



**CONNECTME FUND  
GRANT APPLICATION**

**WASHINGTON COUNTY  
“NO SUBSCRIBER LEFT BEHIND”  
SPECIAL INSTALL PROJECT**

**MARCH 22, 2010**



Axiom Technologies  
3 Water Street  
Machias, ME 04654  
(207) 255-0679  
[www.axiom-tech.net](http://www.axiom-tech.net)

---

ConnectME Fund  
Fourth Round Grant Application  
March 2010

1. **Date:** March 22, 2010
2. **Project Title:** Washington County “No Subscriber Left Behind”
3. **Submitting Entity:** Axiom Technologies
4. **Grant Amount Requested:** \$100,000.00
5. **Project Contact Information:**

Susan Corbett, CEO  
3 Water St.  
Machias, ME 04654  
(207) 255-0679, Fax (207) 255-5825  
[susan.corbett@axiom-tech.net](mailto:susan.corbett@axiom-tech.net)

6. **Party Who Prepared Application:**

Susan Corbett, CEO & Nelson Geel, CTO  
3 Water St.  
Machias, ME 04654  
(207) 255-0679, Fax (207) 255-5825  
[susan.corbett@axiom-tech.net](mailto:susan.corbett@axiom-tech.net)  
[nelson.geel@axiom-tech.net](mailto:nelson.geel@axiom-tech.net)

## 7. Executive Summary of the Project:

Axiom Technologies submits this Grant Application in response to the ConnectME Authority Grant Funding Program for deployment of broadband in rural Maine.

In deploying wireless broadband in Washington County for the past five years, there are approximately 10% to 30% of homes and residents in Axiom's present service area that are completely "off-the-grid" and are not able to get a sufficient wireless signal for Internet connectivity. These homes and businesses cannot be served by the traditional carriers, Fairpoint Communications and Time Warner Cable, nor can they be served with Axiom's present wireless infrastructure.

Axiom's Field Engineers have been brainstorming and creating solutions for these homes and businesses that have no chance of ever getting broadband service. In some cases, small, 50 foot towers can be erected on the homeowner's property, in others, trenches dug and conduit run for hundreds of feet to reach an area to mount a radio that can receive a signal. These solutions are not a "typical" install in which we can charge the subscriber \$99.00 for the installation. These "off-the-grid" solutions are more costly and are not affordable by the home or business and not an affordable deployment option for Axiom.

Axiom is requesting a funding source to address these special installations. In each case, we will create a Professional Service Agreement specifically for the subscriber or subscribers, which will break down the labor costs, the equipment costs, rental of special equipment and any special permits. We propose that the Professional Service Agreements (see attached PSA template) are submitted and reviewed by the ConnectME Authority. It is Axiom's opinion that this unique grant is a "last option" for these truly unserved subscribers, a "no subscriber left behind" concept.

In addition, Axiom is developing a new technology delivery system. Utilizing both our experience and knowledge of cross platform technologies and leveraging our excellent relationship with several other regional vendors, we have created a hybrid wireless/wireline solution that can deliver even more targeted service than our mini-PoP methodology. These "micro-PoPs" are still outdoor systems and are able to target service areas down to the individual home, while effectively uplinking to the enterprise network.

We believe that the specific challenges of reaching the most difficult unserved locations in Washington County are representative of those final-percentile households across the state, both in the difficulties presented by extreme geographical features and ultra dense forestation. It will take innovative design and application to bridge those final percentage points and we believe our new delivery

mechanism, in addition to creating customized solutions for the “off-the-grid”, isolated home or business, will be a useful tool in that application.\*

(\*See Confidential Engineering Design Attached)

8. **A description of the geographic area proposed to be served by the project and sufficient information to establish that it is an unserved area, preferably at street-level granularity, and not likely to be served in the foreseeable future. (Most applicants conduct independent research to determine if a community has broadband or are sufficiently familiar with the community to know that there isn't any terrestrial broadband available).**

**Applicants must be aware of recent legislative changes that require the ConnectME Authority to give priority to grant proposals that, relative to other proposals, seek to extend access to broadband internet service to a higher percentage of an "unserved" area within a municipality or other appropriate geographic area. The legislation requires the Authority to also consider the percentage of households with access to broadband service when establishing criteria to define unserved and "underserved" areas;**

Axiom has been deploying a wireless broadband infrastructure in Washington County since 2005, and has installed radio subscriber units in over 1200 homes or businesses. However, per careful record keeping in our database, we have identified 375 homes or businesses that we have been unable to serve. This grant is specifically geared to address these targeted *unserved* homes.

