

>> Let's give a round of applause to all of our speakers. We have a fantastic program. We will start in about five minutes. Enjoy your lunch and we will be with you shortly.

>> [ music ]

>> [ Silence ]

>> Good afternoon. Sorry for the delay. I would like to thank you for joining us today. My name is Doug I am the head of the broadband technology opportunities program and I oversee the broadband USA program. The national telecommunications administration is part of the department of Congress. The principal advisor to the president. One of our key missions is to promote the deployment, adoption, and effective utilization of high-speed Internet services for all Americans regardless of geography, social economics, or demographics. Central to this effort is our new broadband USA program providing free hands on technical assistance, toolkits, guides, webinars and other support to communities around the country looking to explore or expand infrastructure.

>> Today's workshop is an important part of our program. It is a opportunity to bring together local, state, federal officials, industry and other key stakeholders to address issues regions are having relative to broadband. Today we have a great group of panelists beakers and some topics we can dig our teeth into and have a little bit of engagement between the panelists. Before I kick it off with the first speaker I want to remind folks we have several things going on tomorrow. The first is a tribal breakfast and the next is tribal access and inclusion at 9 AM. That is at the Clark Fork River ballroom. We will provide all this again before the end of the day. The second is the broadband technical assistant office hours. It is an opportunity to come in and talk to NTIA, Secretary and treasury to talk about issues you may have regarding funding or other broadband issues. You can sign up at the registration desk. From 930 to 1145 is the community can't connectivity issues. That will be a hands-on demonstration of the tool and what it looks like relative to communities identifying and helping assist with a stand on the spectrum. We are still in development but getting your input would be important.

>> The last is a field trip to the tele-commissions University of Montana and Missoula Public schools on broadband. It will leave tomorrow at noon and return at 4 PM. If you are interested you can sign up at the desk outside. Those are all occurring tomorrow. If you have any interest we look forward to seeing you. Now I have the honor of introducing the mayor of Missoula. Mayor Incan is the 50th mayor. He was born and raised in Missoula and earned a journalism degree. He states he works as the CEO of a corporation with \$100 million annual budget, 500 employees and [ Indiscernible ] and 68,000 shareholders. He has worked to further economic development to improve public safety, develop quality of life, diversify housing stock and streamlined efficient services for development ventures. He recently established a new city housing office to work on expanding housing stock across all price ranges. On August 2 his year-long leadership succeeded from the affirmation of the Montana Supreme Court. Please welcome John Incan mayor of Missoula. [ APPLAUSE ]

>> Thank you very much, Doug. The introduction is probably longer than my remarks. By virtue of the fact that we were supposed to get started at 12:15. Sorry there was no Internet at the Hilton for some period of time. I'm kidding [ laughter ] It's okay. It is broadband but we can still enjoy ourselves today. I can tell you a couple of things we have been doing with regard to broadband. Every time we have a pothole we put a tiny piece of fiber in the whole and we think over the course of the next 10 years we should be able to build a municipal network [ laughter ] That should take care of the needs for a long

time into the future. This is my best stuff ladies and gentlemen. [ laughter ] It doesn't get better than this.[ laughter ] Part of my job is to catch us up so I will be brief. I will tell you that the economic vitality of places like Missoula and other communities in Montana and around the region are entirely dependent on the ability to upgrade and adapt technologies so that workforce has a place to be.

>> That places are driving and a vibrant. That technology does not pass us by. I am encouraged by the notion that you all with your brains are here to think and talk about this to consider the future. I appreciate the administration and commerce in being here in Missoula to help show the way and convene these thinkers. Folks who have problems that need solutions. It turns out [ Silence ] still in America, despite will we see most nights on television, we work together we can figure things out and solve problems. You all are here to do that. I welcome you to Missoula. If you have any trouble call me. Thank you all for being here and have a great time. [ APPLAUSE ]

>> Thank you, mayor. Our next speaker is Jeff. Jeff is the general manager of the Montana telecommunications Association which develops public policy solutions for WorldCom -- telecom providers. With advanced broadband services he began his career in Washington DC working on Capitol Hill as an advisor to two members of the U.S. Congress after serving as government relations structure for the American electronics Association. He held positions with Michelin Bell telephone company, Ameritech, and US telecom. Please join me in welcoming Jeff. [ APPLAUSE ]

>> Good afternoon. As Doug mentioned I am with the Montana telecommunications Association. We were -- represent world telecom [ Indiscernible ] sizes of 300 people and less. We deploy about 25,000 miles of fiber optic facilities in employee 1000 Montanans. Our average customer density is less than three customers per square mile. If you were to overlay Montana over the map of the US our northwest corner of the state would touch the Chicago suburbs and the Southeast corner would touch DC suburbs. We have a total of 1 million public -- people in our state. It is a big state. The world telecom providers are serving the leased densely populated across the areas in the country. They are serving it with broadband facilities to not only anchor institutions but to residents who live 30 miles out of town. These challenges are huge. Broadband providers of rural Montana are up to the challenge. We welcome NTIA to discuss broadband and the challenges we have. I want to specifically mention Amy Legion, Barbara Brown and Chad [ Indiscernible ]. They had been very responsive and receptive along with professional. We welcome the help that NTIA has provided and the impact they have allowed us.

