

Submitted Date: Easygrants ID: 64	108
Funding Opportunity: Broadband	Applicant Organization:
Technology Opportunities Program	ONWAV INC.
Task: Submit Application - BTOP	Applicant Name: Mr. Michael Dale Powell

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A. General Application Information

Applicant Information	
Name and Federal ID for Applicant	
DUNS Number	800782943
CCR # (CAGE)	4TAT3
Legal Business Name	ONWAV INC.
Point of Contact (POC)	MICHAEL POWELL 9315447224
	Ext. Mpowell@OnWav.com
Alternate POC	CHARLOTTE SMITH 9312398175 Ext. Csmith@OnWav.com
Electronic Business POC	MICHAEL POWELL 9315447224 Ext. Mpowell@OnWav.com
Alternate Electronic Business POC	CHARLOTTE SMITH 9318795482 Ext. Csmith@OnWav.com

Name and Contact Information of Person to be Contacted on Matters Involving this Application:		
Prefix	Mr.	
First Name	Michael	
Middle Name	Dale	
Last Name	Powell	
Suffix		
Telephone Number	931-544-7224	



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Fax Number	
Email	Mpowell@onwav.com
Title	President/CEO

### Additional Contact Information of Person to be Contacted on Matters Involving this Application:

Project Role	Name	Phone	Email
Other Contact	Mr. Sanford , Jewett	2408380461	sanford.jewett@ widelity.com
Secondary Point of Contact	Ms. Charlotte, Smith	9312398175	csmith@onwav. com

### **Environmental Point of Contact**

Prefix: Mr.

Name: Powell, Michael

Suffix:

Telephone Number: 9315447224

Title: President/CEO

Organization Classification	
Type of Organization	For-profit Entity
Is the organization a small business?	Yes
Does the organization meet the definition of a socially and economically disadvantaged small business concern?	No



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Authorized Organizational Representative		
AOR Name	Powell, Michael	
Result	Applicant Authorized	

#### **Project Title and Project Description**

Project Title: Five County Broadband Interconnected Training Access

Project Description: To create a Middle and Last mile Wide Area Broadband Network that has at its core an interactive educational training room at each anchor institution such as county schools, county governments, libraries, community centers, community colleges, technology center, jails and etc. Employability skills training as well as educational enrichments leading to economic growth can be taught at each anchor.

### **CCI Priority Checklist**

#### The following items were selected from the CCI Priority Checklist:

- 1. This project will deploy Middle Mile broadband infrastructure to community anchor institutions.
- 2. The project will deploy Middle Mile broadband infrastructure and has incorporated a public-private partnership among government, non-profit and for-profits entities, and other key community stakeholders.
- 3. This project will deploy Middle Mile broadband infrastructure in economically distressed areas.
- 4. This project will deploy Middle Mile broadband infrastructure to community colleges.
- 5. This project will deploy Middle Mile broadband infrastructure to public safety entities.
- 6. This project will deploy Middle Mile broadband infrastructure and either includes a Last Mile infrastructure component in unserved or underserved areas or has received commitments from one or more Last Mile broadband service providers to utilize the Middle Mile components. Any Last Mile components in rural areas do not exceed 20% of the total eligible costs of the project.
- 7. This project will deploy Middle Mile broadband infrastructure and the applicant has proposed to contribute 30 percent or more in non-federal cost match.

### **Comprehensive Community Infrastructure Components**



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#### The following items were selected from the Comprehensive Community Infrastructure Components:

Middle Mile

Last Mile Rural

#### **BIP Applicants**

Have you also applied to BIP for funding in the sample proposed funded service area?

> No

If Yes, please provide the project title and Easygrants ID number:

Title of Joint BIP Application:

Easygrants ID:

### **Other Applications**

Is this application being submitted in coordination with any other application being submitted during this round of funding?

> No

Easygrants ID	Project Title	

If YES, please explain any synergies and/or dependencies between this project and any other applications.

### **Individual Background Screening**

Is the Applicant exempt from the Department of Commerce requirements regarding individual background screening in connection with any award resulting from this Application?

> No, Applicant is subject to these requirements



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If the answer to the above question is "No," please identify each key individual associated with the Applicant who would be required to complete Form CD-346, "Applicant for Funding Assistance," in connection with any award resulting from this Application:

Name	Title	Employer
Michael Powell	President/CEO	OnWav, Inc
Charlotte Smith	Director of Customer Care and Marketing	OnWav, Inc
Beaureguard Smith	Vice President of Operations and Marketing	OnWav, Inc

## B. Executive Summary, Project Purpose and Benefits

### **Essay Question**

### **Executive Summary of the proposed project:**

The Five County Broadband Interconnected Training Access (FCBITA) seeks to bring high-speed broadband to underserved areas of Northern Middle Tennessee which historically have been unable to participate in the new Internet economy. FCBITA seeks to address the historic and ongoing problem of underinvestment in, and underdevelopment of, the information superhighway in this part of the world, and the resulting stagnation of education and industry.

The towns directly impacted by the FCBITA Project are Allardt, Byrdstown, Celina, Gainesboro, Jamestown and Livingston. These towns today are primarily served by a single small telephone cooperative ILEC, which is undercapitalized and not service oriented. The local cable operators do not offer VoIP at all, nor does the ILEC. These providers have no reselling programs, so no third party providers exist. Internet access speeds and adoption rates today in the region fall well below the goals set by the Obama Administration in its Broadband Internet Plan.

OnWav seeks to take advantage of the BTOP CCI program to address these issues through an aggressive campaign of bringing high-speed access first. This access will then facilitate the



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creation of Internet-based training and computer education, so that the citizens of this area can leverage the power of the Internet for communication, commerce, education, entertainment and community organization. As a broadband access provider and morphing to a role of community technology proponent, OnWav has plans to participate in the creation of interactive training rooms within each anchor we provide service to, inclusive of local community colleges and emerging technology centers. Our broadband access will enable distance learning opportunities at every anchor institution bringing educational enhancement "on-demand" to students, employees, and general public alike.

The FCBITA Project will provide access to a potential 200 anchor institutions with public training centers designed with interactive capabilities which vitually bring teachers to each anchor in rea-time two-way video and audio. Anchors will benefit further by receiving increased speed and an immediate 25% reduction in their current cost of broadband.

The FCBITA Project will provide access to a potential 4,500 households and 725 businesses passed.