9. **A description of the proposed project, including:**

- a. **public-private partnerships that have been established;**

Axiom is deeply rooted in the community, participating on many committees, boards, focus groups. We are committed to economic development and continue to strive for technological advancement and education for the people of Washington County and rural Maine. We work closely with the following organizations: Sunrise County Economic Council, University of Maine, Machias, Washington County Community College, Unobskey College, Washington County Council of Governments, Washington County Emergency Management Agency, Washington County:One Community, Machias Bay Area Chamber of Commerce, Maine Community Foundation, Caring Community Collaborative, Career Center, Maine Lighthouse Recovery Support Network, Vital Economy, Washington County Leadership Institute, Leadership Maine, Maine Development Foundation, Help America Vote Act program, HUD, Cobscook Community Learning Center,

# ConnectME Authority – Fourth Round Grant Application

Page 5

Women, Work and Community, Machias Rotary, Mighty Women, Mobilize Maine and local schools, health facilities, municipalities and our political delegation.

**b. evidence that the private partner in the project is eligible to receive funding from the Authority;**

Axiom Technologies, LLC was founded and incorporated in the fall of 2001. It reorganized as a Maine Limited Liability Corporation October 13, 2004, and Articles of Incorporation were filed with the Secretary of State. All Members unanimously adopted a revised Operating Agreement in October 2005. Axiom Technologies, LLC maintains its business office at 3 Water Street, Machias, ME 04654.

Axiom Technologies is a Maine for-profit corporation. It has been the recipient of three ConnectME grants since 2007 and has a proven track record in public-private partnerships. It is through the collaboration of municipalities, economic development groups, businesses and residents that Axiom's business model has proven successful. Of the 80+ Access Points that have been installed by Axiom to date, all but the mountain sites (four towers) are at no rent. This is a testimony to the support and commitment of the communities.

**c. the type of service to be provided, indicating the technology used and the upstream and downstream speeds of the service to be provided;**

Traditionally, service is provided to the customer's premises (either business or residential) via wireless technology. The systems utilized are fixed point to multipoint radio networks whereby multiple subscriber radios at the customer's premises connect to master transmitter sites on towers, hilltops and buildings that possess geographical advantages including height and clear sight lines. In this manner, site selection for these "Access Points" (includes "mini-Pops") is similar in process to that of a cellular phone carrier; however, our cost to deploy transmitters is much lower, allowing more transmitters to be installed within a geographical area, thereby improving coverage and accessibility. Additionally, because of the implementation of "micro-PoPs"\*, we will now utilize "low-gain" subscriber radio units, which are lower in cost. In the traditional "Line of Site" system, a "high-gain" subscriber radio unit is considered the preferred technology.

(\*See Confidential Engineering Design Attached)

In this grant application, we will design solutions specific to the extremely hard to reach subscriber. Ideas such as small tower installations at the subscriber's home or digging trenches to bury cable to reach an area that does receive a signal are being brainstormed by Axiom's engineering staff.

# ConnectME Authority – Fourth Round Grant Application

Page 6

We feel strongly that broadband is a “right”, and every effort should be made to bring broadband to every resident in the State of Maine.

Axiom utilizes several different radio frequencies, 900 MHz, 2.4 GHz and 5.8 GHz which have proven very effective in high-speed broadband deployment. We have added 3.6 GHz radio gear to transmitter sites which enables the availability of a 10Mbit symmetrical product that is cost effective.