>> I also want to thank the NTIA members who helped sponsor lunch and the reception as well as charter century link and AT&T who have the misfortune of not being NTIA members but have sponsored our program and presents. Thank you, NTIA and welcome. [ APPLAUSE ]

>> It is my privilege to Internet -- introduce Angela system -- Simpson. [ APPLAUSE ]

>> Good afternoon, everybody. Welcome and thank you so much for joining us today. I hope this will be a productive and informative workshop. I also want to give a special thank you to the Montana telecommunications service in making this event possible. This is the seventh broadband workshop NTIA has hosted. We have been across the country places like Minneapolis, Mississippi, Maine, California, Washington state. Despite difficulties in getting started on time we're getting good at this type of workshop. We're looking forward to being here with you for lucky number seven. We have assembled experts from towns cities and states. To provide you with insights on you may need to me many challenges of expanding broadband access in this region. Yesterday I was enjoying the beautiful

mountains of Montana. I was thinking about how I was in Alaska last month. At the top of the world broadband Summit. It was making me think Alaska like Montana big beautiful rugged terrain. Broadband can offer the ability to take the most remote parts of the country and make them feel connected. Let them take advantage of the significant opportunities offered by technology.

>> You can have the best of both worlds. Leverage the potential of the digital economy in such a beautiful place. Very lucky. While there has been progress in expanding broadband access and -- in Montana and surrounding states we realize they are still some who cannot access affordable broadband. That is why we are here today. To discuss strategies and best practices on how to close the digital divide. The strategies and best practices we have gleaned from projects here in Montana and surrounding states and communities across the country. I am here to let you know that NTIA is here to help. I urge you to take advantage of the expertise on broadband issues. Please do not hesitate to participate. Please do not get -- hesitate to get in touch with us later. The key to this effort is the broadband USA program. Offers technical assistance guidance and resources to communities across the country seeking to expand local broadband deployment and adoption. As part of broadband USA our technical assistance team is here to provide free 21 support today and tomorrow. If you want time dedicated with our team during the office hours tomorrow I urge you to sign up at the registration table to the right hand side of the room when you leave.

>> You may be asking yourself why are we well-positioned to help you? First off the team is passionate about ensuring every American has access to broadband. Over the past 7 years we have seen firsthand \$4 billion grant programs how broadband can stimulate economic growth and empower people. Funded with money from the 2009 American recovery and reinvestment act we financed nearly 230 projects across the country that have built critical infrastructure opened a great a public computer centers and establish broadband adoption in digital inclusion programs. In my opinion it has been some of the best work the Obama administration has done.

>> Our state broadband omission program Evason \$3 million to help stands quite broadband data and to expand state driven broadband capacity projects. Here Montana we were fortunate enough to be able to partner in a \$13.7 million grant program with Rodin Telephone Company no known as excess Montana. To deploy new high-speed network to Missoula. The rugged terrain and diverse populations of seven underserved communities contributed to the limited ability to get to the cat -- connectivity they wanted. They deploy 256 new miles of fiber and updated 106 miles of existing fiber. Excess Montana also signed agreements with local Internet service providers to facilitate more affordable and accessible broadband for household and businesses. [ Inaudible - static ]

>> Additionally access Montana partnered with the health information exchange element -- Montana to facilitate telemedicine and rural healthcare for residents. The company had an opportunity to grow with the help of South Dakota networks funded by NTIA. They received a 20 point -- 20.5 million dollar grant to expand their fiber-optic network. It was able to deploy 397 miles of spurs the connective 512 anchor institutions including schools, hospitals, libraries, clinics the public safety agencies, poorhouses, government buildings, and National Guard facilities. Among these beneficiaries Dakota land was looking to expand its locations in upgrade existing locations they were able to access faster broadband. Since the time of the project to cut the land has added the 20 additional poising increased revenue by an estimated quarter of million dollars per year. We have clearly come a long way since 2009 when we launched our grant program. Nationwide the grantee's of our program have built or upgrade at more

than 116,000 network miles. Supplied high-capacity connections to nearly 26,000 schools, libraries, hospitals, and other anchor institutions. Open-door upgraded 3000 public computer centers with more than 47,000 computers and the generated within 600 -- more than 670,000 new broadband subscriptions by supporting digital literacy training programs.