In addition to providing high speed internet access to anchor institutions, homes and businesses, as a result of our new infrastructure OnWav's emerging business plan includes the ability to offer additional value-added services and applications including:

- IP-based Voice Services
- o Audio and Video Conferencing
- o Hosted PABX
- Corporate Outsourced services
- o Private Networks
- o Secure WAN
- o Off-site recovery and back-up
- o Data warehouse
- Website Development and Hosting
- Distance Learning Facilities, Training and Programs
- o adult continuing education
- o re-training for the unemployed
- o collaboration between Higher Education institutions and Public Education institutions
- Telemedicine Facilities, Training and Programs
- o Remote diagnostics



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- o Medical alert services
- o Health education and training

OnWav's plan in the initial grant-driven phase is to build the middle-mile and last mile infrastructure, operate and grow the network end-to-end. Our open access architecture will allow us to expand our "operator" and "service provider" model to other third party last mile providers, thereby leveraging our middle mile facilities, and extending them to a variety of business models, including wholesale agreements such as providing backhaul services to Virtual Network Operators (VNOs) and other possible sharing arrangements with mobile carriers and Wireless Internet Service Providers (WISPs.

Because of the rural nature of most of the proposed area, the difficult terrain and the lack of existing infrastructure, wire-based communication is impractical due to prohibitive high installations costs as well as high ongoing maintenance. On Wav therefore proposes expanding and upgrading its existing Cookeville network via a Licensed Microwave System combined with a 4G WiMAX last mile network.

Though we are a small and young company, OnWav thinks big and delivers big. OnWav became cash flow positive in less than two years. Currently, we successfully manage all operations of our wireless network providing the full range of telecommunications including provisioning, billing, and customer service. Our ambition is to build the premier internet services company in Northern Middle Tennessee, and to expand our coverage throughout the region. This grant offers us a much-needed capital stimulus. Once established with our expanded footprint, we plan to continue to grow through organic growth and ongoing investment.

The total FCBITA Project cost is \$6,502,064. On Wav is prepared to contribute in excess of 20%, and so request a grant amount of \$5,184,516. This budget includes a microwave middle segment, extending the high-speed internet backbone from Cookeville into the five counties to its northeast. It also includes a last mile segment, with WiMAX radio access network and customer premise equipment (CPE) for every committed anchor in the region.

OnWay has forecast a total subscriber count by year 5 of about 1300, which is comprised on 150 anchors, 250 businesses and over 900 households. OnWay believes this to be a very conservative forecast. The region today has over 4,500 households and over 700 businesses.



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Given the past performance of the incumbent operators, OnWav believes it can over achieve its forecast.

OnWav has estimated that 25 direct jobs, 12 Indirect jobs, and 20 Induced Jobs will result from this project. This will have an immediate and lasting benefit to the region, and offers a powerful return on the investment of the grant funds.

The FCBITA Project fits the BTOP CCI program goals well and has real merit. The benefits for north middle Tennessee will be significant, immediate and long lasting.

#### Project purpose:

The Five County Broadband Interconnected Training Access (FCBITA) Project fits squarely within the statutory purposes and objectives of the BTOP program. FCBITA will extend a middle-mile microwave backbone for broadband service to underserved areas throughout north middle Tennessee. Additionally, FCBITA deploys last-mile connectivity in the towns of Allardt, Byrdstown, Celina, Gainesboro, Jamestown and Livingston, all of which are currently underserved, to bring much needed affordable broadband access to training centers, schools, first responders, emergency care providers and many other anchor institutions.

OnWay faces significant challenges in bringing broadband access to the citizens and anchor institutions on this section of the State. This section of Tennessee really needs a provider that can and will bring in large capacity internet capacity and services at affordable rates. In addition, these towns need a provider who is ready to work with local schools, governments and other organizations to provide affordable computer access and training. Currently, in the above listed towns, the only way to and from the internet is via the Twin Lakes Telephone Cooperative who does not have adequate capacity or resources to develop such internet connections or training facilities.

With an average population density of 36 persons per square mile, it has not been economically feasible for broadband to be deployed throughout much of the State. Large geographic areas are underserved, in part due to the lack of middle-mile architecture.

FCBITA will address this lack of middle-mile capacity by installing a microwave communications system to serve as a broadband pipeline throughout this section of the State. FCBITA will provide the needed funding to complete this microwave middle mile within the



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next two years, concurrently implementing last mile connectivity using WiMAX wireless coverage in six (6) towns.

FCBITA will facilitate Last Mile broadband access to consumers and businesses in underserved and economically depressed areas of the State and to anchor institutions including schools, libraries, medical and healthcare providers, community colleges and public safety entities. The proposed expansion of OnWav's network will be critical to meeting the broadband needs of the State.

Among the critical applications OnWav intends for the system is the provision of broadband services to anchor institutions for first-responder public safety use. Anchor institutions will be able to utilize the network for primary public safety applications as well as providing a backbone for tele-health, video conferencing, and data applications. Reciprocal agreements will be executed with local providers covering emergency backup for public safety uses.

The FCBITA project demonstrates broad significance to northern middle Tennessee and its residents. Without this infrastructure in place, future broadband service to this large area of the State would be much more difficult and costly, if not economically infeasible.

FCBITA will bring broadband access to both underserved portions of the State. Tennessee is a sparsely populated State, with 15% of people living in poverty, ninth highest in the nation. FCBITA will not only extend broadband access to economically disadvantaged areas but will help to create jobs and stimulate economic development in these areas through the construction and maintenance of broadband facilities.

FCBITA satisfies all five BTOP statutory purposes. It will enable Last Mile broadband access to consumers in un-served, underserved and economically depressed areas of the State as well as to a wide variety of anchor institutions, including schools, libraries, medical and healthcare providers, community colleges and public safety entities. It will also allow fund a critical last mile component providing broadband service at affordable rates. Without the requested federal funding this project cannot be completed.

#### **Recovery Act and Other Governmental Collaboration:**

OnWav plans to work closely with various governmental agencies – municipal governments, public safety agencies, community education, healthcare – to extend the benefits and promise of



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high-speed broadband to the communities of Allardt, Byrdstown, Celina, Gainesboro, Jamestown and Livingston Tennessee. Many of these partners have expressed their enthusiasm for this project in the many attached Support letters.

These towns in northeast Tennessee have not historically enjoyed the benefits of the new internet economy. But the recognize the power of the internet and wish to enjoy the efficiency of distance learning, tele-medicine and other internet-based services.

OnWav plans to implement internet training centers through the service area and to facilitate internet education and access through affordable residential and business service plans, combined with internet training centers located in public facilities.

On Wav is not participating in any other ARRA grant or loan programs at the present time.

#### Fit with BTOP CCI Priorities:

As set forth below, this project meets the objectives of six of the possible seven CCI priorities.

