Northwest Colorado Council of Governments

REGIONAL BROADBAND PROGRAM

Five Year Report

March 2018







Pitkin County Tower (photo credit: Jon Stavney)



Five Year Report

Five Year Report March 2018

Partners:

Eagle County
Grand County
Jackson County
Pitkin County
Summit County
Routt County
Rio Blanco County
Moffat County

City of Aspen
Town of Basalt
Town of Blue River
Town of Breckenridge
Town of Dillon
Town of Eagle
Town of Fraser
Town of Frisco
City of Glenwood

Town of Granby
Town of Grand Lake
Town of Gypsum
Town of Hot Sulphur Springs
Town of Kremmling
Town of Minturn
Town of Montezuma
Town of Red Cliff
Town of Snowmass Village

City of Steamboat Springs Town of Vail Town of Walden Town of Winter Park

Funders:

Colorado Department of Local Affairs All Partners listed above

"Coloradoans are independent, hard-working and innovative. In Broadband as in other sectors, NWC-COG members have equal parts mistrust of industry providers acting in their interest as they do big government solving their problems. That is why NWCCOG empowers local communities to find their own solutions, which often require them to position themselves to attract an industry provider through local investment. My role, besides making sure these places are armed with the negotiating insight to make smart use of local resources is to provide a fabric of knowledge to connect the dots of opportunity between these local projects, industry, policy and state efforts. I experience each day on this job how important our efforts are to NWCCOG communities."

--Nate Walowitz, Regional Broadband Director, NWCCOG

Prepared by:

Nate Walowitz, Regional Broadband Director Jon Stavney, Executive Director Rachel Lunney, Economic Development Director Director, Economic Development District NWCCOG 970.468.0295

www.nwccog.org; website

Cover Photo:

New Pitkin County Wireless tower

(left) Nate Walowitz (NWCCOG); Tony Neal-Graves (Gov. Office of Information Technology); Greg Winkler (CO. Dept. of Local Affairs) with Pitkin Broadband team: Phyllis Mattice, Jeff Krueger, and Kara Silbernagel

Five Years of NWCCOG assisting with local Broadband!

This 2018 report marks five years since NWCCOG dived deep into providing technical assistance to help local communities address poor and incomplete broadband service across Northwest Colorado. In December of 2013, after a year of outreach, NWCCOG published a Regional Strategic Broadband Plan. That effort led to NWCCOG employing a Regional Broadband Director (RBD) Nate Walowitz. We've learned that the beauty of a regional program



is that technical assistance, support for project visioning, scoping, execution, integration and coordination of one local broadband solution informs the next project in another corner of the region. This has lead to alignment across jurisdictions that would not otherwise be shared. In short, the program continually LEARNS from the members and for the members.

KEY METRICS

- Member dues/partner funds invested in RBD position since inception through June 2018: \$245,000
- DOLA funds leveraged from that local investment for the RBD position (2013-- June 2018) \$585,000
- ◆ Local communities with broadband projects since 2013 receiving technical assistance from RBD — 19
- DOLA funds for local projects in the region since 2013 -\$6,313,230,
- ♦ local match for those DOLA funds – \$6,332,830
- ◆ Total Regional Investment -\$13,244,252
- NWCCOG Members and partnering jurisdictions that have Opted Out of SB-152

19 of 23 municipalities 7 of 8 counties

The Broadband success stories outlined in this document reflect customized support a variety of local solutions. Some efforts pre-date our program and inspired it. Many projects in Summit, Eagle and Grand Counties are in stages that are tantalizingly ready to be highlighted, but we know that almost ready often means years until deployment.

Some projects embark upon the "whole enchilada:" building infrastructure while others even aspire to be the ISP. Most build key infrastructure then invite partnerships with private ISPs. Many leverage existing infrastructure to improve public safety communications, cell service and tackle related projects. Vail and Breckenridge have specific broadband projects tailored to event management dealing with infusions of visitor demand. They manage a volume of visitor traffic that most of the region would only dream of seeing, with tens of thousands of day visitors wanting infinite, fast access to phone and internet during their stay. Vails public wifi is well established, while Breckenridge is pursuing a broadband strategy that integrates with its existing town-wide visitor and resident transportation network.