>> [ Silence ]

>> In addition to infrastructure projects we were able to fund \$350 million of sustainable adoption projects. [ Indiscernible ] digital literacy is fundamental to sustainable broadband adoption. Successful digital literacy training must be tailored to the specific needs of the community and individual. We have now developed a portfolio of innovative approaches to offering this training. This is particularly important for groups that tend to fall into digital divides. People including lower income Americans, senior citizens, and minority groups. This was not lost on the Montana State library when it won a \$1.8 million grant [ Indiscernible ] [ Inaudible - static ]

>> Many of Montana's libraries had old computers and slow connections and could not keep up with demand. With this grant Montana State library was able to deploy a teaching program in 2009 the FCC divined broadband to speeds less than 1 Mb per second. Today the FCC recommends download speeds of 25 Mb per second's. 10% of Americans would seek schools 34 million people still like that access. Many reside in rural areas where the digital divide has consistently been an issue. Overall there has been consistent progress. More people are using the Internet in some form or fashion. 75% in 2016 as opposed to 71% in 2013. And some of the demographic [ Silence ] group that has extort Klee lagged has also made gains in that timeframe. One of the things we've been doing is to help keep pushing [ Indiscernible ]

>> The president followed that last year with the launch of connect home. To connect home Internet service providers, nonprofits and the private sector will offer broadband, technical training, Dillards literacy programs and devices to residents in assisted housing units. Earlier this year we helped roll out connect all which is a initiative to help Americans at every income level get online and have the tools to take full advantage of the Internet. The president set the goal of connecting 20 million more Americans by 2020. As part of this effort NTIA urged the FCC to expand its lifeline program to support broadband services. [ Indiscernible ]

>> To determine what actions the federal government can take to eliminate broadband services. As part of -- [ Indiscernible ] promote increase in broadband deployment and competition through expanded access through federal assets and improved data collection and analysis and research of broadband. This work will continue in the future. A couple of quick examples is the economic development agency published guidelines [ Indiscernible ] they recently issued guidance to his regional offices that wherever possible patient allow into these two open trenches or other infrastructure created

>> You will hear more about these opportunities this afternoon. I wanted to thank federal cover boards at USDA, FCC, and treasury for being here to talk to us. NTIA is part of the Council. It will empower communities across the country and give them tools to accelerate [ Indiscernible ] the initiative will include a online self assessments so teams can look deeply at the landscaper prioritize the types of actions that will create the most meaningful impact. We hope to pilot this initiative in a few communities later this fall [ Indiscernible ]

>> As you can see they have their finger on the pulse of broadband and is leveraging its expertise and resources of the federal government as much as possible to help communities like yours. Our team wants to work closely with you [ Indiscernible - multiple speakers ] it is called the introduction to stakeholder outreach. It is a toolkit that is intended to help offer insights into stakeholder outreach and we know that stakeholder outreach is important to project success. This outlines a five step process to engage with stakeholders to succeed. I encourage you to visit the website was posted a couple of hours ago. And broadband adoption toolkit will help you design and deliver an adoption program in your community. And our community broadband roadmap toolkit provides a but -- advice. We have copies of these guides any materials. If you have not had a chance to pick one up they are at the registration table. Our assistance goes further than the publications I mentioned. There are also technical assistance. There are workshops like this on today. There are webinars that we often do to find out more information visit our website. I urge you to take advantage of all of these opportunities by consulting with our team on the ground. Please let us know what your communities need and our team will do our best to help achieve your goals. They could for being here. I look forward to the ongoing discussion. I will do a quick time check. I believe we have time for a seven minute break before we start the first panel on broadband financing understanding federal funding options. Please come back here at 1:32 reconvene. Thank you very much -- 1:30 to reconvene. Thank you very much. [ APPLAUSE ]

>> [ The event is on a break. The session will reconvene at 01:30 MT ] And will --

>> Welcome back from the break. I have a couple of had that NTIA. I am currently serving as the direct to of external affairs for the broadband USA program. I am pleased to moderate the next panel. As you all know and as Doug mentioned [ Inaudible - static ] will tell you [ Indiscernible ] a little about their programs and financing their programs offer. [ Silence ] [ Indiscernible ] [ audio and video is paused]

>> The planning money does not have any sort of distress requirement but it is a 50-50 [ Indiscernible ] [ audio and video is paused]

>> For the area. 1% of the civilian labor force has to be laid off. The Denver regional office covers 10 states. We have about from Missouri or two Montana and North Dakota down to [ Inaudible - static ] it is in the middle of the US. Our annual budget is \$50 million-\$20 million. Those funds have to get spread across the region. It does get to be competitive at times.