1. The Five County Broadband Interconnected Training Access (FCBITA) Project will deploy Middle Mile broadband infrastructure to community anchor institutions.

FCBITA will providing services to anchor institutions, including schools, libraries, medical and healthcare providers and public safety entities. A total of 151 community anchor institutions will have access to digital broadband service as a result of this statewide Middle Mile project. A complete is list of these institutions is provided in upload 18.4.

2. The project will deploy Middle Mile broadband infrastructure and has incorporated a public-private partnership among government, non-profit and for-profits entities, and other key community stakeholders.

This project incorporates partnerships among various state government agencies including the Department of Public Safety, the Department of Health, the Higher Education Department and the local anchor institutions working with these agencies throughout the State.



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3. This project will deploy Middle Mile broadband infrastructure in economically distressed areas.

FCBITA will provide a five county, six town footprint with the capability to connect anchor institutions to broadband services. Parts of this footprint will cover economically distressed areas. These areas include all six towns of the project, Allardt, Byrdstown, Celina, Gainesboro, Jamestown and Livingston.

4. This project will deploy Middle Mile broadband infrastructure to community colleges.

FCBITA will allow community colleges to have access to broadband services. In all, 2 community colleges and a technology center will benefit from the "Middle Mile" broadband infrastructure being deployed by this project. (See attachment 18.4 for a list of these community colleges).

5. FCBITA will deploy Middle Mile broadband infrastructure to public safety entities.

The backbone will provide broadband access to a wide range of public safety entities in all areas of the state enhancing existing broadband capabilities for these critical anchors.

6. This project will deploy Middle Mile broadband infrastructure and includes a Last Mile infrastructure component in underserved areas. Any Last Mile components in rural areas do not exceed 20% of the total eligible costs of the project.

FCBITA will deploy last mile services in six (6) towns using WiMAX wireless service. Among the list of anchors who are eagerly awaiting connection to this high-speed broadband network are police departments, fire departments, community colleges, libraries, adult education programs, low-income housing, county governments, and jails. The spirit of this grant is to connect as many critical community institutions as possible.

Is the applicant seeking a waiver of the Buy American provision pursuant to section x.Q of the NOFA?

> No

Is the applicant deliquent on any federal debt?

> No



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If Yes, justification for deliquency:

Are you seeking a waiver of any requirement set forth in the NOFA that is not mandated by statute or applicable law?

> No

Is the applicant a current recipient of a grant or loan from RUS?

> No

### C. Partners

Are you partnering with any other key institutions, organizations, or other entities for this project?

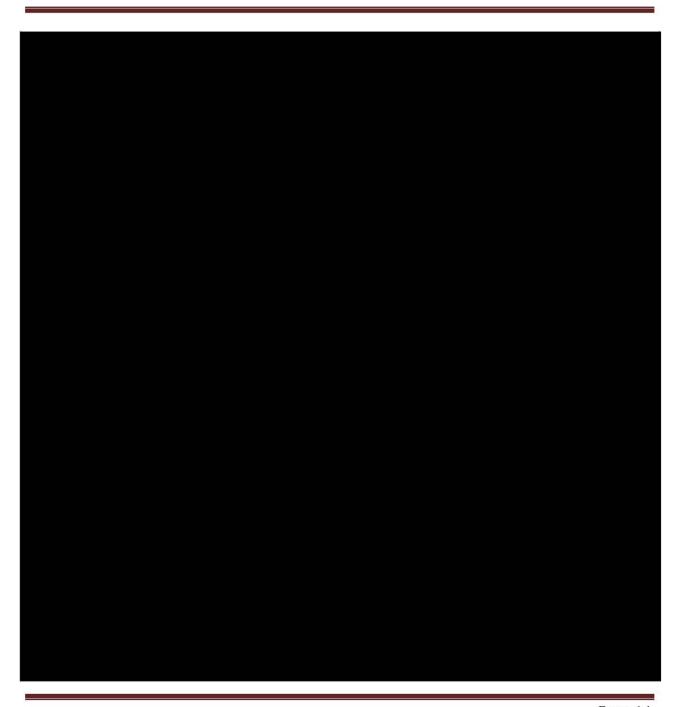
> Yes

If YES, key partners are listed below:





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### Description of the involvement of the partners listed above in the project.

These key partners play a major role in providing leadership to all other benefitting anchors. They will receive free access to bandwidth as well as a free training center at their individual locations for helping pull the community support together.

These partners will assist in pulling entire community anchors together so that, not only single communities benefit from having access to onsite, on-demand training, but each community also benefits as a whole by being interlinked through the secure wide-area-network that this grant creates.

Partners will assist with securing structure access such as watertanks and area buildings that are required for wireless equipment placement.

## **D.** Congressional Districts

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Tennessee

### **Project Service States**

Tennessee

### **Project Service Areas**

Tennessee - 6

Tennessee - 4

Will any portion of your proposed project serve federally recognized tribal entities?

> No



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Indicate each federally recognized tribal entity your proposed project will serve.

Have you consulted with each of the federally recognized tribal entities identified above?

> No

### E. Service Area Details

Is the applicant seeking a waiver for providing less than 100% coverage of a service area?

> No

#### **Project Details**

Service Area Type: Middle Mile

Service Area Name: Six Northern Towns of the Upper Cumberland of

Tennessee

Rural Classification of the Last Mile Service Area: Rural

Service Status of the Last Mile Service Area: Underserved

### If Service Status is "Underserved" please select at least one applicable option from this list.

The rate of broadband subscribership for the proposed funded service area is 40% of households or less.

Total Square Miles in Service Area: 17

Total Population in Proposed Service Area: 9,062
Total Number of Households in Service Area: 4,567
Total Number of Businesses in Service Area: 725

Total Number of Community Anchor Institutions and Public Safety Entities in Proposed Funded Service

Area: 239

Unemployment Rate in the Service Area: 15
Median Income in the Service Area: 21,421

Estimated Percentage of Households with Access to Broadband: 100 Estimated Percentage of Households Subscribing to Broadband: 26



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Service Area Type: Last Mile Service Area Name: Byrdstown

Rural Classification of the Last Mile Service Area: Rural

Service Status of the Last Mile Service Area: Underserved

#### If Service Status is "Underserved" please select at least one applicable option from this list.

The rate of broadband subscribership for the proposed funded service area is 40% of households or less.

