RIO BLANCO COUNTY
BOARD OF COUNTY COMMISSIONERS
COUNTY ADMIN BUILDING, 200 MAIN
P.O. BOX I
MEEKER, COLORADO 81641
970-878-9430

March 6, 2014

Ms. Marlene Dortch, Secretary
Federal Communication Commission

RE: Connect America Fund WCITC Group's - Rural Broadband Experiment Expression of Interest

WCITC (Western Colorado IT Cooperative) would like to be considered as a candidate for the Connect America Fund, utilizing Rio Blanco County as our lead entity and anchor institution. WCITC is a cooperative of public and private entities which have worked toward creating modern community IT infrastructure since 2001. WCITC currently serves all of Rio Blanco County, which is comprised of the communities of Meeker and Rangely and all outlying areas of Rio Blanco County.

The Connect America Fund provides us with the opportunity to become a model county for others to learn from and we strive to be that example! Enclosed herewith is additional information that proves the significance of this project to rural northwestern Colorado. Information included:
- Why Pick Us?
- History
- Vision Statement & Proposal
- Budget Projection
- Supporting Maps

We are excited to learn of this possible funding opportunity, and please contact our IT Director, Trevor Nielsen with any questions. He can be reached via email at tnielsen@co.rio-blanco.co.us or by phone (970)878-9540.

Sincerely,
Board of County Commissioners, Rio Blanco County

Jon D. Hill, Chairman   Jeff Eskelson   Shawn Bolton

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Why Pick Us?

Why pick our project for Connect America Fund consideration? We truly think our project and group is unique and warrants your full consideration for the following reasons, which are expanded upon in the sections below.

- **History of Cooperation**: We have an unprecedented history of cooperation between our public and private entities - see the list of WCITC members below, many of whom were founding members in 2001.
- **Historical Success**: We have a long term, successful implementation of a fiber optic metropolitan area network (MAN) serving many of the larger public entities in Meeker and last summer, 2013, we started the planning process to duplicate this success in Rangely.
- **IT Skill:** In rural Rio Blanco County, we have an unusually high degree of IT skill, particularly in the fiber optic arena. We have our own fusion splicer, our own budget loss meter, we are trained in fiber optic termination and splicing, etc. Meeker School District, Rio Blanco County, Pioneers Medical Center, and Town of Meeker IT have already deployed microwave fixed wireless solutions ranging from 100Mbps to over 1 Gbps via Ubiquiti AirFiber.
- **Vision and Momentum**: The vision and momentum is already here, we just need the funding. Our WCITC group has been moving forward for over a decade on cooperative projects. Last summer we started the process of building a fiber optic, metropolitan area network (MAN) in both communities of Rio Blanco County, Rangely and Meeker. In 2014, the County Commissioners called a meeting that resulted in a request for the WCITC group to formulate a master plan for implementing broadband accessibility for all members of the county including residences, businesses, and public entities.
- **We Qualify**: Based on the Excel sheet "Colorado FCC Experimental Eligible Locations.xlsx" we quality as follows:

State	County	County Name	Census Tract ID	Eligible High Cost Locations	Extremely High Cost Locations	Annual Support
CO	8103	Rio Blanco	8103951100	740	295	433892
CO	8103	Rio Blanco	8103951200	207	101	103477.65

As of 2011, there were 6782 people, over 2306 households, with a population density of 2 people per square mile in Rio Blanco County. The two towns in the county are Meeker with a population of 2519 and Rangely with a population of 2405. Approximately 75% of the county lands are federally owned and include parts of the White River and Routt National Forests.

So, we have the cooperative environment with past success. We have the skill set. We have the vision and momentum at all levels and we qualify for the opportunity. We just need funding to help overcome the geographic and demographic challenges in order to get our countywide project fueled and burning! Our county is not an attractive business model to the larger ISPs, and we feel that only with WCTIC's governmental and inter-agency support can we provide modern broadband and VOIP to our county.

History

The WCITC group has been actively meeting since 2001 and more recently we've been recruiting other public and private members throughout the county with the goal of creating countywide infrastructure and carrier neutral sites in both Meeker and Rangely.