>> Thank you NTIA and everyone involved in getting me here today. [ Indiscernible ] this is my first time to Montana. If I do believe because I do not want to it will not be the last time I am here. Thank you for having me. [ Inaudible - static ]

>> Universal service fund. There are four different components. The high-cost program, library program, lifeline program and will health program. The programs over the last 3 years have been fixed and movable -- mobile and difficult to serve. -- Areas of the United States. In 2015 the borough continued -- Bureau continue to implement changes from the 2011 confirmation order. Which modernize the high-cost program to focus on extending broadband capable in a fracture [ Indiscernible ] that allowed cap carriers to make is to level commitment to all levels in exchange for 6 years of support which was determined by a engineering cost model that the commission developed.

>> Last August tank carriers except to 1.5 billion in support. [ Indiscernible ]

>> In May the commission established high-level rules for this process. A few weeks ago the Bureau was did a plenary of the eligible phase 2 options. And Montana there is 2300 census blocks available for auction and 7300 locations.

>> We are still working on specific details. In 2015 just over 2 billion was dispersed to eligible schools and libraries. The commission has adopted orders to monetize this program as well. As part is these reforms the cap was increased to \$3.5 million annually. Focuses on legacy services to broadband. \$1 billion in support to services such as Internet connections and manage Wi-Fi to expand Wi-Fi to more than 2 million students. Through this program eligibles goals and libraries can receive discounts on eligible services with higher [ Indiscernible ]

>> The third program the lifeline program traditionally provided a discount on phone service. \$1.5 billion in funding was devoted in 2015. It is available to eligible low-income consumers and consumers are eligible based on income or by the participating of a federal or state assistance program. The commission adopted a complete the form of the modernization of the program. To low -- allow low income consumers to apply the lifeline discount to broadband consumers. Almost 300,000,000 in funding was dispersed. The goal is to improve quality of healthcare available to patients by enabling healthcare providers to allow access to the services they need for telemedicine. The main component of the healthcare fund is the healthcare Kennett fund and it provides support for the broadband connectivity. It has been used but the work has been productive. I am happy to answer questions you have.

>> Hello, everybody. My name is Tim Herwig . I am with the office of the control of currency which is a link in error federal agency whose current responsibility is the supervision of national banks and federal savings and loan associations. If you have ever seen the movie it is a wonderful life the Bank Examiner sits in the back confused and unclear about what is going on. Those are my colleagues.

>> [ laughter ]

>> I get out a little more.

>> [ laughter ]

>> We are the new federal agency on the broadband block. I am not here to talk about a funding program we administer but I am to help -- here to talk about the great collations. -- Tank regulations. It hasn't been changes recently that will encourage more regulated depositories or banks to entertain making equity investments or lending to broadband network. In particular broadband networks or non-MSA areas around the country. How many are here representing a bank?

>> The people in Washington are always keen to know how many banks are in the room. How many are familiar with the community reinvestment act? How many are familiar with the public welfare investment authority? That is the most important thing I want to talk about. To be brief, I'm going to read a few things. What is the CRA? Community reinvestment act enables the federal government to monitor the extent to which regulated depositories extend investment loans and branching deposit services that expand access to the marketplace of financial services to low or moderate income people or areas that are predominantly lower or moderate income. There has recently been a change to the Q&A's. If you are familiar with federal regulations you know that there are questions and answers that

company them to translate the intent of the regulation to practitioners this change provides an additional example.

>> Activities that were revitalized or stabilized. Certain nonmetropolitan middle income census tract to include broadband infrastructure. I want to make a brief commercial for tomorrow. Is many are not familiar with bank regulations that interested in knowing how this might impact your access to bank debt and credit please sign up and I will go into greater detail. This is significant because the Q&A has never had an example of broadband as a qualified activity noted within them. It seems there is a great deal of specificity involved in these situations in which a bank would receive consideration under CRA for brought -- financing broad bacon -- broadband. You would be mistaken for assuming that. The application of CRA as a instances it -- incentive is in fact a broader than the Q&A's give the impression. It is under very particular circumstances. This is something that colleagues and banks have to be anxious about. You do not necessarily have to but it means you can approach banks with opportunities for investing in your networks that may enable them to receive CRA consideration.

>> When I say CRA consideration what I am talking about is it can be document that this particular network has, among other purposes a primary purpose of community development. What we mean by that is in some notable ways the network serves as access to affordable housing, community services, economic development, for low and moderate income people or in areas or will America to an extent -- role of America -- underserved and under stressed nonmetropolitan areas. Or this network provides access to services and economic development that have an effect of revitalizing or stabilizing these geographies or areas designated for redevelopment.