Total Square Miles in Service Area: 2

Total Population in Proposed Service Area: 910
Total Number of Households in Service Area: 468
Total Number of Businesses in Service Area: 82

Total Number of Community Anchor Institutions and Public Safety Entities in Proposed Funded Service

Area: 18
Unemployment Rate in the Service Area: 18
Median Income in the Service Area: 19,375

Estimated Percentage of Households with Access to Broadband: 100 Estimated Percentage of Households Subscribing to Broadband: 26

Service Area Type: Last Mile Service Area Name: Celina

Rural Classification of the Last Mile Service Area: Rural

Service Status of the Last Mile Service Area: Underserved

#### If Service Status is "Underserved" please select at least one applicable option from this list.

The rate of broadband subscribership for the proposed funded service area is 40% of households or less.

Total Square Miles in Service Area: 2

Total Population in Proposed Service Area: 1,364
Total Number of Households in Service Area: 715
Total Number of Businesses in Service Area: 89

Total Number of Community Anchor Institutions and Public Safety Entities in Proposed Funded Service

Area: 25
Unemployment Rate in the Service Area: 15
Median Income in the Service Area: 19,435



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Estimated Percentage of Households with Access to Broadband: 100 Estimated Percentage of Households Subscribing to Broadband: 23

Service Area Type: Last Mile Service Area Name: Allardt

Rural Classification of the Last Mile Service Area: Rural

Service Status of the Last Mile Service Area: Underserved

### If Service Status is "Underserved" please select at least one applicable option from this list.

The rate of broadband subscribership for the proposed funded service area is 40% of households or less.

**Total Square Miles in Service Area:** 4

Total Population in Proposed Service Area: 646
Total Number of Households in Service Area: 286
Total Number of Businesses in Service Area: 20

Total Number of Community Anchor Institutions and Public Safety Entities in Proposed Funded Service

Area: 4
Unemployment Rate in the Service Area: 14
Median Income in the Service Area: 34,412

Estimated Percentage of Households with Access to Broadband: 100 Estimated Percentage of Households Subscribing to Broadband: 26

Service Area Type: Last Mile Service Area Name: Jamestown

Rural Classification of the Last Mile Service Area: Rural

Service Status of the Last Mile Service Area: Underserved

### If Service Status is "Underserved" please select at least one applicable option from this list.

The rate of broadband subscribership for the proposed funded service area is 40% of households or less.

Total Square Miles in Service Area: 3

Total Population in Proposed Service Area: 1,844
Total Number of Households in Service Area: 1,010



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Total Number of Businesses in Service Area: 203

Total Number of Community Anchor Institutions and Public Safety Entities in Proposed Funded Service

Area: 33 Unemployment Rate in the Service Area: 14 Median Income in the Service Area: 12,136

Estimated Percentage of Households with Access to Broadband: 100 Estimated Percentage of Households Subscribing to Broadband: 29

Service Area Type:Last MileService Area Name:Gainesboro

Rural Classification of the Last Mile Service Area: Rural

Service Status of the Last Mile Service Area: Underserved

### If Service Status is "Underserved" please select at least one applicable option from this list.

The rate of broadband subscribership for the proposed funded service area is 40% of households or less.

Total Square Miles in Service Area: 2

Total Population in Proposed Service Area: 867
Total Number of Households in Service Area: 439
Total Number of Businesses in Service Area: 88

Total Number of Community Anchor Institutions and Public Safety Entities in Proposed Funded Service

Area: 27
Unemployment Rate in the Service Area: 14
Median Income in the Service Area: 19.861

Estimated Percentage of Households with Access to Broadband: 100 Estimated Percentage of Households Subscribing to Broadband: 32

Service Area Type:

Service Area Name:

Last Mile

Livingston

Rural Classification of the Last Mile Service Area: Rural

Service Status of the Last Mile Service Area: Underserved

If Service Status is "Underserved" please select at least one applicable option from this list.

The rate of broadband subscribership for the proposed funded service area is 40% of households or less.



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Total Square Miles in Service Area: 5

Total Population in Proposed Service Area: 3,431
Total Number of Households in Service Area: 1,649
Total Number of Businesses in Service Area: 243

**Total Number of Community Anchor Institutions and Public Safety Entities in Proposed Funded Service** 

Area: 33 Unemployment Rate in the Service Area: 13 Median Income in the Service Area: 23,309

Estimated Percentage of Households with Access to Broadband: 100 Estimated Percentage of Households Subscribing to Broadband: 26

## F. Community Anchor Summary

Community Anchor Summa	Community Anchor Summary				
Schools (k-12)	37				
Libraries	5				
Medical and Healthcare Providers	17				
Public Safety Entities	21				
Community Colleges	2				
Public Housing	23				
Other Institutions of Higher Education	1				
Other Community Support Organization	4				
Other Government Facilities	41				
TOTAL COMMUNITY ANCHOR INSTITUTIONS	151				



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Historically Black colleges and Universities	Ō
Tribal Colleges and Universities	0
Alaska Native Serving Institutions	0
Hispanic Serving Institutions	0
Native Hawaiian Serving Institutions	0
TOTAL MINORITY SERVING INSTITUTIONS	0

## G. Project Benefits

### **Demographics**

Jobs	Vo
How many direct jobs-years will be created from this project?	25
How many indirect jobs will be created from this project?	12
How many jobs will be induced from this project?	20

### Methodology used to estimate jobs:

OnWay selected "Estimates of Job Creation from the American Recovery and Reinvestment Act of 2009" May 2009 report to measure job creation. In that report, estimates for the job-years created by government spending indicate that it takes approximately \$92,000 of spending to create one job year. OnWay's total project is valued at \$6.5 million. We are requesting \$5.184 million in federal government BTOP grant funding. Using the government's figure of \$92,000/job-year, we arrive at 57 total job-years (\$5.184 million/\$92,000). Per the Council's report, 64% of the job-years represent direct and indirect effects (or 37 job-years for our project), and 36% of the jobs-years are induced effects (20 job-years for our project). Due the expansive construction required in this project, the OnWay projects 2/3 of the 37 direct and indirect job-years will be direct in nature (25), and the remaining will be indirect (12).



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It should be noted here, that OnWav believes these figures are very conservative for several reasons. First, they are based only on the federal spending associated with the project. Second, the historically lower wages and other costs associated with doing a project of this nature within the State of Tennessee. And third, due to the rapid deployment and expansive coverage area associated with this project, we will need a large and focused workforce.

### **Project Impact:**

The Five County Broadband Interconnected Training Access (FCBITA) project seeks to bring high-speed broadband to underserved areas of Northern Middle Tennessee which historically have been unable to participate in the new internet economy. This project will extend a state-of-the-art microwave middle mile backbone with a 4G WiMAX fixed wireless last mile to areas which today have limited, expensive and slow legacy offerings at best.