Recently the Rio Blanco County commissioners called a countywide meeting during which they asked our WCITC group to create a master plan for bringing broadband to all members of Rio Blanco County: residents, businesses, and public entities. The timing of this meeting couldn't have been more strategically planned to coincide with the Connect America Fund's intent and fiscal opportunity.

Here is a current WCITC member's list:

WCITC Member	Representative
Rio Blanco County, founding member since 2001	Trevor Nielsen - IT Director Mike Dinwiddie - GIS Erick Jaquez - Project Coordinator Katelin Cook - Economic Development
Town of Meeker, founding member since 2001	Doug Merrell - Contracted IT Director
Pioneers Medical Center, founding member since 2001	Curtis Cooper - IT Director Jared Harvey - System Administrator
Meeker School District, founding member since 2001	Blake Mobley - IT Director
Rangely School District	Ted Shonts - IT Director
Eastern Rio Blanco Metropolitan Recreation & Park District	Brice Glasscock - Contracted IT Director
Colorado Northwestern Community College	Caleb Cranford - IT Director
Rangely District Hospital	Daniel Moran - IT Director
White River Electric Association, founding member since 2001	Enrique Sevillano - IT Director
Western Slope Information Systems - founding member since 2001	Jim Neff - Owner
Meeker Library District, founding member since 2001	Mike Bartlet - Head Librarian
Town of Rangely	Peter Brixius - Town Manager
First National Bank of the Rockies	Doug Merrell - IT Director
Cimarron Telecommunications	Robert Knight - Owner
Rio Blanco BOCES	Blake Mobley - IT Representative Ted Shonts - IT Representative Teresa Schott - Director
Meeker Sanitation District, founding member since 2001	Doug Merrell - Contracted IT Director

WCITC holds approximately two meetings a month and has been doing so for over a decade. WCITC group's major accomplishments to date:

- 2001 - We created a fiber optic metropolitan area network (MAN) ring that was owned by and served multiple public entities: Rio Blanco County (RBC) Courthouse, RBC Road & Bridge, Town of Meeker, Meeker Public Library, Pioneers Medical Center, and all Meeker School District facilities (high school, middle school, elementary school, transportation facilities, and administration building). This sub group of WCITC is known as the Meeker MAN.
- 2001 - WCITC group was formed, though under a more informal name, as the Meeker MAN partnered with private entities such as White River Electric Association, First National Bank of the Rockies, and later Western Slope Information Systems. This partnership was formally renamed WCITC in 2006, but for simplicity is referred to as WCITC throughout this document.
- 2001 - Most of the Meeker MAN techs were trained in fiber optic termination and splicing techniques. Fiber optic termination and splicing kits were obtained for use by WCITC.
- 2003 - All Meeker MAN public entities chose to share a single internet connection, firewall, content filter, and core switch, saving the group tens of thousands of dollars by eliminating unnecessary redundancies.
- 2004 - The Meeker MAN implemented a Cisco VOIP phone system, one server stack, that served all Meeker School District buildings, RBC Courthouse, RBC offices in town hall, and RBC Road & Bridge. Again, this level of cooperation saved hundreds of thousands of dollars. The $220,000 project was funded through a grant awarded to the school district, but shared with RBC at no additional expense to RBC beyond purchasing necessary phones.
- 2008 - The Cisco VOIP server was upgraded by RBC for $85,000 and the School District did not have to pay for the upgrade, thus an $85,000 savings to the School District was realized.
- 2012 - The Meeker MAN acquired a series of grants and began its 72-strand fiber optic loop construction with the intent to create redundant paths for the involved public entities. For this project we partnered with Sage Telecommunications.
- 2012 - The WCITC group acquired a fiber optic budget loss meter.
- 2013 - Though the public entities in Rangely had previously and occasionally attended WCITC meetings, this greater, countywide, version of WCITC really began to form as Rio Blanco County started planning a fiber optic MAN in Rangely starting summer of 2013. At the same time the IT department of Meeker School District started working on several projects with Rangely School District and the Rio Blanco BOCES.
- 2014 - As the MAN project planning in both ends of the county ramped up, and the County Commissioners announced the need for a countywide IT task force to expand this project to meet the needs of all RBC, including residents, businesses, and public entities, the WCITC group began meeting with representation countywide.
- 2014 - RBC purchased a fusion splicer/terminator; Pioneers Medical Center purchased 9 miles of conduit; and the Rangely Community engaged Cimarron Telecommunications to begin a microwave solution for that community.