>> If you can come talked to Mike -- to me tomorrow I will share details. Also because of the change to the Q&A's being recent I have a nice slide deck which explains all of this but I have to revise a slide and get all the approvals required. When that is done I believe we will be able to send it out to everyone. There are 65 break's according to the FDIC market share summary taking deposits in the state of Montana. 15 of those are likely to be under the large bank or intermediate smart -- small bank CRA. Which means they have community development on deportations. And therefore would be incentive by this change in CRA to take a longer look at financing broadband networks. All of them can use the public welfare investment authority to invest in broadband networks. Make that -- equity investments in a broadband network. The OCC [ Inaudible - static ]

>> Tend to follow our lead on any precedents in the use of PWI. It allows a bank to make an investment that would otherwise be able to do so under the national banking act as it applies to state banks. It provides the carve out is the into the [ Indiscernible ] banks invest in CRA activities because they can use their public investment authority to do so. I worked with a small community bank in southwest Minnesota in a community of 1500 people. I have banks with assets less than \$15 million. To use its public [ Inaudible - static ] in preferred stock with a fiber optic cooperative called IRS fiber optic [ Indiscernible ] as far as we know this is the first time a Community Bank has been able to do so using their public welfare investment authority. This is a national bank. Are doing so we have established a precedent that FDIC and fed's -- FET supervised banks will follow. This opens the landscape for equity investments and broadband networks which can be demonstrated as helping and having a public welfare investment or purpose anywhere in the United States. The only other example was done in 2013 in Alaska. A US bank doing a big tax credit deal was granted authority using PWI to create a broadband

network including a number of tribal reservations in the state of Alaska. This project we did was last year.

>> Even though in the state of Montana 15 banks would be motivated by CRA to invest in a broadband network that otherwise meets the definition of development but all 65 would be able to use their public welfare investment authority to invest in a broadband network if it meant the definition of a public welfare into the which is similar to community development. That is the news I wanted to bring to all of you. This is a way to access private finance and private equity in your projects. There are many definitions that need to be met. This is not simple which is why it is important. If you think you might have something going please meet with me tomorrow. The last thing I want to say is what is not simple is you need to be serving low and moderate income areas which are few and far between in the rural United States. Also underserved and distrusts nonmetropolitan broadens the scope -- broadens the scope of possibilities.

>> Good afternoon. I am Keitha Adams. I want to thank all of the team for inviting me. I want to thank Geoff and everything they do for Vermont. Want to say hi to Kim Jacobs. She is our general for -- for representative. She will be here for office hours. I want to thank the panel. I am honored to be on this panel. A few of you may have heard me say this but I'm probably the least qualified person on the panel. If you are faithful and obedient you will be promoted. I was in Mountain View and Amy asked us to be brief. I want to thank the panel is for being brief the last time I started first during the debates and in -- season and I felt like Ben Carson. I never got the microphone back. I am from the department that Abraham Lincoln founded. In rural development we do housing economic development, healthcare, first responder, were electric and telephone communication infrastructure. We started in the role of electric vacation -- in 1989 we gave our first telephone loans. Can you tell me where that state was for the first loan we gave? That would be for our telephone company in Alabama. Do you have an idea about how much the loan was for?

>> The first loan was for \$300,000. We have been giving loans ever since then. How many people are [ Indiscernible ]? Thank you for your partnership. We have to loan programs. Infrastructure program which is the traditional program. \$690 million in FY 16. That was our appropriation. We have our farm bill broadband program which annually is about \$20 million. This year we had \$55 million because we had to write a new regulation and had carry over from previous years.

>> Last year in the traditional program we made 17 loans for \$245 million. As you can see that is a long way off from \$690 million. We are open for business if anyone wants to apply for those loans. This year we have approved 12 loans for \$145 million. We have 22 loans in the process of getting through the system. Before Bill loan program last year in the first window we accepted 15 applications for \$180 million been opened a another application window in July and received 12 applications for \$93 million.

>> Most people are aware of our interest rates and terms. Treasury plus the Nate. Our farm bill broadband program has specific areas this year that we did not have in the last four bill. Like percentage underserved priority for unserved areas. We will talk a little bit about special emphasis points for grant programs. We have to grant programs. Our community connect grant program which is \$11.4 million for FY 16. We have a distance-learning and telemedicine which was at \$23.4 million this year. Last year in community connect we received 68 applications for a little over \$100 million. We were able to award five 54 \$11 million. This year -- five for \$11 million. This year we have 70 applications for over \$200 million. The good knows is the emphasis the not so good news is not enough funds. Hopefully we will

get recommendations to the administrator sometime in the month of September. The telemedicine program last year we received 191 applications. We were able to give \$38 million. We were able to approve 75 applications for \$23 million. This year we received 182 applications for over \$95 million and we were able to approve 81 for \$23.4 million. The good news is 45 with distant learning 36 telemedicine and 23 went to tribal -- had a tribal component. We have special emphasis which means we would give an additional 15 points if you were serving a tribal trust area, promise zone, or a strikeforce area. About 80% of the applications funded met one of those criteria. The distance learning and telemedicine grant program is one of the few programs that we have where major universities and hospitals can apply for funding. But they have to deploy the equipment in rural areas.