Over the proposed service area, the household penetration rates for broadband run at a startlingly low 26%, ranking these areas among the lowest in the country. Three in four homes do not have broadband today; clearly this is the exact kind of area which the ARRA itself and BTOP program was designed to address. This low adoption is a reflection of many factors – depressed economics, low computer literacy and sparse population density. In addition, much of the area is served by telephone cooperatives which are under-capitalized and therefore unable to pursue ambitious development in new technologies and plant.

The BTOP broadband grant program offers the promise of an economic stimulus for Northern Middle Tennessee and its citizens. By bringing high speed broadband facilities into this region, OnWav hopes to spark increased computer literacy and other educational opportunities. By providing broadband access, OnWav plans to partner within our target communities to implement interactive training and technology centers so computer ownership and access to technology will no longer be a barrier for people to enjoy the new internet economy. OnWav hopes that our FCBITA Project will serve as a model for the rest of the region and Tennessee as a whole, as the Obama administration proceeds with its aggressive plans to spread broadband to the entire USA.

Community anchor organizations are the primary focus of the FCBITA project and many have expressed their support for the project with letters which are attached hereto. To date, 151 community anchors have expressed an immediate interest to connect if these facilities can be built using BTOP grants.



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OnWav has, in fact, already made detailed plans with many anchors (libraries, schools, community colleges, jails) in all six towns to develop and make available training centers, with computers and training support. Remote education in the community college tech centers is of immediate interest. Adult education is also a priority focus area, via internet-based "distance learning."

In addition to the training focus, other community anchors, such as public safety entities (police, fire,) governmental organizations and other health centers have signed on to leverage the planned high-speed capacity, with the aim of finding operational benefits through internet-based services. Secure WANs are needed by these organizations but are not today available to them. Other services which FCBITA will enable include telemedicine, video conferencing, security cameras, environmental monitoring, and more.

While OnWav's initial focus is to connect its 151 committed anchors, within the first two years following a grant, the Company plans also to serve over 150 businesses and over 750 households in the area within a three year ramp up period. There are a number of low-income housing complexes in the proposed service area – OnWav plans to provide affordable price plans to these areas, with some free public WiFi access points as well, to encourage adoption and use.

This project will be transformational to the area, which today simply cannot participate in the new internet economy. On Wav hopes, by bringing state-of-the-art high-speed broadband access and training to the region, to take away the historic technology barriers that have held back the area and its citizens from the benefits of internet-based communication, education, entertainment and community.

#### **Vulnerable Populations:**

The service area we are proposing currently has near 15% unemployment. Only one provider exists in the proposed service area with the capacity to make an impact on end-users. This lack of competition holds off any would-be-providers and seriously limits the Middle Mile bandwidth availability and eliminates any broadband wholesale agreements. The whole of the area is totally dependent upon the ILEC for their broadband needs and high demand business class services are sparse. Cable companies have coax in and around town but have not built out as much as they should have over these many years. Without a push to upgrade facilities, residents will continue to fall behind other towns, cities, and communities.



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Due to the lack of other providers who are willing and able to deliver the needs to the community and to each end-user, the whole of these communities are at their mercy. This situation is unacceptable and the awarding of this grant will relieve the communities of this deficiency.

#### Level of Need:

The five proposed counties are completely designated as economically disadvantaged. More than just broadband is needed in this area to help elevate its citizens from a recession more prevalent here than most parts of the county. This project is designed to bring to each anchor, and thus the community, training center setups that will access educational institutes in a unique interactive format. Local colleges and technology centers can instantly provide seminars or complete college courses such as employability skills training and job search skills. Residents will save travel time and travelling expense by attending any one of these training centers deployed in their community.

Other entities attempt to provide broadband to end-users but this grant proposal reaches far beyond providing broadband, we provide access to training at no cost to this grant. On Wav proposes through this grant to deploy a secure WAN that connects all joining anchors together on one network for enhanced information sharing to workload sharing. Internet speeds to each anchor will allow them the accessibility that they are currently lacking.

### H. Technology

### **Technology Type**

Indicate the technology that will be used to deliver last mile services. The following items were selected:

Wireless - Terrestrial Fixed

Other

Other: Microwave for Middle Mile and WiMax for Last Mile

**Technology Questions** 

**Methodology for Area Status:** 



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OnWav has determined that its Middle Mile Service Area, named "Six Northern Towns of the Upper Cumberland of Tennessee" is underserved per the BTOP CCI Guidance definition, because the rate of terrestrial broadband subscribership for the Service Area is 40 percent of households or less. In fact recent data suggests that the adoption level is only about 26%. In addition to this adoption criterion, another reason for deeming this Service Area to be underserved is that there is only one middle mile service provider in the area, a small telephone cooperative.

OnWav has determined that all six (6) of its Last Mile Service Areas, named "Allardt," "Byrdstown," "Celina," "Gainesboro," "Jamestown" and "Livingston" are underserved per the BTOP CCI Guidance definition, because the rate of terrestrial broadband subscribership for all of these Service Areas is 40 percent of households or less. In fact recent data suggests that the adoption level is in the low 20% range. See attached a listing of existing broadband adoption rates for these Last Mile Service Areas.

#### **Description of Network Openness:**

### Description of Network Openness:

Interconnection to the middle mile backbone reaching community anchors is designed to offer open access to any provider that may wish to deliver a solution. Additionally, the interconnection among all of the community anchors will allow for greater access, resiliency and scalability across the designated counties. Using the previously defined model, interconnections created across the middle mile deployment will allow the anchor institutions such as schools, libraries, public safety divisions access to advanced technologies and services.

The middle mile solution for schools and libraries will enhance educational opportunities for the communities' members while giving these institutions the capability for distance learning and advanced classroom applications.

For the public safety institutions, the middle mile solution will permit data exchange required for the remote sharing of diagnosis and analysis for first responders that provide critical services during emergencies. Local sheriff and police will have access to state of the art services and technologies such as real-time data, critical in improving response times and enhancing productivity.



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The primary improvement this middle mile deployment brings is greater connectivity options to be designed and deployed in the future. In many cases, services that are available from providers in the area are not currently available because the middle mile options do not have the capability to provide the adequate service to the end user. Often times it is not in the financial interest of the providers to supply these services to the community.

Any entity wishing to join the network will be required to enter into an interconnection agreement with OnWav which identifies the terms and conditions of use. Associated networks will be administered by the respective vendor according to the policies drafted to meet the specific criteria of the entity being served.