Most jurisdictions have come to realize that without a local effort, modern internet to educate children, have access to services, do business, and participate in a dynamic media culture just isn't going to occur or else the market would have already addressed these challenges. In much of rural Colorado, broadband has market dynamics that require a very different approach. The regions remoteness necessitates redundancy and underscores the need for strategies to reduced costs. The cost of broadband network service outages during a cattle auction,





a credit card machine not working at a retail store restaurant, an ATM machine or bank not being able to service customers, cell phone outages, equates to lost dollars all around. The NWCCOG broadband program continues to provide tailored assistance and consulting to our jurisdictions in their quest for local solutions. In our 2017 Member Survey, 89% of our 27-member jurisdictions rated the Broadband program "valuable to very valuable," and 69% responded that they will be active or planning to be active in local broadband efforts in coming years. Fifty six percent responded that the program had already been of use.

Twenty eighteen is also the year for roll out of Project THOR marking a new emphasis for the NWCCOC Broadband Program. NWCCOG saw the need for aggregation of buying power at a regional level, and a collective approach to addressing the many gaps in redundancy across our vast region. Following an RFP process, Project THOR is now a pubic private partnership between NWCCOG, member jurisdictions and Mammoth Networks to create a resilient regional middle-mile network designed to bring open, secure, redundant broadband at a lower cost to participating jurisdictions. Construction level pricing and design is scheduled to be ready by summer of 2018. Already, Project THOR and has been picked up in the news across the region and as far away as Seattle.

Thanks to our members and key partners putting up matching funds from dues and direct payments to the broad-band program, NWCCOG leverages Colorado Department of Local Affairs (DOLA) to fund the RBD position (see previous page). The program grant required a 25% local match from member dues to leverage a 75% grant from DOLA to obtain the current grant. The new DOLA grant, which will begin in July 2018, will require a 50% local match. This means a greater investment by members (about 20% of total dues), along a new funding partnership with Southwest Colorado Council of Governments. The fact that this program is better outlined in a 5 year window rather than in an annual snapshot underscores the lengthy development time required for every single project, and the challenge of funding the program through an annual grant process.

Jon Stavney
Executive Director

Nate Walowitz Regional Broadband Director

"Your zip code should not dictate your access to the 21st Century."

- Brian Shephard, Broadband Program Manager,



TOWN OF RED CLIFF

Broadband Access Project

THE NUMBERS

- Red Cliff population 267. Households 150. Children 46.
- Wireless service by Forethought,
- Residential Service: 25Mbps down, 5 up for \$75/month
- Commercial Service: up to 100Mbps
- Investment:
- Colorado Broadband Deployment Board, \$70,103
- DOLA, Colorado Department of Local Affairs \$144,100
- NWCCOG Mini-Grant in 2015, \$3,500
- SIPA, State Internet Portal Authority
 \$5,000
- Eagle County Community Grant \$56,220
- Town of Red Cliff General fund for project \$75,500 and Conservation Trust Fund for the land purchase \$20,000

PARTNERS

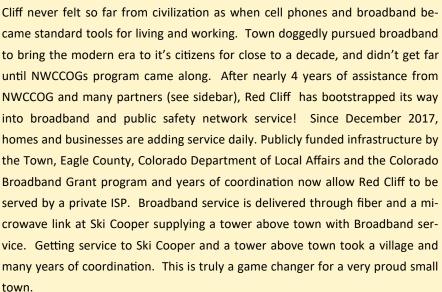
- ♦ Forethought
- ♦ DOLA
- ◆ Colorado Broadband Deployment Board
- ♦ United States Forest Service
- ♦ Battle 1 Developers
- ♦ Town of Vail
- ♦ Eagle County
- Senator Bennet's Office

LOCAL POINT PERSON

Mayor Anuschka Bales

THE PROJECT

One of Western Colorado's first towns, and only 20 minutes from Vail on a good-weather day, Red-



NWCCOG's ROLE

NWCCOG was an active partner in this project from start to finish, across all phases of the project including technical consulting, project management ,and partner coordination. We estimate well over \$30,000 of the NWCCOG Regional Broadband Coordinator's time was dedicated to this project.