And then, as if with perfect timing, the Connect America Fund came to our attention. We now have a potential funding opportunity to really jump start what Rio Blanco County, via the WCITC group, has been working toward. We have the opportunity to become a model county for others to learn from and we strive to be that example.

Vision Statement and Proposal

At the WCITC's meeting on February 28th, 2014, in Rangely, we choose the scope of the project we would like to submit for Connect America funding consideration. After several conversations with Brian Shepard of the Colorado Governor's Office of Information Technology, we learned that the amount of funding was uncertain, so we have chosen to provide a series of project phases, listed as goals below, for your consideration. Any or all of these phases could be funded by Connect America. This project is a top priority for our county, and we will continue to work on any phases which remain un-funded by potentially utilizing minimal community funds and/or other grant opportunities as they present themselves. This scenario would extend the project timeline, and is not optimal.

Vision Statement

To provide modern, reliable broadband and VOIP to all of Rio Blanco County including private residences, businesses, and public entities in a part of rural America which currently has limited options mostly due to Colorado topographic challenges and lack of ISP competition which is exacerbated by our low population density.

Proposal

Ideally we would like to build the infrastructure capable of providing a fiber-to-the-neighborhood or fiber-to-the-node (FTTN) solution. One example would be to provide two four-inch conduit across a grid of each community. However, unless some extremely large funding source is located, we have chosen a scalable, layered approach both in IT technologies and timeline, so that we can immediately address as many residences, businesses, and public entities in Rio Blanco county as possible at a more moderate cost. This layered approach will implement fiber-to-the-node (FTTN) to most public entities and fiber-to-the-neighborhood (FTTN) for select sites. The majority of residences and businesses will be provided broadband/VOIP via microwave fixed wireless technology.

To create competition and choice among our ISPs, a vendor neutral site at each town, Rangely and Meeker, is needed. Additionally, we need to establish a non ISP controlled backbone link between these two towns so that any ISP that can connect to either Rangely or Meeker will have access into the other community.

Details of this approach are presented in the following table. Although implementation could proceed in phases as listed, it would be more ideal to implement most, if not all, of these phases as one project. However, any assistance the Connect America Fund can provide will help move this project toward ultimate fruition.

Phase/Goal	Approach
1. Broadband and VOIP available to everyone in Meeker and Rangely	Rangely - Work with Cimarron Telecommunications to deploy a 5 Mbps up/down, 5Ghz microwave solution with a 7 mile range. The 5 Mbps speed could easily scale up without change to proposed equipment once the experiment proves viable. This solution would cover most of Rangely, beginning with a tower on the ridge north of town, owned by Strata Networks. We would build out VOIP by engaging a 3rd party cloud-based or locally hosted VOIP provider and/or by partnering with a VOIP capable ISP such as CenturyLink, Cedar Networks, Forethought.net. We have been in conversation with all of these providers on this topic, and are actively seeking other partners. Meeker - Find a company to implement a similar solution using the Lobo ridge northwest of Town. We are currently engaged in conversation with Cimarron Telecommunications and another potential company. We

	expect this antenna location to be successful, as Rio Blanco County owns the tower on Lobo and is a driving force within this project.
2. Foster greater ISP selection and competition	Designate and build/facilitate a Vendor Neutral or Carrier Neutral site in both the communities of Rangely and Meeker. Provide the infrastructure to entice ISPs to locate equipment and provide a demarc site in each community that is owned and controlled by WCITC. Rangely - Currently the 200 block of Main Street, the primary street of Town, looks ideal as Strata, EAGLE-net, and Centurylink all have central offices within two blocks. The 200 block contains Town hall, public library, and county health facilities. Existing Town-owned empty conduit may exist for the interconnect. There are options to either use an existing public building or construct a small distribution facility. Moreover, the central location on the primary street through town would be enticing to future ISPs as they attempt to connect to this community. Meeker - Currently the best locations would be the 600 block of Market Street, which is the primary street in Town, or use a fiber trunk-line from this block to the Rio Blanco County courthouse on the 500 block of Main Street, which is about 1 block away. The final selection will be impacted by the current Justice Center project that is reshaping how the 400 and 500 blocks of Main Street will be utilized in the near future.