#### **System Design:**

Broadband access to many of the community institutions in the Northern Section of the Upper Cumberland of Tennessee is lacking is due to the cost and lack of commitment by services providers to reach unserved and underserved areas. Because of the rural nature of most of the proposed area, difficult terrains and lack of existing infrastructure, wire-based communication is impractical due to prohibitive high-costs and challenging maintenance.

Because of these limitations, OnWav is proposing expanding and upgrading its sites via a Licensed Microwave System with WiMax 4G access to expand broadband services to anchor institutions such as schools and libraries as well as local police/county sheriff, first responders and etc. These middle mile links will provide these institutions with the access to state of the art services and technologies currently lacking

OnWav currently provides the citizens of Cookeville, TN broadband access via a licensed 3.65 GhzWiMax. The services provided are incorporated into the system across a Ethernet data pipe. Current capacity supports the necessary bandwidth for current use, however, but does not provide the needed growth capacity for expanded use, and is insufficient capacity for future growth.

OnWav proposes to add 3 primarily self-sufficient tower sites, to include shelters, towers and generators, to expand its existing system, and further to propose and install a Licensed Microwave system to 10 tower sites with access via WiMax licensed 3.65 Ghz at 6 anchor locations. The new network specifically improves middle mile broadband capability and last mile access to the proposed anchor sites in underserved rural and remote areas.



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The assets of this existing infrastructure include communications equipment, towers, rights-of-way, real estate, buildings, and other facilities. By leveraging Microwave and WiMax technology, OnWav will expand and upgrade its network by providing a cost-effective and shovel-ready approach to expedite broadband proliferation in underserved areas of the Northern Section of the Upper Cumberland of Tennessee, while also enhancing communications for schools libraries, local police/county sheriff, first responders and etc. The proposed system will provide Middle Mile connectivity enabling equal opportunity for Service Providers to reach the underserved areas in this region.

### **Key Network Components**

The objective of the proposed Middle Mile network is to transport traffic from targeted underserved areas of the Northern Section of the Upper Cumberland Region of Tennessee to the existing Service Provider networks.

OnWav will leverage its existing last mile infrastructure to build a Middle Mile network that provides broadband via Microwave and WiMax technology. The key components of this network are as follows:

This microwave network will be constructed to provide 400 MBPS of Middle Mile bandwidth. This bandwidth will provide the backhaul for additional provider's connectivity to any of the noted anchor institutions. Service providers will interconnect with the Middle Mile network via fiber optics at redundant locations, creating gateways to the service provider of choice. The Middle Mile network will transport traffic between these gateways and the Last Mile, where providers can deliver Last Mile services using multiple technologies. Wireless Technology Details:

WiMax Last Mile: The proposed WiMax system used 3.65 Ghz band. WiMax is a flexible and scalable IP based open standard technology platform. At line of sight distances of at least five miles, 3.65 GHz spectrum have achievable rates of 10 Mbps down to the subscriber and a 2 Mbps uplink from the subscriber.

7		
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Network Management:		
8		



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Spectrum availability: Spectrum has been pre-determined to be available for what is required by the design. FCC licensing and engineering has been included in this proposal.

Topology and Morphology of the Area: The design considers the terrain which has 40+ foot trees and 10 feet of growth to guarantee line of site now and in the future.

Power Levels at User Devices: The solution uses already proven, widely-used technology. All power levels will be within FCC recommendations.

Is the applicant seeking a waiver pursuant to section IX.C of the NOFA so as to sell or lease portions of the award-funded broadband facilities during their life?

No

## I. Project Budget

Project Budget		
1141	Federal Grant Request	Match
Last Mile	812,590	86,325
Middle Mile	4,371,926	1,231,223
Total	5,184,516	1,317,548

Project Budget Total: \$6,502,064

Match Percent: 20.3%

**Projects Outside Recommended Funding Range:** 

A

Outside Leverage	
Applicant is providing matching funds of at least 20% towards the total eligible project costs?	Yes



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None
None
The budget is set with minimum projections and maximum expenses. The proposed area has been serviced by a standing ILEC monopoly for more than 50 years. This unique opportunity to deploy broadband in an area where residents have never had a choice puts end-user projections on the high end and gives them an opportunity to lower their current rates and increase their speed.  Coupled with this is the fact that many anchors have already signed on (see letters) to OnWav. Anchors receive an interactive video/audio training room that will allow employees and the public to attend educational courses at any anchor in their town. The training rooms will literally bring live two-way education from two local community colleges and a technology center into the facilities of each anchor.  That said, the project reflects a deeper purpose and sheds more light on the relationships being built than simply any business selling to a customer. This project is a community building process that will increase the economic value of the community and residents.  A modest penetration rate of 15% for business and residential customers is the basis for forecasting this budget.
The northern counties of the Upper Cumberland region of Tennessee are some of the most disadvantaged counties in Tennessee and the



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United States. The region is mountainous and somewhat isolated because of the rough terrain and no major access to interstates. The people of this region face economical hardship daily as unemployment averages 15%, well above most parts of the country, and the median income is a mere \$19,000, nearly half of the rest of the country. Yes, the need is great.

The lack of educational opportunties is another critical need the people of this region have always suffered from. Racking very low on the state's scale and adding the fact that Tennesse ranks 47 on the US scale, it becomes completely obvious that the people here need other opportunities such as broadband and more access to training.

This proposal offers to install a free broadband interactive training center in each anchor and at the same time, lower internet access costs by 25%. The public will have access to attend training sessions in any of the anchors throughout the day as colleges extend their community reach by providing courses across this network.

#### **Funds to States/Territories**

States	Amount of Federal Grant Request
Tennessee	5,184,516

Funds to States/Territories Total: \$5,184,516

### J. Historical Financials

Matching Funds			
	2007	2008	2009
Revenue			
Expenditures			



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Net Assets	
Change in Net Assets from Prior Year	
Bond Rating (if applicable)	

## K. Project Readiness

### **BTOP Organizational Readiness**

OnWav is completely ready to deploy, manage, and make this proposed network successful and sustainable.

We have tested and perfected our equipment and technical skills over these past few years in every area of the wireless telecommunications industry. As proof, I present OnWav's current 30 square mile WiMax deployment in Cookeville TN. OnWav is successfully providing voice, data, and video to business residents of Cookeville as their last mile service provider.

Through we are a small and young company, OnWav currently partners with many nationally and globally recognized vendors who are current leaders in the wireless industry. Vendor's equipment, deploying, operating, managing, 24/7/365 monitoring, and most importantly, caring for customers are the core foundation that currently makes OnWav successful., OnWav is cash flow positive in less than two years and wishes to expand our footprint out to our neighboring towns. We believe that education is the key to an economic turn-around and our residents are extremely deprived of most the opportunities afforded to others across Tennessee and the nation.