Axiom has obtained the necessary FCC licensing to field and operate radio electronics in the 3.65 GHz band. The technologies utilized are capable of over-the-air data transmission rates up to 100mbit. Axiom’s subscriber plans set customer bandwidth at between 1 and 10mbit downstream and 500k – 1.5mbit upstream for residential service. Up to 10mbit symmetrical service is available for businesses requiring increased upstream bandwidth for server hosting or similar applications. In addition to the advanced radio systems, Axiom has installed augmented power systems for protection against AC grid outages; the primary cause for service interruption in the Downeast region. These power systems utilize deep battery arrays.

There is a direct link from Axiom’s transmitter site at Black Cap Mountain in Eddington, Maine, which receives its signal from Oxford Network’s location in Bangor, Maine. This microwave system brings bulk bandwidth via Oxford’s fiber network to Axiom’s wireless infrastructure. Additionally, a Fairpoint DS3 Circuit located at Axiom’s headquarters in Machias will provide a redundant link via its existing wireless network.

**d. an estimate of the time required to complete the proposed project;**

The Washington County “No Subscriber Left Behind” Broadband Project will take an estimated twelve months, depending on weather.

**e. the number and percentage of households and businesses within the area to be served by the project (i.e. who can be served given technical limitations);**

The goal of this project is projected to reach 100% of the unserved homes and businesses in Washington County.

**f. the estimated price per customer of the service to be provided by the proposed project; and**

Estimated cost per household is undetermined, but will be documented and reported to the ConnectME Authority.

- g. a map (preferably GIS compatible) or list of municipalities or parts of municipalities that may be covered by the proposed project with GEO Codes.**

Geo Codes are: All of Washington County. Map is attached.

- 10. The total amount of funding requested from the Authority;**

The total grant request is: \$100,000.00

- 11. The applicant's financial commitment to the project in addition to the funding requested from the Authority;**

Axiom is committed to financing the remainder of the expenses of the project.

- 12. The estimated number of customers/households who will directly benefit from the project who are currently unserved (provide lists or numbers of potential customers that have indicated a strong commitment to subscribe);**

It is estimated that 100% of the unserved homes and businesses in Washington County will have access to wireless broadband availability.

- 13. Evidence of community support for the proposed project, which may include letters or signatures of residents or businesses located within the area of the proposed project (also, provide letters of interest from landowners for placement of facilities and support commitments from municipalities or community groups);**

Axiom collaborates with a multitude of organizations in Washington County.

- 14. A description of the applicant's experience relevant to the proposed project; and**

Axiom Technologies is a telecommunications company located in Machias, Maine that has been creating, researching and developing a wireless technology for broadband deployment in rural Maine. Axiom has been working diligently for the past five years in researching and developing wireless networks, and has installed over 80 Access Points serving 80 previously unserved geographical areas, representing 40 Towns in Washington County. Access Point installation work is ongoing as of this grant application.

Axiom is the recipient of three ConnectME grant awards in 2008/2009 (\$657,665.00 in total grant funding) and is continuing to deploy broadband using its existing business model to Towns and territories in Washington County throughout

# ConnectME Authority – Fourth Round Grant Application

Page 8

2010. At the completion of the ConnectME Washington County Broadband Project, Axiom will have a wireless infrastructure with approximately 100 Access Points, creating an umbrella over the entire County.

**15. A demonstration of financial viability provided by pro-forma financial statements for the project and company financial statements. Confidential information may be submitted and should be so marked.**

## **Financial Analysis and Budget**

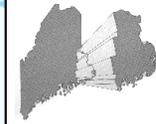
The budget will be reviewed on reasonableness and accuracy. Provide the following financial information with as much detail as possible:

Axiom proposes that a Professional Service Agreement “PSA” is done for each individual project within this project. The PSA will include labor, equipment, etc. Axiom proposes to match 50% of each project.

\*See attached financial statements and reports.

# Political Map of Washington County, ME

- Primary Roads
- International Boundary
- County Boundaries
- Town Boundaries



Data Sources:  
Maine Office of GIS  
Garmin GPS Receiver  
Universal Transverse  
Mercator- Zone 19N  
North American Datum- 1983  
Map prepared by WCCOG

