

March 7, 2014

**DELIVERED VIA ECFS**

Chairman Thomas Wheeler  
Commissioner Mignon Clyburn  
Commissioner Jessica Rosenworcel  
Commissioner Ajit Pai  
Commissioner Michael O’Rielly  
Jonathan Chambers  
Federal Communications Commission  
445 12th Street, SW 20024  
Washington, DC

**Re: Expression of Interest – Rural Broadband Experiments  
Connect America Fund, WC Docket No. 10-90**

Dear Chairman Wheeler, Commissioners, and Mr. Chambers,

This letter is to express OSHEAN, Inc.’s interest in receiving funding from the Rural Broadband Experiments announced at the January 30<sup>th</sup> FCC Open Meeting.

Enclosed you will find the following Expression of Interest (“EOI”) documents from OSHEAN, Inc. with respect to the above referenced program:

- Town of New Shoreham (Block Island)
- Adult Education and Health & Human Services CAIs

Thank you for considering our Expressions of Interest. Please feel free to contact me if you have any questions or require any additional information.

Sincerely,

/s/ David Marble

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President and Chief Executive Officer  
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Expression of Interest

WC Docket No. 10-90

Town of New Shoreham (Block Island)

March 7, 2014

# Expression of Interest

## Town of New Shoreham (Block Island)

### INTRODUCTION

OSHEAN, a Rhode Island based Research and Education Network (“REN”) established in 1999, is a standalone 501(c)(3) non-profit entity. OSHEAN is a membership driven organization with a mission to advance the technology infrastructure and services available to the region’s Community Anchor Institutions (“CAI”). Today, OSHEAN serves the Higher Ed, K-12 and Libraries, State and Local Government, Healthcare and Non-Profit (“NP”) communities in Rhode Island and Southeastern Massachusetts.

In 2010, OSHEAN, representatives of RI’s state government, state education and healthcare leaders collaborated to secure a Broadband Technology Opportunities Program (“BTOP”) grant of \$21.7 million in Federal funds (CCI Grant NT10BIX557013) and raised \$10.7 million in private matching funds to build a 475 mile fiber optic backbone that now connects many of the state’s CAIs at speeds between 1 Gbps and 10 Gbps. OSHEAN’s successful BTOP grant project, now known as Beacon 2.0, was completed in August 2013 and now connects over 125 CAI facilities including the University of RI, Community College of RI, RI College, numerous state facilities such as the State Data Center, 39 school districts, 16 library facilities and the state’s three largest hospital groups (Lifespan, Care New England and CharterCare) with direct fiber in a highly resilient mesh backbone. Through this effort, OSHEAN demonstrated its ability to execute a sizeable and complex grant project as the project was completed on time, on budget and ultimately connected almost double the number CAIs that were proposed in the original grant for the same budget. As a result of Beacon 2.0, the CAIs now have significantly greater broadband capacity at significantly lower prices.

While the Beacon 2.0 network is far-reaching, the BTOP funds were unfortunately not sufficient to extend network coverage to all of the state’s CAIs and rural entities and many CAIs are continuing to operate without the essential services they require to meet their current and future needs. This proposal aims to close those gaps and bring the much needed services to these underserved markets.

### BACKGROUND

The Town of New Shoreham, also known as Block Island, is an island located 12 miles off the coast of RI that has a population of up to 20,000 residents depending on the time of year. It is reachable only by ferry and small planes, and inhabitants of Block Island are often cut off from the mainland for days at a time. Currently, there is no true broadband service (as defined by the FCC) on the island, and the community as a whole is severely impacted by this. Citizens are not only unable to take advantage of high-end internet services, but many that do have internet access are unable to simply get an average web page to load. Efforts to improve existing service and seek alternative broadband access solutions have been underway for several years. To that end, the New Shoreham Broadband Working Group (“NSBWG”) was formed to work on behalf of the Town’s residents, businesses and government entities to improve access to sustainable broadband Internet service for residents, businesses,

government entities and visitors to Block Island. The Town has engaged directly with providers and state officials in order to effect improvements to existing services and explore alternative near and long-term solutions.

