's livelihood and well-being.

Axiom is a pioneer in rural broadband deployment and we are sensitive to rural citizens' desire to be both digitally connected but geographically remote. We have developed the Axiom Rural Broadband Deployment Kit to do just that.



The **Rural Broadband Deployment Kit** is described below. The Cranberry Isles completed Steps 1-3 with the "Tilson Broadband Study for the Maine Off-Shore Islands". This RFI will address Steps 4 through 7, should Axiom become the network operator.

1. **Assess** - Evaluate community needs and determine leverageable assets

Before Axiom makes any recommendation to a community, we do a thorough investigation of the assets that are in the community that could be leveraged.

- Meetings with current service providers to determine if these assets can be leveraged
- Investigation of current Broadband infrastructure
 - Location of fiber-optics
 - Locations of towers that might serve the community with wireless technology
- Review of any community barriers
 - Right of way laws
 - Moratoriums or height restrictions

2. **Define Goals - Collaborate with leadership and citizens to define needs and goals**
Through a series of meetings with community, business and civic organization leaders as well as strong community input, define what the community specifically wants to achieve and begin to define roadmap to achieve goals.
 - Form a Broadband committee made up of diverse group of town/city/regional officials and community leaders
 - Reach out to community with a survey to understand community concerns, cost of current service and where it might be lacking
 - Business surveys and meetings- work with Broadband group to identify key businesses for interviews and identify larger list of businesses through Chamber or other organizations to send a business specific survey

3. **Plan - Develop the strategic and tactical plan for community**
Once goals are defined, develop a gap analysis that describes what the community has for existing assets that can be leveraged, articulates the goals of the community and defines what needs to occur to reach their goal through a step by step roadmap that can become part of a communities Comprehensive Plan.
 - Develop gap analysis
 - Road map that can be implemented over time in phases, or all at once
 - Identify resources to help community be ready for implementation
 - Discuss private-public partnerships and other implementation models

4. **Implement - Execute rural broadband deployment plan**
Work with Axiom to execute a clearly defined public-private partnership that spells out each party's role and responsibility.
 - Determine build out timeline to complete project
 - Work with Axiom on a revenue sharing model and ownership of network
 - Axiom would offer 3 months of Digital Literacy classes as part of implementation to help community understand new service and how to leverage it
 - Marketing campaign in community undertaken to boost take rates
 - Hire local citizen to assist Axiom with customer relations/installations and technical service questions

5. **Measure - Monitor, measure and manage network**
Develop service level metrics to determine if the new network is meeting goals of the project
 - Axiom begins to operate network and assumes all responsibility of network, as defined in the Service Level Agreement with the community
 - Axiom is a full-service Internet Service provider that handles all of the billing, technical calls, network monitoring and field technician work for the community

6. **Evolve** - Refine based on feedback, monitoring and community involvement

Over the first year of operation work closely with community Broadband Team and customers to monitor and improve service based on feedback

- Ensure that goals are being met and that changes can quickly and seamlessly be made as issues or concerns arise

7. **Enhance** - Ongoing commitment to deliver innovative solutions and enhancements

With the technical evolution occurring at breakneck speeds, we want to pause and make sure from time to time that the Digital Divide will not begin to occur again and to ensure that the technology is regularly upgraded as needed to reach changing needs as the relationship with the community and Axiom matures

- A commitment by Axiom to do a thorough review of network technology in community every three years
 - Discussion with community about any technology changes that might be considered
 - Ongoing commitment to partially fund a Community Technology Fund that could help fund enhancements to the network infrastructure to keep it current and operating at maximum efficiency

Axiom does not deliver one-size-fits-all solutions. We customize our products and solutions based upon a number of factors including proximity to existing community assets, population density and terrain.

Axiom uses the best combination of product solutions. Our planning and deployment framework provides a methodology that allows for flexibility, but at the same time adheres to a clearly defined path. This helps ensure the best product mix and execution plan is used for each community.

We are constitutently pushing the technology envelope and are deeply familiar with Fiber-Optics, DSL and a variety of Fixed-Wireless solutions, including emerging LTE and TV White Space... all are being used to connect real customers in our current operational network now.

We currently operate over 2,500 square miles, with over 100 access points that serve customers in both Washington County and Chebeague Island, Maine. We currently serve approximately 1,200 customers and have been in business for over 12 years.