HEADLINES

- ♦ "Christmas brings Broadband to Children in Redcliff" (a-public-observer.com)
- ♦ "Game Changer" for Red Cliff (Vail Daily, 10/8/16)
- ♦ Red Cliff Broadband Nears (Vail Daily, 11/20/17)
- ♦ Red Cliff gets high-speed internet (Vail Daily, 12/14/17)
- (add hyperlink to vail daily fb live stream)
- ♦ Red Cliff celebrates its broadband after decades of dreaming, years of work (Vail Daily, 1/17/18)





JACKSON COUNTY

Jackson County Broadband Access Project

THE PROJECT

Jackson County and Walden, its' largest town, together are about the population of a pair of apartment towers, and are among the states most isolated communities, where a bragging point is that moose outnumber people. More than 60 miles from neighboring towns in three directions, Jackson County is not a place where Internet Service Providers are clamoring to provide service. For many years the incumbent telephone provider had said to locals that they have no more bandwidth to supply a single customer.

THE NUMBERS

Jackson County & Town of Walden

- Population 1,000 with 1,600 square miles
- ♦ 639 Residences, 82 Businesses

Funding

- ♦ Local Economic Development Fund
- ♦ Colorado Broadband Deployment Board 2017—\$260,313 (75% grant to 25% local match)

Level of Service

 Provider to deliver at least a minimum of 25 Mbps and 5Mbps service

PARTNERS

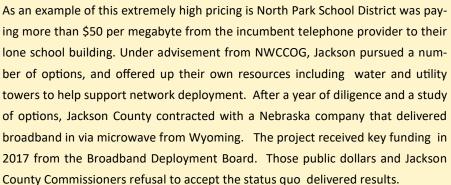
- Inventive Wireless of Nebraska, LLC.
 Dba Vista Beam
- Colorado Broadband Deployment Board
- ♦ Jackson County

LOCAL POINT PERSON

Danny Manville, Jackson County Commissioner

HEADLINES

◆ First Good News For Rural Colorado Broadband Service (Jackson County Star, 1/26/17) Speeds were slow, unreliable and expensive with no coverage at all outside of Walden.



NWCCOG ROLE

The RBD role in Jackson has been one of working with county commissioners, staff and a series of interested providers who have responded to county outreach over the past three years. A number of wireless providers investigated and turned down the opportunity in part because of the lack of affordable access to the incumbent providers fiber network. A long-term solution for fiber from nearby Grand County more than 60 miles distant may still be possible. The efforts and a request for funding got the attention of the incumbent which is scrambling to upgrade service. Competition, or the possible threat of participation, jurisdictions getting fed up with inaction will likely cause multiple solutions in a place that sorely needs it.

"I own the bowling alley in town, so I know what it means for the credit card machine to go down"

Vorthwest Colorado

- Commissioner Danny Manville, owner, The Tenth Frame Bowling Alley



Photo: Jon Stavney and Nate Walowitz (both from NWCCOG) in front of Jackson County Courthouse

RIO BLANCO COUNTY

Rio Blanco County Project

THE PROJECT

Rio Blanco county is a place with a strong independent spirit and not a place that looks first to government for solutions. In 2013, Rio Blanco county residents suffered with limited broadband access to the outside world. After looking to the private sector, leadership

developed a vision for the community to take care of Broadband on their own. The solution; County IT department contracting to



THE NUMBERS

- ◆ DOLA: \$3.6 million
- ♦ Rio Blanco General Fund: \$8.4 million

PARTNERS

- ♦ Rio Blanco County
- County Taxpayers—who voted to use General Funds
- ♦ Town of Meeker
- ♦ Town of Rangely
- ♦ Colorado Department of Local Affairs
- ♦ White River Electric Association
- ♦ NWCCOG
- ♦ Colorado Fiber Community
- Mammoth Networks
- ♦ Bureau of Land Management
- Cellular carriers

LOCAL POINT PERSON

- Blake Mobley, (now with Mammoth Networks)
- Cody Crooks, RB County Communications Director

HEADLINES

- Rio Blanco County stays relevant with <u>broadband</u> (Broadband Communities, Dec. 2016)
- Broadband Gaps in Colorado Threaten to Leave Rural Areas in the Dust of Digital Age (Government Technology, Sept. 2017)
- ♦ NWCCOG January 2017 Press Release

build out a Middle Mile and Last Mile Fiber to The Premise (home and business) network delivering 1GB access to every home and business in Meeker and Rangely, and wireless service to the remaining, most remote of the 7,000 residents. It was an ambitous goal, with few rural models to follow. The plan received 82% voter support to spend general fund dollars on Broadband in November of 2014 following significant research and planning by Rio Blanco County. As of today, the take rate of over 72 %.