3. Implement modern fiber optic metropolitan area networks (MANs) in both communities: A Meeker MAN and a Rangely MAN. These two MANs will serve four primary purposes:
1. WCITC owned interconnect for ISPs to access our vendor neutral sites to entice new ISPs to enter our county and communities.
2. Fiber optic stubs to feed towers/buildings in each community for fixed wireless deployment and coverage.
3. High speed connectivity for key public entities: county, schools, libraries, hospitals, town halls, etc. for intra and inter connectivity as well as ISP bandwidth/services delivery.
4. Ability to implement FTTN (fiber-to-the-neighborhood) so we may pilot neighborhood wired broadband/VOIP delivery, which is our ultimate ideal
	Meeker - Continue the existing 72-strand single-mode fiber ring project and expand it to provide connectivity to:
	● RBC courthouse
	● RBC road & bridge
	● RBC Freeman Fairfield building
	● Colorado State University (CSU) Extension Agency
	● 4H Community Center
	● Town Hall
	● Pioneers Medical Center
	● Meeker Library District
	● White River Electric Association
	● Rio Blanco Fire Protection District
	● Meeker School District
	   ○ High School
	   ○ Middle School
	   ○ Elementary School
	   ○ Transportation
	   ○ Administration Building
	● Rio Blanco County Meeker Airport
	● Eastern Rio Blanco Metropolitan Recreation & Park District
	● FTTN Locations
	   ○ Multiple key business districts are actively being evaluated at this time
	● Other public entity buildings are actively being evaluated at this time.
	
	Rangely - Continue the planning that started summer of 2013 for a MAN implementation, that could provide connectivity to:
	● RBC Annex
	● RBC Offices at Town Hall
	● RBC Health Services

and goal - time and funds pending.	● Rio Blanco Fire Protection District
	● Town Hall
	● Rangely School District
	    ○ Administration building
	    ○ High school/Middle school
	    ○ Elementary School
	● BOCES Offices
	● Rangely District Hospital
	● Rangely Public Library
	● Colorado Northwestern Community College
	● FTTN Locations
	    ○ Multiple key business districts are actively being evaluated at this time
	● Other public entity buildings are actively being evaluated at this

4. Create a WCITC-owned and controlled network backbone link between the two towns in Rio Blanco County. For these primary purposes:
  1. Assure that if an ISP can enter one town's vendor neutral facilities, they can be handed off to the other town.
  2. Create resilience in the Rio Blanco county wide network.
  3. Provide a pilot for connecting other remote areas of our county such as the upper White River area along County Road 8, the energy development in the Piceance Creek Basin, residents of Powell Park, residents of Strawberry Creek, La Mesa, etc.
	This connection will need to traverse about 60 miles over complex topography. The link will need 3 wireless hops, all of which currently have power and basic facilities, as follows:
	  1. Meeker to Lobo
	  2. Lobo to Cathedral Bluff (Piceance Creek Basin)
	  3. Cathedral Bluff to Rangely
	
	Options we are evaluating. These options contain large cost and benefit variances:
	
	Option #1: Best option - financially challenging
	● Install WCITC owned fiber along Colorado State Highway 64 between Rangely and Meeker - Cost can be provided should this option become viable.
	