Washington County is home to one of the most challenging, rural terrains in Maine. In 2005, only two towns in the entire region had DSL connectivity. The 2,500 square mile network has continued to grow in both footprint and capacity. Current speeds offered are from 3Mbps to 100Mbps or greater, depending on geographical location. Residential pricing starts at \$39.99/mo.

We currently operate our main office in Machias and a satellite office on Chebeague Island with a total of 12-20 employees, depending on the season and our workload. We tend to do things ourselves, and all of our customer service, field crew, billing engineering and deployment are done by our very experienced team.

Over the past three years we have grown 25% and demand for our service continues to grow exponentially with many opportunities in front of us in 2017.

Key Staff Expertise and Overall Experience of the Proposed Team

Axiom has been a pioneer of Broadband deployment in Maine. From its roots, the first wireless Broadband connection in Washington County in 2005, Axiom has grown to be a full service engineering, planning and deployment, management and professional services team that assists communities to get connected or upgrade connectivity, while maintaining a network both in Washington County and Chebeague Island. Many of our team has been with Axiom between 5-10 years, and some from the company's beginning.

We currently have a 30-mile high-capacity fiber-optics link capable of transporting or delivering 10 Gigabytes and are deployed in the field with a number of cutting edge technologies that we are currently testing including TV White Space, 3.6GHz licensed LTE and a high capacity licensed links utilizing 11GHz and 38GHz. The testing of new technology and our expertise to think outside of the box and deliver blended solutions is unparalleled in Maine.

SUSAN CORBETT

Chief Executive Officer

Susan Corbett is the Chief Executive Officer at Axiom Technologies. She is a provider and advocate of fast, affordable, and reliable broadband services for rural communities. In 2005, Ms. Corbett joined Axiom Technologies as Chief Financial Officer. Under her leadership, the telecommunications company has designed and constructed more than 100 access points connecting more than 2,500 square miles in one of America's roughest terrains – rural Maine.

Ms. Corbett is a preeminent authority on rural broadband deployment and works closely with economic development and rural organizations to advance Internet and wireless technologies and their adoption.

Ms. Corbett's clear company-wide direction has garnered Axiom tremendous recognition in the form of awards, media coverage, and grants. Most recently, Axiom was awarded a Microsoft grant to provide Internet access to homes in Washington County, Maine, using TV white space. In 2016 Maine Magazine named her as one of 50 *Dreamers and Doers Making the State Better Every Day* and was also named as a *Maine Icon* in an online publication of Maine Icons.

Ms. Corbett is a public speaker, educator, and advocate who is dedicated to providing broadband access and digital literacy to rural communities everywhere.

MARK OUELLETTE

President

Mark Ouellette is the President of Axiom with responsibility for overseeing and growing Axiom's Internet and wireless businesses. Mr. Ouellette has held a number of senior leadership positions in the state of Maine. Previously, Mr. Ouellette was the Executive Director of Mobilize Maine, where he worked with regions across the state to help develop and implement measurable, private sector

economic development strategies. Before that, Mr. Ouellette served as Director of Business Development for the State of Maine. Earlier, he served as Chief of Staff to U.S. Representative Tom Allen.

Mr. Ouellette has 20 years of economic and community development experience. He has a strong track record of successfully writing and securing federal, state, and foundation grants. Most recently, he was pivotal to receiving Axiom's premiere Microsoft grant award to provide Internet access to homes in Washington County, Maine, using TV white space. Under Mark's leadership the company has begun to grow, acquiring Chebeague.net in 2016 and is working with over a dozen communities and counties across Maine to expand broadband and bridge the Digital Divide.

Mr. Ouellette is an active speaker and participant in panel discussions on a wide range of economic development topics and strategies, including providing broadband access to rural communities.

KIM EMERSON

Director of Special Projects

Kim Emerson serves as Director of Special Projects for Axiom, where he oversees wireless technologies, DSL, and fiber optic build-outs. His role includes network and technology planning, development of architecture and roadmaps, and the continued evolution of broadband deployment methodologies.