The project had seeds in local problem solving by the school district. After starting a smaller project there, the IT director Blake Mobly was hired by Rio Blanco County to take the concept across the entire county. He wrote the County broadband plan published in June of 2014. In 2016 Rio Blanco's project won the annual "Community Project of the Year" award at Mountain Connect. Mobley was Master of Ceremonies for more than 12 dignitaries from across the state who spoke at a press release event in 2017. Blake Mobley has shared Rio Blanco's experience and lessons learned around the region and the State. The articles attached give a more detailed outline of the project.

NWCCOG ROLEThe regional plan helped raise awareness in RB, and NWCCOGs RBC added value and insight to local teams that already had a very high level of technical mastery; promoting information sharing between Rio Blanco County and other jurisdictions which contributed to the effectiveness of the Rio Blanco County plan and network deployment.

"The idea sharing and collaboration between NWCCOG and counties and other agencies significantly compressed the timeline for our project and enhanced the vision. NWCCOG's regional broadband plan was instrumental in making a case for two DOLA awards which totaled nearly \$3.6 million towards the \$12 million project""

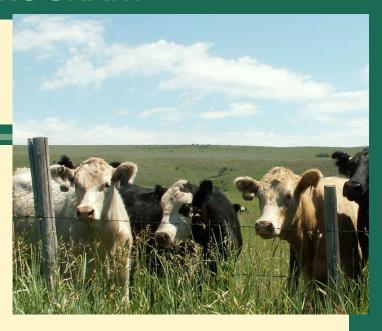
Vorthwest Colorado

- Blake Mobley, formerCounty ICT Director

NORTHWEST COLORADO BROADBAND PROJECT (NCB)

THE PROJECT

That Steamboat Springs is world famous doesn't change the fact that it is a cow town at heart a very long ways from any metro area. As in Rio Blanco and other remote places, sometimes a defined challenge can pull together partners. In Steamboat Springs, with regard to Broadband, that partnership is the NCB which became a 501(c)3 legal entity of anchor institutions. The original intent of the group was to built fiber



to connect the partner government and local community anchor institutions using their own funds. What NCB has done in Steamboat has allowed them to create a Carrier Neutral Location (CNL) to aggregate their transport and bandwidth needs to obtain lower pricing from middle mile service providers and the incumbent telephone provider and negotiate as one to reduce the cost of transport and bandwidth. One of the key principles of the group is that they don't allow the private sector to negotiate separately with each of the members. Members of the group will tell you it took many meetings even after they knew what they wanted to accomplish to arrange the terms, define governance and be fully organized. The results have been outstanding for the community. NCB owns 7.5 miles of fiber connecting anchor institutions and is a service provider to those institutions. They are now looking beyond the core group for next level successes. For instance, they are have contracted with an ISP that will use their fiber network to provide competitive broadband services to customers in difficult to reach areas of the county.

PARTNERS

- ♦ City of Steamboat Springs
- ♦ RE-2 School District
- Yampa Valley Electric Association
- ♦ Yampa Valley Medical Center
- ♦ Routt County

LOCAL POINT PERSON

 Tim Miles, IT Director for Steamboat Springs School District

HEADLINES

 \$2.2M project bringing more affordable broadband to Steamboat (Steamboat Today, 10/26/17)

NWCCOG ROLE

Early efforts in Steamboat Springs which lead to the creation of the NCB group also inspired NWCCOG membership to take on broadband as a regional issue and led to the NWCCOG partnering with DOLA to develop the Regional Broadband Plan. In a way, NCB and the NWCCOG program have grown up together as siblings. Many local efforts sprung from that plan, as well as the Regional Broadband Director position. As in Rio Blanco, the key driving entity was the School District, where Tim Miles, has provided a great deal of vision to the NCB as well as technical expertise. He has been enthusiastic about Project THOR, which is NWCCOG's larger embodiment of the NCB model.

A broadband outage during the annual 5 day Superior Cattle Auction which has participation on-line and in person across 23 states was a motivating factor for NCB. Cows are still economic development. Today they need broadband to get to market.