In December 2013, seven island locations participated in structured speed tests. New Shoreham Town Hall service is a Verizon 1.5 Mbps T1 line, while all others are Verizon DSL. Over the course of several days, multiple tests were run each day. Following is a summary of the test results:

Service	Download (Mbps)			Upload (Mbps)			Ping Time (ms)		
	High	Low	Avg	High	Low	Avg	High	Low	Avg
Town Hall T1	1.44	1.09	1.36	1.33	1.09	1.21	31.00	14.00	20.50
Police Dept DSL	1.53	.31	1.25	0.65	0.43	0.57	300.00	63.00	117.29
All DSL (6)	6.74	0.00	1.52	1.42	0.00	0.47	1072.00	63.00	372.71

The NSBWG is comprised of the following members:

- Nancy Dodge, Town Manager
- Michele Spero, Town Information Technology Manager
- Bill McKernan, Block Island Resident’s Association
- Kathy Szabo, Block Island Chamber of Commerce
- Gail Hall, Ballard Hall Real Estate
- Lucinda Morrison, Block Island Chamber of Commerce
- Andrew D’Uva, Horizon Strategies

The RI Office of Digital Excellence members working on this project include:

- Thom Guertin, RI Chief Digital Officer
- Stuart Freiman, Broadband Program Director, Broadband RI (“BBRI”)
- Alison Walsh, BBRI

The Rhode Island Office of Digital Excellence (“RIODE”) in the Department of Administration and headed by Thom Guertin, Chief Digital Officer was established by statute to move RI state government into the 21st century through the incorporation of innovation and modern digital capabilities throughout state government. Further, it will leverage technology to expand and improve the quality of services provided to RI citizens, promote greater access to government and the internet throughout cities and towns, and position Rhode Island as a national leader in e-government.

BBRI, an initiative of the Office of Digital Excellence, RI Department of Administration is funded through December 2014 by the State Broadband Initiative as part of the American Recovery and Reinvestment Act of 2009. BBRI focuses on broadband infrastructure mapping and broadband planning in the State of Rhode Island. Programs address public awareness and education about broadband and study and develop plans to increase adoption rate and

broadband usage across schools, businesses and CAIs. To learn more about BBRI please visit: <http://broadband.ri.gov>

Both the RIODE and BBRI initiatives support this Expression of Interest.

## PROJECT OVERVIEW

OSHEAN has been working with the Town New Shoreham, the Town of South Kingstown and the RIODE which established BBRI to produce a long-term solution for Block Island. We have been working to secure tower access in South Kingstown on the mainland and on the island and will have an architecture to distribute traffic to the town administration building (includes the fire and police departments), the school, the library and the Block Island Health Center. We will be utilizing the latest in packet radio transmission systems which, given the distance, should produce a synchronous transmission rate of up to 750 Mbps. We believe this is more than sufficient bandwidth for the CAI community as a whole and will serve the community well for many years. The packet radios will then have direct connections to the OSHEAN fiber backbone in South Kingstown and from there, can transit to the many service points throughout the region. OSHEAN would be the grant recipient and prime administrator for the project in full partnership with the Town of New Shoreham.

This will be a substantial upgrade to the current technology for the entire CAI community from the outdated time-division multiplexed (TDM) T-1 (1.5 Mbps) circuit to the school and very low speed and unreliable TDM circuits to the other facilities. The proposed architecture is working very well now on the OSHEAN network for other member institutions that could not be cost effectively be reached with a traditional fiber last mile solution.

The OSHEAN solution in this Expression of Interest represents an advanced networking infrastructure that will deliver:

- High bandwidth packet radio transport to the island with direct circuits to the Town administration, police and fire departments, the New Shoreham School and Library and the New Shoreham Health Center.
- Up to 750 Mbps synchronous transmission point to point.
- Layer Three routing equipment.
- High speed Internet access.
- Site to Site Virtual Private Line Service (VPLS) networking with virtually instant turn up.
- Site to Site VPLS direct connectivity to other OSHEAN member sites such as the University of RI, RI State Data Center, RI Emergency Management, K-12 schools, and all member hospitals.
- Access to Internet2 and the Northeast Regional Education Network (“NEREN”).
- On net commercial peering and Akamai caching for high bandwidth apps like Apple iOS, Microsoft Updates, Netflix, etc., which greatly reduces costs and significantly improves performance.