Mr. Emerson is proficient in a multitude of programming scripts and languages including Perl/CGI, Javascript, SQL, and ASP. He completed training and received certifications to administer and deploy the Mikrotik RouterOS platform including MTCRE, MTCWE and MTCTCE, as well as an A+ Certification, which he obtained to teach a certification course to high school and adult education students.

Mr. Emerson is a graduate of the University of Maine at Machias.

IAN SAWYER

Director of Network Services

Ian Sawyer serves Axiom's entire organization across many disciplines including network management, network installations, as well as computer repair for our neighbors in Washington County, Maine.

Mr. Sawyer is a CompTIA A+ Certified Technician with over ten years of hands-on experience with hardware and software technologies and has completed training and received certifications to administer and deploy the Mikrotik RouterOS platform including MTCRE, MTCWE and MTCTCE. He has the proven skills necessary to support complex IT infrastructures across rural communities. Mr. Sawyer has extensive experience in Windows Operating Systems, networking, firewalls, as well as identifying and preventing malware.

Current Projects

Axiom currently serves 1,200 customers; those customers are served with a variety of technologies, wireless, DSL and fiber-optics. During our 12 years in business we have done whatever it takes to get a connection to a potential customer to locations that the incumbent carriers refused to connect. It is no understatement that 100s of customers would be left unserved without Axiom's efforts.

We are currently planning additional deployments in a number of Counties and communities around Maine as described below.

Chebeague Island

In 2016, Axiom took over Chebeague.net, which was in danger of closing from the threat of a FairPoint build out on the island. We immediately doubled the bandwidth available to the island, suspended \$99 connection fees and stabilized the receiving end of the link to create better reliability. Since the acquisition in March, we have grown our customer count on the island to close to 250 subscribers and are beginning to work with the community to deliver a FTTH solution to all residents.

What is unique about Chebeague, is that the island is fed through a high-capacity, 11GHz licensed wireless link with a 300Mbps capacity from One City Center in Portland, over 7 miles of Casco Bay to a connection on Chebeague. That wireless connection is then converted to fiber that runs two miles to a DSL box that then delivers the signal through a copper connection to each home.

Brooklin (Hancock County)

Axiom was hired in June of 2016 to develop and implement a high-speed network for Brooklin. This community presents an interesting set of challenges. Axiom has proposed and is developing a hybrid wireless and fiber optics solution for Brooklin that will upgrade speeds and give all 800 residents access to the latest in technology. Axiom is currently planning all aspects of the project including financial and technical engineering for possible deployment in 2017. In this scenario, FTTH was proposed with a high capacity Gigabyte microwave link over 18 miles from the Three Ring Binder, a 1,100-mile network of dark middle-mile fiber, to a tower connection in Brooklin. This link can be upgraded over time, for minimal expense, to bring speeds of 1 to 10 Gigs to the community subscribers.

Eastport (Washington County)

Eastport was one of four ConnectME planning grant recipients. Axiom was named as Eastport's planning partner. We are looking toward a number of potential connectivity solutions to support telecommuters who are currently residing in Eastport or use stronger connectivity to help attract families and telecommuters. A current proposal would build a fiber backbone from Maine Fiber Company's network.

Three Ring Binger into Eastport. One of Axiom's differences is our relationship with existing incumbent carriers, in this case Charter (formally Time Warner) and FairPoint, who we are working with to explore potential solutions that Axiom might leverage.

Our Katahdin (Millinocket, East Millinocket and Medway) (Penobscot County)

Axiom was named the planning partner for this ConnectME planning grant and we have quickly put together a plan for fiber optics in downtown Millinocket, Wi-Fi Hotspots that will serve a recreational area (boat launch, playground and ball fields) in Medway and a downtown Hotspot in East Millinocket that will serve the area around the library, post office and Town Hall. In addition, we are planning on connecting an industrial park and an industrial building in East Millinocket and Medway respectively. We are currently beginning to look at a mesh network that might cover parts of the more remote areas of the region that potentially could serve campers, hikers and lake residents.

Somerset County

In Somerset County we are partnered with TILSON to develop a hybrid wired and wireless plan to serve three regions of the county (Skowhegan and Madison, Pittsfield and surrounding communities and the Route 201 corridor. As the wireless partner on this project we are working closely with TILSON to develop plans and pricing for potential wireless solutions that will include a fiber optic backbone that we could utilize for high-capacity wireless solutions in some parts of the County. We are also working with TILSON to identify potential fiber runs that could serve existing towers to quickly and relatively inexpensively give parts of the county a rapid deployment option for unserved or underserved areas.