>> Let's talk about maintain a. Since 2009 we have invested \$429 million and counting. That is \$312 million for the infrastructure program and \$130 million for the broadband initiatives project which was the American reinvestment and recovery act projects and distance learning and telemedicine close to 4 million. 93 million of that 429 went to tribal areas. Overall for rural development we have invested over \$300 million in rural development including housing, business, electric, and water programs which we have invested over \$3.1 billion. That \$3.1 billion is broken down into housing which is \$1.4 billion. I would like to end up by saying that we are proud partners with the Department of Commerce, NTIA and the 25 other agencies of the broadband opportunity Council. We have four main actions that we were charged with this year.

>> We think we will come in this year and to finish three of them. The electric program, rural business program and community facility program. The one we were responsible for the telecommunication program is still being handled under legal review. If you want to know anymore about programs or processes, Kim will be around in the morning.

>> Thank you for giving the advertisement for tomorrow's technical assistant office hours. There is information in the packet and a sign-up outside. You can also just show up. Our panelists have generally made the time available from 8 AM to 10 PM -- 10 AM tomorrow morning. They will all be available to have one-to-one time if you have questions about any programs. In addition Don Williams will be available to provide technical assistance from NTIA. We hope you take advantage of that while you are here. Great start. Keith is being modest I know he manages a \$4 billion investment portfolio. I am glad I'm not dealing with [ Indiscernible ] on that level. I did want to ask a couple of questions. We will start with Keith. We want to make sure you get the mic at some point. Can you tell us a little more about what looks good on a successful application? We have a lot of MTA members that are using US loans. What looks good on a loan application and what looks good on a grant application? What makes for a successful application?

>> Thank you for the question. Two totally different things that we look for on the loan package. We are looking for program feasibility. That you have a good plan and a good strategy. That you are going to upgrade your current system or meet the needs of new customers who are not being served right now. That could be wireless or fiber. We are technology neutral. We also need you to show us we have a -- you have a plan to pay us back. We are good stewards of taxpayer dollars. When we are evaluating a loan we represent everyone in this room including myself. We want to invest in places the where we will be able to show return to pay us back. Our undersecretary likes to say we are a bank with a heart. Sometimes we do or are asked to take risks and sometimes we are rewarded for that risk. That's what we're looking for in a loan package. Feasibility. The grant programs are so competitive I think when you

look at the notice of solicitation of application we lay out the criteria. It is going to be working in underserved areas.

>> The to grant programs we have the one community connect the minimum -- the FCC went to 25 download and Tim upload. This program is for download and one up. You know that is not a very high bar. If you have more than that you are not eligible for the community connect program. As you can see that program is for people who need the help. On the other hand the distant learning and telemedicine program we're looking to deploy like saving medical equipment in areas that are hardest hit. That's why we give emphasis points on strike since promise stones and travel trust areas.

>> What looks good on a EDA application in addition to the rules you mentioned earlier?

>> To be honest eligibility. Assuming the criteria is met the next part is having a job creation retention component to it. That obviously goes hand-in-hand with some sort of private investment. We also have six funding priorities which the regional collaboration is one of them. Public-private partnerships is another. Distressed areas is another. We have to hit at least one of those. The more the better.

>> Tim, I want to emphasize that I think you made it clear that banks can make equity investments. Under the program you outlined, CRA , because of the new Q&A's for public welfare under the public welfare rules. That is very interesting. You mentioned certain criteria. Given that we are in Montana one of the questions I wanted to ask was whether the areas are low and moderate income areas and might include tribal lands?

>> Many of the census tracts that lie within tribal lands. Low or moderate income distressed or underserved and nonmetropolitan. I think using their public investment authority and a network who service area has received permission to do so. One point I wanted to make is that Montana is second to Alaska in the number of geographic scope of underserved nonmetropolitan census tracts, distressed nonmetropolitan consensus tracts and nonmetropolitan low and moderate income census tracts. It seems to me that any broadband network seeking a equity investment from a financial institution operating in the state of Montana will have a chance of meeting key requirements of enabling the bank to use PWI.

>> They are given these banks to -- and assented to use these authority. It is in the banks interest to use these authorities. Can you talk about that?