## OTHER CONSIDERATIONS

In the future, we see the network as designed to continually bring new services to Block Island and the constituent entities that will use Block Island's network access. In this architecture, the CAIs can choose how much bandwidth is assigned to each of the sites and services they desire and can change those assignments on a moment's notice. This includes the ability to create circuits on demand to member sites and application services. For example, OSHEAN has recently extended the Beacon 2.0 network to provide a direct, on-net connection to one of the world's leading cloud service providers to support advanced virtual compute, storage, disaster recovery and desktop services. This will allow the schools to easily migrate to a BYOD or one-to-one program for the students. There are many consolidation and efficiency projects happening on a state-wide basis for centralized application and storage hosting that would now be available to New Shoreham as well. A direct connection for the Block Island Health Center to the State's new Health Care Exchange could also easily be achieved with this new infrastructure.

## OTHER RURAL DISTRICTS

There are also three rural School districts that were not able to be included in the original BTOP project due to cost and time considerations. Each of these districts could now be served if funding becomes available. The RI school districts of Little Compton, Chariho and Foster-Glocester are rural district census blocks that are not currently served by broadband and OSHEAN would like to complete the state-wide architecture to include these last three districts.

## NEW SHOREHAM BUSINESS AND RESIDENTIAL PILOT

The Town of New Shoreham is well aware of the value of connecting its CAI community but is also concerned with the detrimental effects of not having broadband service coverage for its local businesses and residents. As part of the overall architecture of this project, OSHEAN proposes to partner with a commercial provider to develop a pilot installation for commercial and residential connectivity that would utilize the same high speed packet radio technology from a different launch point on the mainland to serve a subsection of Block Island's businesses and residences. While the exact coverage area has not been determined at this time, we do envision a gateway service being developed in the area of Old Harbor, Block Island, which has the highest concentration of businesses including the most popular hotels. Old Harbor also has a higher concentration of residences. By utilizing a diverse path, each radio link becomes a fallback path for the other creating a resilient topology.

OSHEAN envisions this partnership will create the foundation for a long-term model for the Block Island. Technologies and applications utilized for the transport and distribution platforms between this pilot and the CAI portion of the program are consistent and of the highest capabilities available today. While the partner for this component of project cannot be named as of this time, we expect that a partner will be named for the Formal Proposal.

## PROJECT ESTIMATES

This project cost overview provided below is a high level estimate that incorporates the following considerations:

- Final equipment pricing has not yet been secured.
- Final Tower Access Agreements are not yet in place.
- Final surveys for the three rural schools districts (Little Compton, Chariho and Foster-Glocester) have not yet been completed.
- Final Project Management and Network Engineering estimates have not yet been completed.

Block Island Project Equipment	\$ 80,000
Tower Access	\$ 30,000
Block Island Project Management	\$ 25,000
Little Compton Loop Construction	\$158,000
Chariho Loop Construction	\$ 84,000
Foster-Glocester Loop Construction	\$ 40,000
School District Equipment	\$ 50,000
School District Project Management	\$ 10,000
Legal and Administration	\$ 7,500
New Shoreham Business and Residential Pilot	\$500,000
<b>Project Totals</b>	<b>\$984,500</b>



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Expression of Interest

WC Docket No. 10-90

Adult Education and Health & Human Services CAIs

March 7, 2014

# Expression of Interest

## Adult Education and Health & Human Services CAIs

### INTRODUCTION

OSHEAN, a Rhode Island based Research and Education Network (“REN”) established in 1999, is a standalone 501(c)(3) non-profit entity. OSHEAN is a membership driven organization with a mission to advance the technology infrastructure and services available to the region’s Community Anchor Institutions (“CAI”). Today, OSHEAN serves the Higher Ed, K-12 and Libraries, State and Local Government, Healthcare and Non-Profit (“NP”) communities in Rhode Island and Southeastern Massachusetts.