Piscataquis County

We have recently begun engineering a solution for all of Piscataquis County. This could lead to a potential partnership with Somerset County, Piscataquis' neighbor to the east. We are in the preliminary stages, but this project has the potential to serve 1,000s of customers.

Eastern Maine Development Corporation (Penobscot, Hancock & Waldo Counties)

Through a partnership with EMDC we are working with 4 communities (Greenbush, Blue Hill, Hampden and Bucksport) to develop solutions for better broadband. It is too early to tell what solutions we would be proposing, as we are at the beginning stages of our work in each of these communities.

Through our practical, on the ground experience with fiber-optic, DSL and wireless deployments, we are never wed to any one solution and work closely with our partner communities to deliver the best solution that meet community goals of cost, coverage and reliability. We work to serve remote and last-mile customers and communities in some of the most difficult terrain in all of the United States.

6.2 Services Offered

Wireless

Axiom is a full service telecommunications and internet service provider that offers an array of professional and internet services to our customers and friends in Washington County and Chebeague Island.

To start, we maintain over 100 access points, over 30 miles of fiber optic cabling, DSL assets and approximately 1,200 customer premises equipment and relationships. We do this with an efficient staff all with people hired locally. All of our billing and support is done in house. We have Tier I, II and III support from 8-6pm Monday-Friday and 8-5 on Saturday. We also provide 24/7 network monitoring 7 days a week, 365 days a year. We have field technicians and maintain all of our network infrastructure, climbing towers, installing and maintaining equipment and interfacing with the customer for home and business installations.

Currently, we offer a variety of speeds ranging from 3/1Mbps to 20/10Mbps and offer higher speeds along our core fiber network. Pricing ranges for \$39.99 to \$99.99. We do bundle VOIP telephone for \$20 a month, a straight pass through cost, no profit, as an additional service.

We are known primarily as a wireless company and many of our innovative technology work comes in this space. We are currently beginning a new TV White Space deployment that utilizes unused TV spectrum, commonly called White Space. Axiom was the first commercial deployment in the United States in 2013, and we were awarded a Microsoft grant in 2016, one of 12 world-wide and the only company in the United States. Without getting too technical, this technology has the potential to penetrate foliage and other obstacles to serve previously unreachable customers cost efficiently. We are working closely with the equipment manufacturer to be the first to test a new TVWS radio capable of meeting the federal standard of 25/3Mbps.

We also are in the field with a 3.6GHz Licensed LTE product that also promised better penetration and power to customers and offers speeds of 20Mbps and more if needed. This is interesting because it offers non-line of sight technology, again, at affordable pricing.

For Chebeague Island, our licensed link connecting the island to the mainland has been exceptionally reliable and is currently capable of a microwave link of 300Mbps. This link can easily be upgraded affordably and we have proposed the same technology in Brooklin that will deliver a Gig of Internet to the community.

We are also in the field with more traditional wireless technology, 900Mghz, 2.4Mghz and 5.8Mghz. All have their application depending on the scenario. We have been approached recently to be a partner with two large providers in the state to deliver last-mile, or end user wireless technology. There is recognition in the industry that fiber can be cost and deployment prohibitive in both urban and rural environments.

Fiber

We currently operate or own close to 40 miles of fiber network in our operational footprint, as a reference point, Sanford is planning on building 19 miles of fiber. We have internal expertise that understands how fiber works, the equipment necessary to deploy and maintain fiber-optics. To reduce cost and become more experienced in house, we have several members of our team trained to do our own splicing and drops that allows us to deploy more quickly. Frankly, fiber-optics is a much simpler and easier deployment for us than a wireless or DSL deployment.

DSL

We currently operate and maintain several DSL sites across our network and support 100s of customers on Chebeague and in Washington County who use legacy DSL. Our staff and field crew are trained and knowledgeable in all equipment and deployment scenarios for DSL.

Community Hotspots

We like hotspots, it is a smart way to deliver service to locations that have concentrated levels of activity, i.e. a boat launch, downtowns and community gathering spaces such as a park or gazebo.