PITKIN COUNTY

Pitkin County Wireless Project

THE PROJECT

Pitkin County maintains a TV/FM Translator system with a network of 10 different mountain top communication sites that dates back to the 1960s. Most of the sites are located on existing federal lands. With antiquated infrastructure and an outdated public safety radio system, in 2014 the County, in partnership with its public safety agencies and the State of Colorado, began to upgrade the sites and equipment to better meet 21st century communications, including the statewide Digital Trunked Radio System. As the County also

THE NUMBERS:

- ♦ DTRS Transition: \$2.5M
- Site upgrades and fixed wireless deployment: \$4.2M

FUNDING SUPPORT:

- DOLA Planning Grant: (\$150K DOLA; \$150K Pitkin County)
- DOLA Infrastructure Upgrades (three sites redevelopments and expanding Microwave Backhaul to accommodate Broadband 2GB to 4 GB) (\$896,800 DOLA; \$896,800 Pitkin County)

PARTNERS:

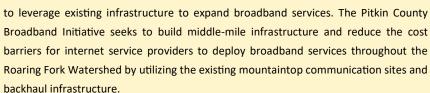
- ♦ DOLA
- ♦ State OIT
- ♦ Nine Public Safety Agencies
- ♦ NWCCOG

LOCAL POINT PEOPLE:

- Phyllis Mattice—Assistant County Manager
- Kara Silbernagel—Management Analyst

"As a regional facilitator for rural broadband, Nate has been instrumental in building a network of communities and organizations struggling to deploy broadband. Through the NWC-COG and the Broadband Steering Committee and RCB, Pitkin County has been able to leverage the experiences, innovations and lessons learned of all participating organizations to jumpstart Pitkin County's Broadband Initiative"

-Kara Silbernagel, Management Analyst, Pitkin County sought to address the shortcomings of broadband in the unserved and underserved areas, Pitkin with local and state partners looked to the DTRS communications project



NWCCOG ROLE

The NWCCOG Regional Broadband Coordinator (RBC) has been actively engaged since 2014 with Pitkin's broadband strategy. In addition to assisting with the vision, writing of RFPs and evaluation of network design and deployment responses, NWCCOG has assisted with technical support for terrestrial and wireless broadband and public safety technology and infrastructure. In the past 12 months, the RBC has continued to provide RFP response review and evaluation, regional information and experience sharing, support for their continued trans-county wireless broadband deployment strategy and addressing the regional need for what has become Project THOR.

BONUS ROUND

The PCBI project has been focused not just on Pitkin County, but the Roaring Fork Watershed. One of the advantages of NWCCOG's regional perspective and participation in the PCBI is that the RBC has assisted Pitkin County staff to coordinate and collaborate broadband initiatives amongst four counties, seven municipalities and two school dis-

tricts that comprise the Roaring Fork Valley. In 2018-2019, NWCCOG will assist in coordination of resources across all Roaring Fork Valley local governments to support common broadband objectives utilizing resources from Pitkin County to support students from Eagle, Garfield, and Pitkin Counties and the City of Glenwood Springs.



Torthwest Colorado





TOWN OF VAIL

Public Wireless Internet Project

PARTNERS

- ♦ Town of Vail
- Vail Valley Foundation
- ♦ Eagle County
- ♦ NWCCOG

LOCAL POINT PERSON

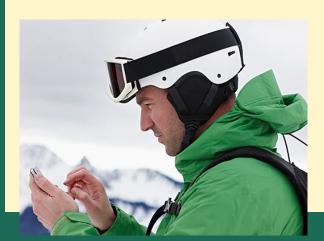
 Ron Braden, IT Director, Town of Vail

THE PROJECT

The Town of Vail's public wireless internet project was well underway prior to NWCCOG getting involved in broadband. As a host when "the world comes to visit," Vail has been a leader in seeing the need for this to support a



wildly fluctuating visitor base, especially to have the capacity to keep cell phones, and internet apps running during major events. In 2010, Vail and Eagle County partnered to invest \$1.2M to assist CDOT in completing CDOT fiber from Vail Pass to Vail Public works, connecting Vail to Denver. In addition to bringing Comcast to Eagle County, including broadband internet access, this project allowed Town of Vail to assist CDOT in delivering CDOT camera and traffic highway monitoring information to CDOTs ITS Headquarters in Golden. Traffic safety on Vail Pass is critical to the financial health of Vail, and economic impacts of pass closures are measured by financial loss quantified down to the hour. In 2013, Town of Vail also partnered with Crown Castle to deploy microcell technology throughout Vail. Built in 2014, this network is supported by a fiber network and network center built and hosted by the Town of Vail. It was a complex project with many many challenges that has proven durable over time. In preparations for the 2015 World Cup Ski Championships, Vail was one of the first municipalities in the state to provide free public WI-FI. Vail also hosted the nation's first event deployment of Public Safety Broadband Band 14 LTE wireless voice and data, delivering this next generation communications network for use by public safety personnel. Deployment of this technology as well as hosting of the 2015 World Cup in Vail and Beaver Creek was a testing ground for Federal agencies practicing for the Salt Lake City Olympics the following year.