In 2010, OSHEAN, representatives of RI’s state government, state education and healthcare leaders collaborated to secure a Broadband Technology Opportunities Program (“BTOP”) grant of \$21.7 million in Federal funds (CCI Grant NT10BIX557013) and raised \$10.7 million in private matching funds to build a 475 mile fiber optic backbone that now connects many of the state’s CAIs at speeds between 1 Gbps and 10 Gbps. OSHEAN’s successful BTOP grant project, now known as Beacon 2.0, was completed in August 2013 and now connects over 125 CAI facilities including the University of RI, Community College of RI, RI College, numerous state facilities such as the State Data Center, 39 school districts, 16 library facilities and the state’s three largest hospital groups (Lifespan, Care New England and CharterCare) with direct fiber in a highly resilient mesh backbone. Through this effort, OSHEAN demonstrated its ability to execute a sizeable and complex grant project as the project was completed on time, on budget and ultimately connected almost double the number CAIs that were proposed in the original grant for the same budget. As a result of Beacon 2.0, the CAIs now have significantly greater broadband capacity at significantly lower prices.

The Beacon 2.0 network is a significant regional asset that should be leveraged as soon as possible for the benefit of the underserved community of NP CAIs dedicated to Adult Education and Health & Human Services. OSHEAN has targeted the Adult Education and Health & Human Services sectors since it believes these sectors have the most relevant and urgent needs and the most potential for delivering a highly positive economic impact on the region.

### BACKGROUND

Early in 2013, OSHEAN began exploratory conversations with the Rhode Island Foundation (“RIF”), which is RI’s largest NP foundation. Both OSHEAN and the RIF agreed that a technology investment plan was required to assist the RI NP CAI community, especially in the Adult Education and Health & Human Services sectors. OSHEAN consistently heard that the most significant barrier to technology adoption and utilization was the lack of sufficient funding to implement and sustain high speed broadband connectivity. OSHEAN further heard that the focus on technology NP planning and technology investments had fallen to the back burner and that the technology infrastructures had become outdated and unstable. The lack of Internet performance also prevented these agencies from considering new services for their staff and the communities they serve. These conditions foster daily technology crises and

significant user frustration. Compounding the problem is the ever increasing demand for on-line methods for teaching and learning, assessment, health care records management and state and federal reporting.

The NP CAI's increasing populations and growing dependency on new technologies to serve their constituents cannot be met with current budgets. By not addressing this sector, we create a new digital divide. The student/client and entry level educator/caseworker are not getting access to the contemporary technologies needed to be successful. Staff, clients and students expect better user engagement experiences from technologies like: relevant learning and instructive self-care sites, remote/mobile self-service tools, accessible electronic record keeping, and use of social/digital media. Newer, more complex business tools are required to manage finances, provide internal/external reports, and manage security/compliance risk. The intent of this initiative is to deliver improved outcomes and operational efficiencies.

All of these technology enabled tools require reliable, expandable Internet connectivity capable of growing with the NP CAI's needs. Providing last mile connectivity to OSHEAN's Beacon 2.0 network can significantly impact the survival and future successes of these critical NP CAIs and the vital programs they operate.

The cost of connecting NP CAI sites to OSHEAN's BTOP Beacon 2.0 network is prohibitive to an individual NP. The cost of each connection can range from \$10,000 to \$60,000. Most Adult Education and Health & Human Services institutions have multiple administrative, service delivery and classroom sites. Each site requires new or upgraded broadband connectivity to efficiently and effectively administer and expand their programs and populations served.

## PROJECT OVERVIEW

This will be a significant upgrade to the current technology for the entire NP CAI community from the outdated time-division multiplexed (TDM) T-1 (1.5 Mbps) and other very low speed and unreliable TDM circuits. In some cases, interruptions in these services can have life threatening implications. This technology upgrade will bring this community into alignment with the other health care, administrative and school systems in the state.

OSHEAN will partner with a commercial provider to construct the fiber loops in this proposal. Vendor selection will happen during the time period between the Expression of Interest and Formal Proposal stages.