Axiom is the only company in Maine offering and deploying Community Hotspots in many of the communities we are working with. We currently have hotspots deployed in Greenville, South Portland and Machias. In addition, we have put a hotspot on the Chebeague Island ferry that gives

passengers access to the internet while traveling on the island ferry and allows the ferry service to process payments on the boat. Expected 2017 deployments are set for Waterville, Biddeford and in the Our Katahdin region (Millinocket, East Millinocket and Medway), Somerset County, Oxford County, Eastport and Brooklin. We are well versed in the technology and deployment and will strongly consider hotspot deployment for public use on the island.

Other Services

Axiom is a unique company that brings additional resources to the table. Beyond our unique capability to understand, deploy and maintain a variety of technologies, we are also offer a variety of professional services in our network that includes computer, tablet and phone repair, on-site business technology assessments and Managed Service Agreements. We also have nationally and internationally recognized Digital Inclusion and Digital Literacy programs offered through our non-profit, Axiom Education and Training Center (AETC). We are currently pursuing Eligible Telecommunication Carrier status to offer Lifeline to qualified customers that would be eligible for a \$9.50 reduction in monthly bill.

Digital Inclusion addresses 4 key components to Broadband adoption:

- Affordable Internet
 - We are pursuing ETC status that would allow a \$9.50 reduction in monthly cost for eligible customers
 - We also might consider a reduced rate for SSI and reduced school lunch recipients
- Affordable Equipment
 - We have a relationship with PC's for Maine which offers very low cost refurbished computers
- Digital Literacy Training
 - We offer a suite of business and individual training programs that the Island could access to give people the tools to leverage the internet access
 - Should we become your operating partner, we would offer three months of Digital Literacy training free of charge
- Public Computer Access
 - As described in the previous section, Hotspots offer an excellent way to provide access to those that cannot afford a connection
 - As part of our work, we would identify and promote existing public computers on the Islands

6.3 Customer Installations

Axiom does all customer service installs in-house. We also maintain all customer relations in-house. Currently, we outsource all of our fiber installs as a matter of convenience, but we are preparing to do all of that work in 2017. We have good relationships with companies whose only business is to install fiber.

6.4 Customer Service and Marketing

Axiom does not outsource any of its customer support. We are primarily a residential service provider with approximately 15% business customers. For businesses in Washington County we offer on-site training through our non-profit Axiom Education and Training Center and a variety of Managed Service Agreements that support business equipment with on-site and remote support. For remote customers such as Cranberry Isles, we would have customer phone support available 6 days a week during normal business hours and the ability to trouble shoot computer issues with remote access technology that allows for a technician to remotely log into the computer and diagnose issues.

In addition, we would hope to hire someone on island to troubleshoot issues quickly and efficiently. That is what we have done on Chebeague and it has worked well. It gives Islanders a sense of ownership and a friendly, well known face to interact with, should issues arise. We also have available field crew that can be sent from our headquarters in Machias in the event that is needed.

Our billing system is done in-house and you mentioned in the RFI that you would prefer individual customers to be billed. That is not an issue and we take all forms of payment, including on-line credit card payments. We offer yearly, semi-annually, quarterly and monthly billing options and in our network we offer seasonal rates. While the Cranberries maintain a significant seasonal population, we believe that all potential customers that would benefit from upgraded service should participate in that equally and a point of discussion with the Island Broadband committee should take place to determine the pros and cons of seasonal rates.

In the case of the Cranberries, our marketing would consist of 3 months of Digital Literacy classes provided free of charge and a number of island meetings to explain the technology and roll out. We would also go door to door with door hangers and might even consider an island wide mailing. In addition, we would use Facebook, the island website and email distribution through island institutions such as the library or municipal office. We have used all of these models in our network and our customer turnover rate remains well below industry standards. Once we have a customer, we keep them for many, many years. Of the customer loss we do experience, most are people moving away. We have significant competition in our network, including Time Warner Cable (Charter) and FairPoint and compete well on price point and overwhelmingly better customer service.

6.5 Responses to Broadband Objective

In our view, it will be a challenge to meet the goals of cost, reliability, longevity and control of the network without a serious engineering study to determine what would best accommodate all of the goals that were articulated in your RFI. What we provide below is an initial assessment of your situation and how we would approach each challenge. We are very open-minded about this type of project and are serious about ultimately providing a number of technologies choices, with different price points and the pros-cons of each of those choices.