>> Most but not all public welfare investments also receive consideration under the FED -- CRA. The CRA is something that banks want to comply with at least satisfactorily for two primary reasons. One, banks are retail organizations. In many communities they see themselves as being a central participate to the leadership of the community or region. They want to undertake these activities because they want to be able to illustrate the community. At the very least they assess it is being satisfactory under the community investment act. Second, they want to comply with CRA because if they are in a posture in which they want to acquire other financial institutions or expand their banking network, a poor rating on their CRA examination can impede them from doing so. They have a business development concerned that is very -- a very real incentive for doing well on the CRA [ Captioners Transitioning ]

>> -- it is something I want to make sure we highlight but even if you talk about some of the FCC rules and then I will get it over to Keith.

>> Our definition is different than what Keith the beast is. For at least two of those we don't use definition. For high-cost it is basically the cost of serving an area. This tend to be rural a lot of times but there is no specific rural for income. The eligibility is on income and participation in qualifying programs so no specific rural aspect there. For healthcare programs we do specific requirements and they are different for each program so it is a bit confusing. Universal service administrative Company which the FCC designated administrator of the USF has a tool on their website where you can look up with you qualified as rural for urban. For the rural healthcare program it is defined as an area outside of the core base to testicle area as defined by OMB. Using data from the census, that is confusing and off the top of your head you don't know if you are so that is why it is there to help you out. If you are urban, you qualified if you are looking in an urbanized area or urban cluster with the population of 25,000 or more as determined by the Census Bureau so if you are not urban, you qualify as rural. Hopefully that helps you all out a little bit.

>> Thank you for that question. For our programs it is also on our website and comes out on the notice of solicitation in applications or on notice of funding availability. For the loan program and our infrastructure program it is 5000 and the farm bill program, Congress sought to raise that to 20,000. With our distance learning and telemedicine grant program, we have the same things we do on our community connect program. We don't necessarily have a limit or maximum, but you receive points for - and national school lunch programs. The points are 15 points for rural and other factors in there but 5000 for the infrastructure program, 20,000 for the farm bill program and 5000 or less mostly for the community connect in distance and telemedicine grant program.

>> -- don't assume that you are not, you should check because you may qualify for programs you didn't think you qualified for. With that, I will open it to questions, otherwise I will keep asking questions.

>> I am Lindsay from connect Nevada and the great state of Nevada. Where I live and in my state, 80% is owned by the Bureau of land management. In my state, carriers receive federal funding and spend almost a quarter of that complying to the Bureau of land management environmental assessment, permitting and fees. It has stifled deployment and that way along with the fact working with -- weeks of hard to meet grant deadlines. My question is at the federal level, how are you cooperating to lower cost to carriers as well as offer these great programs and to basically foster cooperation? I have had carriers walk away from grant projects because they didn't want to deal with the Bureau of land management.

>> I will take a stab at it, I don't have much to say but I can give the pitcher the opportunities Council. I think that was a way for federal agencies to get together. The FCC was an observer but away for a lot of the executive agencies to get together and address some of the aspects you are discussing with coordination and making sure our rules are recognizing the other agencies rules and Keith can probably talk to that a little more.

>> The property and opportunity Council as part of the General service administration hosted an event with the U.S. Forest Service, the Bureau Avenue land management and GSA to talk about how we could work better and have more coordination so it doesn't take so long so we can share resources and information. If you look at the broadband opportunity Council report, there is language about maximizing the data once concept and the states Department of Transportation is leading that. There are a few things in the works. I think there is better coordination and better cooperation and communication between those agencies who has managed that and basically it is the Bureau of land

management from the Department of Interior, the U.S. Forest Service and the Department of Agriculture and the General services administration.

>> I would add even both before the broadband opportunity Council there was an executive order that came out to attempt to streamline some of the permitting and these agencies have been working together to work on some universal rules to try to make this a little easier and a standard application to make the permitting easier and some of that is actually on the GSA website.

>> I think the Department of Homeland Security was leaving that. I think it was executive order 1306.

>> I think it was.

>> I think to the extent financing deals involve structured loans and subordinate positions, banks are keen in being in the first position on deals with financing broadband or other enterprises. I think to the extent financial institutions involvement is predicated on their ability to get a guarantee on the loan or that there is some credit enhancement that will minimize the banks risk, that can be complicated by conflicting deadlines for applications, I'm looking at that one banker and I'm talking straight here, that can complicate a banks participation. It can strain their patients and the ability of the bank to manage its business and for waiting for extended periods of time. I think they are accustomed to deals and a longer timeline and more conventional deals but it can still be challenging so competing deadlines can complicate things from credit finance.

>> In the -- program we ran into issues all over the country. While there was an emphasis on recovery and getting down and surveying the communities where they were meant to serve, there are also a lot of federal obligations that come with federal grants and loans we had to comply with so we worked closely with BLM and the forest service to educate them about our programs and broadband building and trenching versus fiber pulls and what that does to the environment and how that might affect cultural resources. Your carriers have resources within like the -- community there are people that deal with this on a daily basis. Folks can go back to them and say how can we work with you to work with these other federal agencies? Those resources are available and you need to take advantage of them.