	Option #2: Next best option - moderately expensive
	● Utilize FCC licensed wireless - Estimated radio/dish costs $195,000 + facilities
	
	Option #3: Less expensive - potentially less reliable/stable option
	● Utilize unlicensed microwave - Estimated radio/dish costs $9,000 + facilities

Budget Projection

Due to our layered approach to this robust project, we have not listed a specific budget at this time. Depending on the level of Connect America Fund's interest in our proposal, we would be happy to provide a detailed budget to meet the funding level(s) that present themselves.
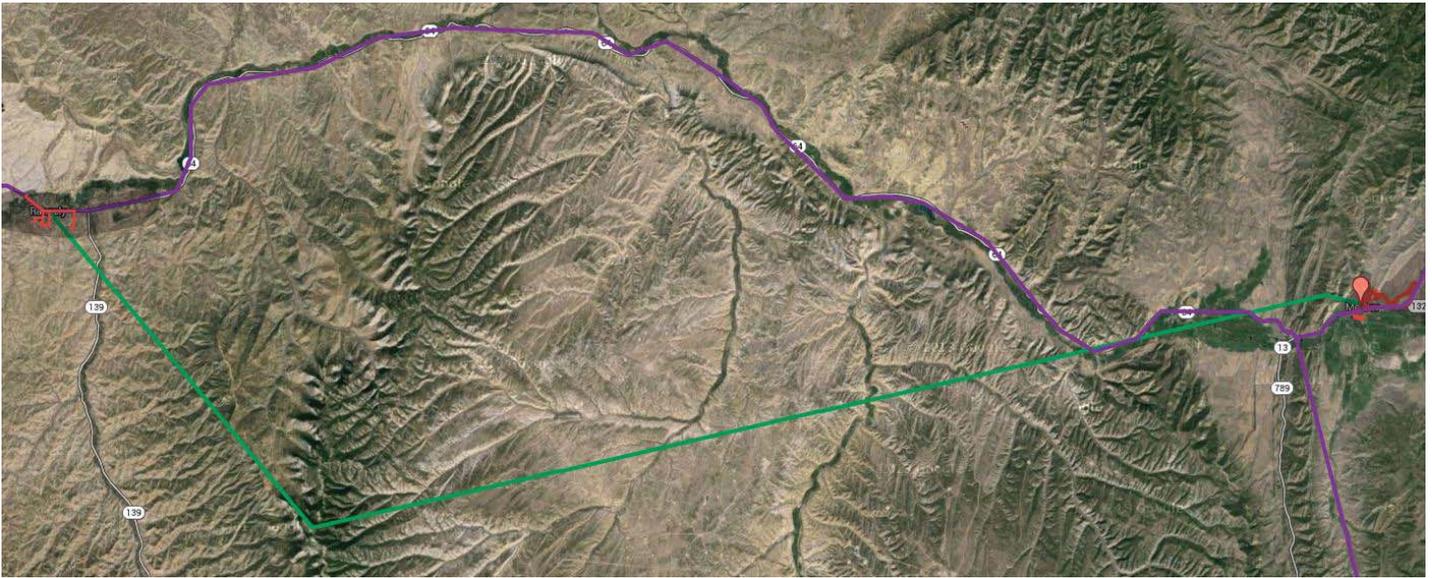
High level estimates indicate our project could benefit from as little as a $50,000 or as much as $1,000,000 or more depending upon which phases are funded, particularly which of the three backbone link options are funded.

We could implement our project by utilizing a one-time funding model. Additionally, we could create more affordable end-user bandwidth by assisting our last mile fixed wireless partner(s) with the high cost of ISP service in our rural county.

Supporting MAPs

In support of the goals and approaches table above, the following maps show existing and proposed MAN fiber networks in Rangely and Meeker as well as the potential microwave connection route between the two communities.

Area of Impact - Northwest Colorado
      Purple - Current, primary ISP trunk routes
      Red Balloon - Meeker Colorado, the RBC county seat
      Green - Proposed microwave backbone between Rangely and Meeker