Backhaul (getting internet capacity to the islands)

Backhaul in the Internet Service Provider vocabulary refers to the total amount of Broadband Internet that would need to be transported from the backbone or core network (think of the Three Ring Binder) to a point on the island or islands *before it is distributed to the homes and businesses in the community*. What is important about backhaul is the ability to increase the amount of Broadband Internet over time to keep up with community demand as Internet use exponentially increases over the span of 10 or 20 years, once this project is completed.

There are two ways we would consider providing backhaul. The first would be to work with FairPoint to rent a portion of their undersea fiber conduit that connects the mainland to Great Cranberry. If they were to agree, this connection would allow for potentially unlimited increases in total Broadband Internet that could be fed to the island. Because FairPoint has an existing fiber connection that connects the library and school to a 100Mbps connection, it is conceivable that that connection could be turned up significantly, increasing that backhaul and provide a Gig or more to the island as needed, meaning it would allow for increases in capacity and keep at least the backhaul available for upgrade to meet the speeds, reliability and longevity of the network over the next 10 to 20 years. Cost and feasibility of this type of arrangement between FairPoint and Axiom is unknown, however we have approached FairPoint and asked if this type of partnership is feasible in another location and FairPoint is considering our request. In this scenario, the actual cost of the Internet probably would come from FairPoint's network and be purchased by Axiom. Axiom is an authorized reseller of FairPoint's products.

A second option would be to provide a high-capacity licensed 11GHz microwave link that would come from the mainland to a high point (tower or building) that would bring anywhere from 300Mbps (which is what we are doing on Chebeague Island) to a Gig of Broadband Internet wirelessly to Great Cranberry or to Islesford. If Axiom were to be selected to move forward in the process, we would look to this type of Backhaul solution that could reduce cost, and offer a low-cost upgradable solution that should last well beyond the 10 years you indicated the life of the project should last before an upgrade is needed. This type of link is capable of up to a Gig (1000Mbps) of transport and will easily provide 25/10 speeds to residential and business customers on the Cranberries. A significant review and engineering study would need to be undertaken to understand options and cost, but this type of wireless backhaul would provide reliable service that rivals or exceeds the 3 Ring Binder.

In the context of your goals, the use of FairPoint's undersea conduit/fiber would deliver backhaul service to Great Cranberry, that would then have a microwave link (like the one described above) to bring the Broadband internet to Islesford and Sutton Islands. We would recommend licensed 11GHz links to connect the others islands, but an even more cost effective solution might use unlicensed

links that can still deliver high capacity bandwidth. Unlicensed links can reduce reliability, but not to the point where they should not be considered, especially if there is clear line of site.

The second option of a licensed high-capacity link from the mainland to the islands could come directly to multiple islands or to any one of the three islands, depending on location, terrain and cost. This type of link suggests more flexibility, but will require a thorough understanding of mainland assets that might (or might not) be available to meet the backhaul goals and service that we would like to bring to the island.

Island Connectivity

Once the Broadband Internet is brought to one or more of the three islands, it must be distributed to each home/business. Axiom would strongly recommend a fiber to the home buildout on both Great Cranberry and Islesford. On Sutton, we believe a fiber to the home scenario also works, but to save

cost, the Cranberry Isles Broadband Committee might consider a wireless delivery system. Depending on the terrain, a 5.8 MHz system would meet your 25/10Mbps standard. If line of sight is not an option to all or only a few of the homes, a TV White Space wireless connection would meet federal standards of 25/3Mbps.

In the case of a fiber to the home build, we would suggest potentially not using the existing electrical pole structure, unless the town owns the poles or rights to use the poles or if right of ways on each of the islands are prohibitive to use. Not using the pole structure could potentially lead to significant savings, reduce delays in building and open up innovative ways to lay the fiber, that could help keep cost as low as possible, while still giving the islands a significant infrastructure upgrade that once in place would be able to deliver and handle significant speed upgrades with high reliability that would last well beyond the 10 years contemplated in the RFI. We have spoken with the Island Institute about such a project where we would bring the community together to help lay out the fiber and utilize island equipment and labor. If we were to use this concept on all three islands, it may defray costs so that a wireless solution for Sutton, may not be needed. All options are available, including a reduction in the fiber build on Great Cranberry and Islesford and using a wireless solution to some homes to again, reduce cost. A thorough engineering study will need to be conducted to consider each option, and be mindful of the \$1M cap the town requires to build the network.