OnWav is incorporated in the state of Tennessee and has an organizational structure of President/Vice President/Director and etc. We set our business model up on a very doable 15% penetration rate of both business and residential customers over a 3 year period. Currently, we successfully manage all operations of a wireless network providing the full range of telecommunications including provisioning, billing, and customer service.

#### **Construction and Vendor Contracts**



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#### **Customer Base**

OnWay does not have wireless broadband customers in the proposed service area.

However, OnWav does have many loyal customers in the proposed service who use our services such as Data T1s and switched long distance. Our largest area customer is LBJC, a non-profit organization who administers the federal Head Start Program to their other 21 locations in 14 surrounding counties. OnWav has designed and connected all 22 LBJC, Livingston-Byrdstown-Jamestown-Cookeville, facilities together with Data T1 technology for all their data and internet needs. We manage their data network for them and have recently begun providing all their phone service at their corporate headquarters in Cookeville. LBJC has a facility in each of our five proposed counties.

Other customers that we have in each of the proposed service area are switched long distance customers. We have serviced and built lasting relations with these switched customers for approximately 8 years. We have no reason to doubt their loyalty to us and we feel confident that they will allow us to provide their internet and phone service through our wireless broadband deployment should this grant be awarded to us.

#### Licenses, Regulatory Approvals and Agreements

Tennessee Regulatory Authority approved statewide CLEC, July 2008, Docket 0800046

Federal Communications Commission, Wireless Telecommunications Bureau, Radio Station Authorization, Call Sign WQIH439, File Number 0003274911 Common Carrier, Non Common Carrier, Private Channel Block 003650.0000000-003700.0000000MHZ

IRS EIN 20-8560825



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State Tax Resale Certification

Interconnection Agreements including local loops with

Tower Lease with



SPIN Number

OnWay currently does not have a spin number.

## L. Environmental Questionnaire

### **Project Description**

To accomplish the Five County Broadband Interconnected Training Access (FCBITA) Project, OnWav plans to construct three 250' tower structures, to achieve line of sight for microwave hops to the towns of Gainesboro, and on to Celina and Byrdstown. These towers are also needed to provide adequate coverage by the WiMAX wireless last mile network. At the following three sites, OnWav plans to construct such a tower, together with an adjoining equipment shelter.

Name Longitude Latitude Altitude (ft) AMSL
Structure
Byrdstown
Celinatown
Gainesboro Smith



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OnWav will undertake environmental studies in order to comply with the National Environmental Policy Act, the National Historic Preservation Act, and the Endangered Species Act, and other applicable environmental regulations.

### **Property Changes**

OnWav originally planned to use existing water tanks at all its microwave and WiMAX sites, but due to terrain challenges, it was deemed necessary to construct these towers, in order to accomplish line of sight for microwave hops to the towns of Gainesboro, and on to Celina and Byrdstown, and to enhance WiMAX coverage for these towns. OnWav plans to construct its towers adjacent to the existing water tanks, so minimal clearance of land will be required. The proposed towers are not close to any land under federal management. If granted, OnWav will undertake a study to ensure that there will be no adverse environmental impact to the Dale Hollow Reservoir, and the Cordell Hull Lake which are the only sensitive watersheds in this affected region.

#### Buildings

OnWay will construct small 65.38h x 72.00w x 36.00d equipment shelters at the base of the three proposed towers, to house radio transmission equipment, back-up electrical supplies, and back-up generators.

#### Wetlands

Initial checks of the U.S. Fish and Wildlife Service's National Wetland Inventory Web site show that the proposed three towers for OnWav's Five County Broadband Interconnected Training Access (FCBITA) Project will not be on or near any protected wetlands.

#### **Critical Habitats**

OnWav and its consultants have done an initial investigation into whether any project site(s) will directly or indirectly affect any threatened, endangered or candidate species or is within or near critical habitats. Attached in Supplemental attachments area is a spreadsheet listing all the protected species possible in the three counties impacted – namely, Clay, Jackson and Pickett counties – as listed on the U.S. Fish and Wildlife Service's Web site. If this project is granted, OnWav will undertake to do a thorough analysis to determine that its proposed construction will



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not directly or indirectly affect any threatened, endangered or candidate species or critical habitats.

### Floodplain

OnWay and its consultants have done an initial investigation into whether any of our proposed new towers will be located within a 100 or 500-year floodplain. Initial research on the Federal Emergency Management Agency's (FEMA) website indicate that none of these will be so located.

#### **Protected Land**

OnWav is not aware of any cultural resources, including historic properties, i.e., properties listed in or eligible for listing in the National Register of Historic Places, which are located at or within a one-mile radius of the proposed towers. Initial investigation, with the Tennessee Historical Commission and the National Register of Historic Places, shows that there are not any such nearby resources.

#### Coastal Area

Because OnWav's project is entirely within Tennessee, which is not a coastal state within the boundaries of a coastal zone management area (CZMA), this issue does not apply.

### **Brownfield**

Investigations by OnWav into properties that have been contaminated by hazardous materials and are being, or have been, cleaned up under EPA's Superfund, RCRA and/or brownfields cleanup programs show that there are no brownfield sites in Clay, Jackson and Pickett counties.



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### Uploads

The following pages contain the following uploads provided by the applicant:

Upload Name	File Name	Uploaded By	Uploaded Date
Service Offerings and Competitor Data	Grant 6408 OnWav 18 1 Service Offerings.xls	Powell, Michael	03/25/2010
Network Diagram	Grant 6408 OnWav, Inc 18 2 Network 1.pdf	Powell, Michael	03/23/2010
Network Diagram	Grant 6408 OnWav, Inc 18 2 Network 2.pdf	Powell, Michael	03/23/2010
Network Diagram	Grant 6408 OnWav, Inc 18 2 Network 3.pdf	Powell, Michael	03/23/2010
Network Diagram	Grant 6408 OnWav, Inc 18 2 Network 4.pdf	Powell, Michael	03/23/2010
Network Diagram	Grant 6408 OnWav, Inc 18 2 Network 5.pdf	Powell, Michael	03/23/2010
Network Diagram	Grant 6408 OnWav, Inc 18 2 Network 6.pdf	Powell, Michael	03/23/2010
Network Diagram	Grant 6408 OnWav, Inc 18 2 Network 7.pdf	Powell, Michael	03/23/2010