The OSHEAN solution in this Expression of Interest represents an advanced networking and application infrastructure delivering:

- Layer Three routing equipment.
- High Speed Internet access.
- Site to Site Virtual Private Line Service (VPLS) networking with virtually instant turn up.
- Site to Site VPLS direct connectivity to other OSHEAN member sites such as Universities, State Data Center, RI Emergency Management, Department of Labor, Department of Health, and all member hospitals.
- Access to Internet2 and the Northeast Regional Education Network ("NEREN").

- On net commercial peering and Akamai caching for high bandwidth apps like Apple iOS, Microsoft Updates, Netflix, etc., which greatly reduces costs and significantly improves performance.
- Desk as a Service (“DaaS”) is a monthly subscription service that enables end-users to access resources, software, and information with any device on-demand. Because it runs on the Beacon 2.0 backbone, DaaS delivers a premium user experience at a low cost. The service is easy to manage, and it boasts a host of advantages, including: the highest model of security, no requirement to upgrade for new operating systems or applications, and dedicated resources for each discrete client for compliance and security purposes.
- Infrastructure as a Service (“IaaS”): In the past, running a new database and sharing it across multiple departments required the purchase of additional hardware. With IaaS, the NP CAI’s can run shared applications more efficiently via a monthly subscription to on-demand computing power and storage.
- Storage as a Service (“SaaS”) enables the NP CAI’s to store data in a highly secure, reliable environment that grows to accommodate the quantity of data they need to store. End-users pay a low unit price and are only charged for the actual space they use each month. Stored data is completely accessible on-demand from any device with internet access.
- Hosted VOIP: Many NP CAIs are currently using antiquated and expensive voice infrastructures. Capital to replace these systems is non-existent and furthermore, the right way to handle this in today’s technology would be to move to a hosted solution using IP. A reliable high speed network is essential to this migration.

## OTHER CONSIDERATIONS

In the future, we see the infrastructure becoming a shared resource as individual NP CAIs in the same sector start sharing applications instead of managing multiple “one-off” solutions in the silos that exist today. Efficiencies required from budget constraints will drive both functional and physical consolidations in the near future. This proposal will facilitate that migration.

An example of this idea in the Adult Education community is the leveraging of high schools and libraries for student space and shared technologies. OSHEAN has built gigabit access to 16 libraries and over 50 high schools throughout the state and this proposal would allow a complete tie-in of those facilities with the facilities operated by the Adult Education CAIs. This would reduce overall costs, increase accessibility and enable access to a consistent set of tools including the move to an on-line GED program.

## PROJECT ESTIMATES

This project cost overview is given as a high level estimate with the following considerations:

- Final equipment pricing has not yet been secured.
- Final site surveys have not yet been completed.
- Final loop construction costs have not yet been secured.
- Final Project Management and Network Engineering estimates have not yet been completed.

Health and Human Services NP Loop Construction (30 sites)	\$ 750,000
HHS Equipment	\$ 600,000
Adult Education Loop construction (20 sites)	\$ 500,000
Adult Ed Equipment	\$ 400,000
HHS project personnel	\$ 200,000
Adult Ed project personnel	\$ 100,000
Adult Education/Library integration engineering	\$ 75,000
Legal and Administration	\$ 25,000
<b>Project Totals</b>	<b>\$2,650,000</b>

## PROJECT MATCHING FUND OPPORTUNITIES

OSHEAN believes that this project will be open to receiving matching funds through the RIF and other charitable organizations in the state. OSHEAN has performed very well in the past in raising matching funds and we would expect to do the same for this project. OSHEAN has not yet determined a matching fund percentage or received any specific matching fund commitments.

## RHODE ISLAND FOUNDATION SUPPORT

In concert with the RIF, OSHEAN has developed a vision to purposefully upgrade RI's Adult Education Services and Health & Human Services technologies to allow each to better focus on their respective missions. Working with the RIF, OSHEAN will design and deploy reliable and cost effective access to its cloud services. These cloud services will allow different NP's to benefit from the use of standard cloud-based technology. Funding for deployment, maintenance, support of and training for these services will be requested as part of a matching fund from the RI Foundation with OSHEAN providing in kind contributions as well to these important CAI's.



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