As Axiom studied the TILSON recommendations, it appears that the \$1M total build number may have come from that study.

• Fiber cost on Great Cranberry	\$454,201
• Fiber cost on Islesford	\$343,925
• Fiber cost on Sutton	<u>\$112,237</u>
Total	\$910,363

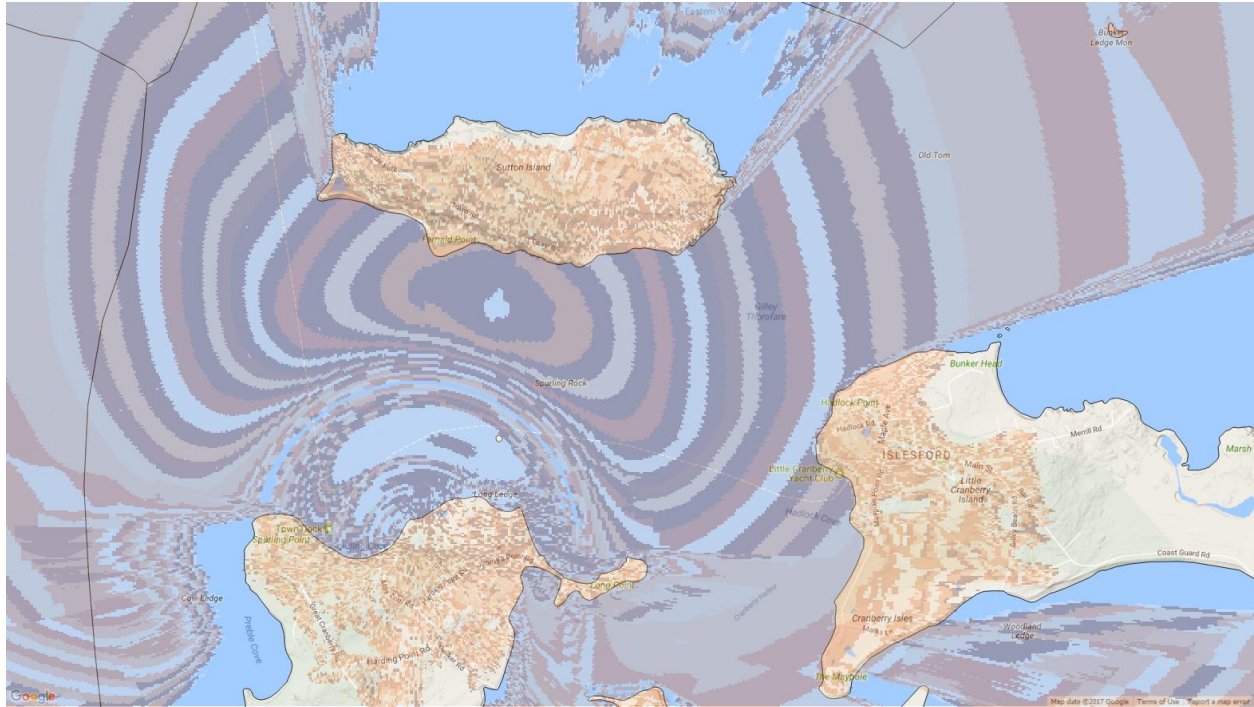
In this section we recommended several potential cost savings to the budget above that are important to highlight.

- If we were to give Sutton a wireless service that met the federal standards of 25/3, we could feed that service from Great Cranberry and have no infrastructure complications or

cost on Sutton Island, each home would need a radio that would receive and send signal back to infrastructure on Great Cranberry

- This would cut the cost estimates for Sutton Island at least in half

This is a coverage map for Sutton utilizing TV White Space technology:



- If we utilized local support and equipment and were able to utilize right of ways across both Islesford and Great Cranberry, we should be able to reduce cost substantially, somewhere in the neighborhood of \$40,000-\$60,000
- We would follow the TILSON recommended build out schematic but use as few pole attachments as possible and run the fiber in right of ways and on the ground or micro-trenched to people's homes

It is unclear, but it appears that TILSON's cost estimates are to the curb, not necessarily to the home itself. If that is the case, our recommended opportunities to lower cost, might be necessary, because an analysis of those drops to the premises could add substantial cost.