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Network Diagram	Grant 6408 OnWav, Inc 18 2 Network 8.pdf	Powell, Michael	03/23/2010
Build Out Timeline	Grant 6408 OnWav, Inc 18 3 Timeline.doc	Powell, Michael	03/25/2010
List of Community Anchors and Points of Interest	Grant OnWav 18 4 Anchors and POLxIs	Powell, Michael	03/21/2010
Management Team Resumes and Organization Chart	Grant OnWav 18 5 Management Powell.doc	Powell, Michael	03/22/2010
Management Team Resumes and Organization Chart	Grant OnWay 18 5 Management Csmith.doc	Powell, Michael	03/22/2010
Management Team Resumes and Organization Chart	Grant 6408 OnWav, Inc 18 5 Management Jwolf.pdf	Powell, Michael	03/24/2010
Management Team Resumes and Organization Chart		Powell, Michael	03/24/2010
Management Team Resumes and Organization Chart	Grant 6408 OnWav, Inc 18 5 Management Sjewett.pdf	Powell, Michael	03/26/2010
Management Team Resumes and Organization	Grant 6408 OnWav, Inc 18 5 Management	Powell, Michael	03/24/2010



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Chart	Eehlers.doc		
Management Team Resumes and Organization Chart	Grant 6408 OnWay, Inc 18 5 Management jMa.doc	Powell, Michael	03/24/2010
Management Team Resumes and Organization Chart	Grant 6408 OnWav, Inc 18 5 Management Rroyal.doc	Powell, Michael	03/24/2010
Management Team Resumes and Organization Chart	Grant 6408 OnWav, Inc 18 5 Management Fkostello.doc	Powell, Michael	03/24/2010
Management Team Resumes and Organization Chart	Grant 6408 OnWav, Inc 18 5 Management RmcAfee.doc	Powell, Michael	03/24/2010
Management Team Resumes and Organization Chart	Grant 6408 OnWay, Inc 18 5 Management Bsmith.doc	Powell, Michael	03/22/2010
Management Team Resumes and Organization Chart	Grant 6408 OnWav, Inc 18 5 Management Oslund.doc	Powell, Michael	03/22/2010
Management Team Resumes and Organization Chart	Grant 6408 OnWav, Inc 18 5 Management Org Cht.pdf	Powell, Michael	03/22/2010
Government and Key Partnerships		Powell, Michael	03/22/2010



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Government and Key Partnerships		Powell, Michael	03/21/2010
Government and Key Partnerships		Powell, Michael	03/21/2010
Government and Key Partnerships		Powell, Michael	03/21/2010
Government and Key Partnerships		Powell, Michael	03/21/2010
Government and Key Partnerships		Powell, Michael	03/24/2010
Government and Key Partnerships		Powell, Michael	03/24/2010
Historical Financial Statements	Grant 6408 OnWay, Inc 18 7 Historical 2008.pdf	Powell, Michael	03/22/2010
Historical Financial Statements	Grant 6408 OnWav, Inc 18 7 Historical 2009.pdf	Powell, Michael	03/22/2010
Budget Narrative	Grant 6408 OnWay, Inc 18 8 Budget Narrative.doc	Powell, Michael	03/26/2010
Detailed Budget	Grant 6408 OnWav, Inc	Powell, Michael	03/26/2010



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	18 9 Budget Detail 1.xls		
Pro-forma Forecast	Grant 6408 OnWav, Inc 18 10 Pro-Forma1.xls	Powell, Michael	03/25/2010
Subscriber Estimates	Grant 6408 OnWav, Inc 18 11 Subscriber.xls	Powell, Michael	03/26/2010
Dashboard Metrics	Grant 6408 OnWav, Inc 18 12 Dashboard Metrics.doc	Powell, Michael	03/26/2010
Service Area Data	Grant 6408 OnWav, Inc 18 13 Service Blocks.xls	Powell, Michael	03/26/2010
Waivers	Grant 6408 OnWav, Inc 18 14 Waivers.doc	Powell, Michael	03/26/2010
Network Maps	Grant 6408 OnWav, Inc 18 15 Maps.pdf	Powell, Michael	03/26/2010
Network Maps	Grant 6408 OnWav, Inc 18 15 Network Map.jpg	Powell, Michael	03/23/2010
BTOP Certifications	Grant OnWav Upload 18 16.pdf	Powell, Michael	03/19/2010
SF-424 C and D	Grant 6408 OnWav, Inc 18 17 SF-424C D.pdf	Powell, Michael	03/24/2010



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Supplemental Information	Grant 6408 OnWay, Inc 18 18 Senator Corker.pdf	Powell, Michael	03/24/2010
Supplemental Information	Grant 6408 OnWav, Inc 18 18 US Congressman Davis.pdf	Powell, Michael	03/24/2010
Supplemental Information	Grant 6408 OnWav, Inc 18 18 Senator Beavers.pdf	Powell, Michael	03/24/2010
Supplemental Information	Grant 6408 OnWav, Inc 18 18 Supplemental Environmental.xls	Powell, Michael	03/25/2010
Supplemental Information	Grant 6408 OnWav, Inc 18 18 Senator Alexander.pdf	Powell, Michael	03/25/2010
Supplemental Information	Grant 6408 OnWay, Inc 18 18 Livingston Hospital.pdf	Powell, Michael	03/25/2010
Supplemental Information		Powell, Michael	03/24/2010
Supplemental Information	Grant 6408 OnWav, Inc 18 18 Senator Yager.pdf	Powell, Michael	03/22/2010
Supplemental Information	Grant 6408 OnWav Inc 18 8 TN Statewide Adoption.pdf	Powell, Michael	03/26/2010



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Supplemental Information	State Rep John Mark Windle0001.pdf	Powell, Michael	03/21/2010
Supplemental Information	Senator Charlotte Burks0001.pdf	Powell, Michael	03/21/2010
Supplemental Information		Powell, Michael	03/21/2010
Supplemental Information	Grant 6408 OnWay, Inc 18 18 Public TV.pdf	Powell, Michael	03/24/2010
Supplemental Information	Grant 6408 OnWay, Inc 18 18 State Rep Les Winningham.pdf	Powell, Michael	03/22/2010
Supplemental Information	Grant 6408 OnWay, Inc 18 18 Jackson Co Sheriff.pdf	Powell, Michael	03/22/2010
Supplemental Information	Grant 6408 OnWav, Inc 18 18 Livingston Chamber.pdf	Powell, Michael	03/22/2010
Supplemental Information	Grant 6408 Onwav, Inc 18 18 Clay County Chamber.pdf	Powell, Michael	03/22/2010
Supplemental Information	Grant 6408 OnWay, Inc 18 18 Pickett County	Powell, Michael	03/22/2010



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Task: Submit Application - BTOP	Applicant Name: Mr. Michael Dale Powell	

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