Challenging Topography - Rio Blanco County (Rangely on the western end, Meeker on the eastern end)
    Purple - Current, primary ISP trunk route, potential WCITC fiber route
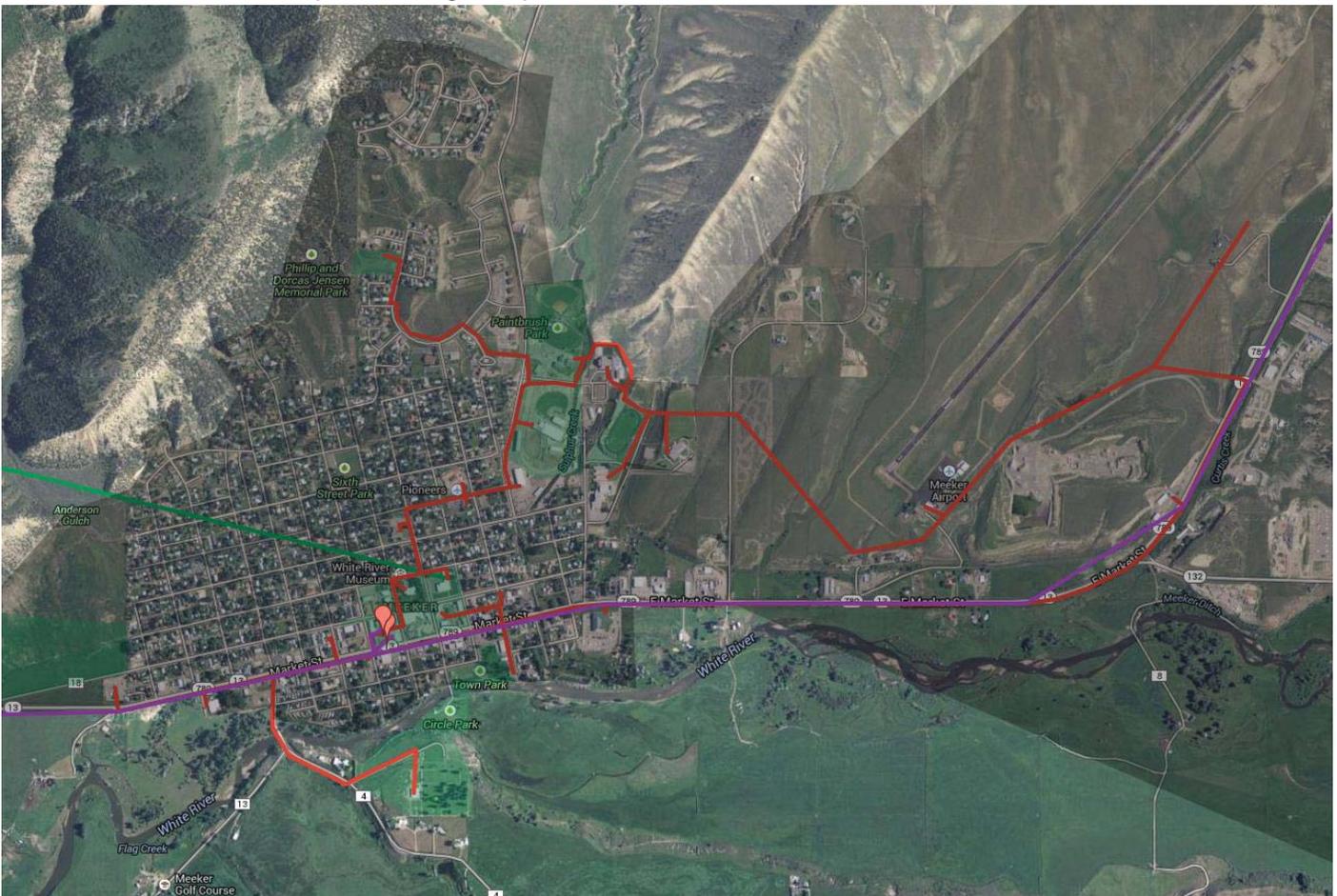   Green - Proposed microwave backbone between Rangely and Meeker

MAN fiber ring - Town of Meeker (started in 2001, map below shows the 2013 plan)
    Green - Proposed microwave backbone between Rangely and Meeker
    Purple - Current, primary ISP trunk route, potential WCITC fiber route
    Red - MAN fiber optic existing and planned routes

MAN fiber ring - Town of Rangely (map below shows the 2013 plan)

Green - Proposed microwave backbone between Rangely and Meeker

Red - MAN fiber optic existing and planned routes

Radio Tower Infrastructure - Rio Blanco County
  Red Balloons - Current and proposed RBC radio tower locations for future fixed wireless build out.
  Green - Proposed microwave backbone between Rangely and Meeker