- Again, we would recommend working with local equipment and community spirited volunteers to run the fiber over ground or micro-trenching to keep cost at minimum

Should we be invited to the next phase, we will certainly clearly articulate cost of a microwave link or utilizing the undersea cable.

As far as Axiom is concerned, if all went as we would envision, and depending on capital flow, we would begin building a fiber to the home network on Islesford this summer, to meet completion date of October. Simultaneously, we would begin a marketing campaign on all three islands and if capital allowed, we would also begin to build the fiber to the home project in Great Cranberry, hopefully also completing over the fall or early winter of 2017. Sutton Island would be completed in the spring of 2018. As soon as the work was completed, we would start to hook up customers, thinking that any backhaul issues would be ironed out before completion dates. We would expect to run ahead of the schedule laid out in RFI, dependent on cash flow and a number of other factors.

6.6 Response to Business Model

Axiom believes that a public-private partnership (franchise agreement) where benefits to both parties are defined is a way to change the relationship with the Internet Service Provider. We are interested in working with communities that are also interested in changing the dynamic of current incumbent providers by providing a more open relationship that allows the community to have a bigger role in defining what the relationship looks like up front, before you enter into an agreement. In our process, the community **must be** engaged and willing partner, working with Axiom every step of the way. So, as you describe the business model in Section 5, we would offer these thoughts on what each party would commit to:

Axiom's Commitments:

- To commit between 25%-50% of the capital cost to build the network
- Strong federal, state, local and foundation connections with a track record to attract those resources to accomplish the community's goals
- A commitment to contributing some % of profits, once the network is fully built, into a Community Technology Fund, that would be used to accomplish mutually agreed upon goals
- A commitment to the community to reevaluate technology equipment every three years
- Three months of Digital Literacy at our expense, during the build out
- Potentially add additional Community Hotspots, Digital Literacy classes and other resources at our expense or through the Technology Fund and other funding sources as they are identified
- Build infrastructure to help the community reach 21st Century connectivity and maintain that infrastructure in perpetuity
- Partnership with University of Maine (UMO) on interns, to provide community outreach persons seeking feedback; this will give the Cranberry Isles and Axiom the opportunity to measure performance, community feedback and overall value to the community.

Cranberry Isles Commitments:

- Commit to identifying funding sources that would cover a % of build cost
- Creating a yearly funded Technology Fund for the next 10 years

- Working with Axiom to identify community barriers to deployment
 - Creating, in perpetuity, right of way access and right of first refusal for mutually agreed upon plans for deployment
- Working to address any code enforcement barriers to deployment
- Become a champion of Axiom by leveraging community assets (like website) to help promote customer take rate and Axiom community involvement
- A commitment to Axiom to resource new equipment as mutually agreed upon to keep equipment upgraded to current standards
- A point person to work with the Axiom point of contact to ensure seamless, ongoing communications through the process of building the network and beyond
- Help identify key person on island to be trained to assist with issues on island in a timely manner

We don't have any concern with the town owning the assets with a clearly defined path to Axiom ownership over a negotiated period of time, probably in 6-10 years. The objective of an open network is to encourage competition and to preserve the rights of the town to change operators/Internet Service Providers if service agreements and other commitments are not met. Because this is a small town, it does not make sense for multiple carriers to provide service and expect to make a profit. More importantly is preserving the rights of the community to change providers, should service levels and commitments not be met.

Axiom would like to propose the network be made exclusively for the provider to operate in perpetuity, with a community evaluation clause committing both the community and Axiom every three years to a review of services that preserves the town's ability to remove Axiom and contract with another provider should standards not be met.

We also don't have any issue providing capital to contribute to the project; more analysis needs to be done to define what % of capital cost we would contribute. But we are serious about contributing a significant amount of capital and become a real partner with Cranberry Isles.

Thank you for the opportunity to present our vision. We look forward to hearing back from you and continue discussions toward a solution for the Cranberries.

** Should we be invited to proceed to an interview, a Project Management Plan can be made available upon request.*