NWCCOG ROLE

Town of Vail, like Glenwood Springs have been involved in Broadband well before NWCCOGs' involvement in broadband. Vail's IT Director, Ron Braden has been an active participant in the Broadband Subcomittee since NWCCOG's broadband project inception. The Town of Vail is very supportive of THOR and plans to provide a key meet-mecenter and existing middle mile fiber to the project in exchange for greater bandwidth and redundancy

Northwest Colorado

PROJECT THOR

THE PROJECT

Regional broadband network delivering an open access, net neutral, resilient middle mile transport and lower cost bandwidth to local municipalities.

THE NUMBERS

- NWCCOG is entering into a \$22,000 Scope of Work agreement with Mammoth Networks to bring concept pricing to construction level pricing my Summer of 2018
- Six local jurisdictions are fronting the 50% local match for the SOW
- Network speeds are projected to be 10 to 20 Gig segments, with the potential for 100 Gig or more in the future
- Project Costs TBD by Summer 2018

PARTNERS

- Network Operator: Mammoth Networks
- ♦ Local Governments
- ♦ DOLA
- ♦ CDOT

LOCAL POINT PEOPLE

 Nate Walowitz, Director, NWCCOG Regional Broadband Program

HEADLINES

 Building reliable broadband: Rural Colorado governments, towns lining up behind new program for cheaper, better regional Project THOR is an effort by the Northwest Colorado Council of Governments to assist County and Local governments

to create a resilient open access regional Middle-Mile Transport Network. The redundant loop circles NWCCOGs' 5 county region. Funded initially through the budgets of Northwest Colorado counties and an inaugural group of local towns and cities, the NWCCOG broadband project will work with multiple existing broadband providers to create a broadband transport network that creates a network to deliver abundant, reliable, and lower costs to participating meet-me-center locations across the region. The network will be created leveraging the needs of local governments, pre-K, K-12 schools, colleges, health care facilities, public safety, as well as state and federal agencies. It is envisioned that the network will eventually be available to local and middle mile broadband providers to make the benefits of the Project THOR network to private businesses and consumers. As part of the network design, we envision utilizing CDOT fiber to leverage some of their existing fiber backbone and partner to build additional fiber to meet the objectives of both organizations. Beyond delivering an abundance of reliability of broadband, Project THOR has the potential to enhance competition throughout the region and lower consumer and business broadband prices. To support the network, NWCCOG has contracted with a Network Operator to deliver network connections and manage the network to ensure Project THOR objectives are met.

NWCCOG ROLE

Network Administrator







THE FUTURE OF THE NWCCOG BROADBAND PROGRAM

Though the rollout of Project THOR is a top priority taking the majority of time and focus for the program at the moment, NWCCOG expects to continue with technical assistance to member jurisdictions for local projects and add technical assistance to Southwest Council of Governments in July 2018.

NWCCOG will continue a variety of fruitful partnerships including with DOLA, OEDIT, OIT, CDOT as well as many entities in the private sector. NWCCOG has increases policy and legislative watch, and plans to continue to do so. Baseline focus will continue to be sharing information, resources, driving policy and best practices across jurisdictions.

We will continue to take lessons-learned from one community's challenge and bring that wisdom to bear on other local projects. Sharing information across jurisdictions is one of our top values at NWCCOG. We also continue to advocate for Broadband funding at a state level, and have brought state leaders to the region.

Pages will be added to this report as projects current in progress reach fruition.

Thank you for your part in our success!

Photo: Jeff Krueger (Pitkin County), Nate Walowitz (NWCCOG), and Tony Neal-Graves (Gov. Office of Information Technology) inside Pitkin County Tower site. Photo credit: Jon Stavney