>> In Nevada I would contact Brian Smith from the U.S. Department of Agriculture.

>> Do we have some more questions?

>> My name is -- I'm the technology director permissively County schools. I have a question around permitting and what degree federal agencies can provide guidance to states who may have permitting issues at a state level that detract from or inhibit broadband development. We are having trouble in Montana based on procedural issues from the Montana Department of Education and requirements around we can have broadband infrastructure running in parallel to state roads and it is inhibiting our development and we would love some technical assistance in that area.

>> From a federal perspective, I would contact the department transportation and Federal Highway administration and if you need to contact, we can make sure you get that, but that seems to me where you would get the most bang for your buck if you are talking about the roads and highways and access and that sort of thing.

>> I would encourage you to come to office hours tomorrow as well. There might be some additional conversation on the topic. I think I see a question from Angela in the back, and that might be our last question.

>> The folks in Dallas at the federal reserve came out with guidance around broadband and the digital divide, can you speak to how the OCC is looking at the use of CRA funds?

>> That is Jordana with Dallas Fed. We are coming out with something I neglected to mention earlier, we are in the process of compiling a publication that deals with a variety of impacts of broadband in rural communities and how banks using their public welfare investment authority can finance them and to what extent these deals will provide banks with consideration under CRA. I can most certainly, and I am the co-author on this so I can speak to my colleague in Washington who is the lead author on this. We have yet to sit down to say what we want to include. I will be happy to make note of your suggestion and perhaps when we are done, we can talk briefly about it. It is the perfect time because we are in the process of putting something together.

>> All right thank you. I'm going to take one more second to thank Geoff Feiss again and the MTA members for lunch and a sponsorship and time for helping us set this up. I want to thank all of our panelists for their time and expertise and remind everyone if you want a little more one-on-one time, please come tomorrow. They will also be here the rest of the day. Thank you all and I will kick it to the next panel. [Applause].

>> [Captioner on stand by]

>> Hello, everybody. Thanks for coming again and thanks to MTA for providing this wonderful opportunity. Today's panel I'm excited about, it is on public-private partnerships and it is a pretty hot topic. We have a really great panel. My name is Don Williams and I provide technical assistance on behalf of NTIA owner brought them programs and that works with cities around the country to help with planning and the mentation issues. I think 3-P is talked about across the country. The public private ownership can address challenges with communities putting in broadband and they can do that in a variety of ways. It can assist in sharing with capital costs and above reduction and barriers to entry to the marketplace. There is liable to be a number of partnerships involving just those two facets of the partnership. In addition partnering with a commercial entity allows a community, local government and state government and county government to obtain technical assistance, market expertise and knowledge of the area of broadband marketing which is significant. The other thing about 3-P is we have been working with NTIA for year and while 3-P is our standing operator procedure for infrastructure projects around the country and have been for a great many years with roads and dams and bridges, etc.. Public-private partnerships for broadband is pretty new and why we have been talking about it for a few years, it is still new and a lot of avenues to examine. One size does not fit all. Is much like broadband in general. Broadband is global and connect your global market and vice versa but in essence the broadband structures you are going to have your community, whether it is fiber or wireless or whatever technology works for your community it is based on your local needs and local capabilities in the same is true with public-private partnerships. The variety of structures is truly remarkable and we have a great panel here today that is good experience with putting in public-private partnerships for broadband and folks who have been thinking about it and writing about it for quite a while. Without further ado we are going to start with our first panelist.

>> Good afternoon. I am part of this panel and the Vice President of the Missoula partnership. Where was a privately that development organization in Missoula. We have about 150 private investors and about 20% of our funding comes from the city and County and the University of Montana. Missoula is probably the baby of the group in terms of broadband. We have finished a second study in the broadband initiative -- picking up where the community has left off. We have a new staffer here named Jenny is going to help lead the initiative for the community. There have been many folks in the community working on this for several years and we are becoming a more evolved entity. We work with entrepreneurs and startups in the community and focus on the high-tech manufacturing, information technology and life sciences and industry that really depends on broadband. We want to bring the private sector voice to the community initiative for broadband and hope to forge those relationships and around all the people necessary to be at the table to talk about how broadband will be moving forward in Missoula. Right now they are proposing an open network access but we don't exactly know how that looks at and part of the goals moving forward in the near future is to help shape that and we would definitely bring the private sector voice forward. With that I will pass it on to David.

>> My name is David and I met economic development specialist with the city of Bozeman. We started looking into what we could do to improve broadband in our area almost four years ago. The effort was put together and spearheaded by the NSU previous CIO and he had a vision for doing an open access network in Bozeman and put together an excellent stakeholder group that was able to drive the effort forward. In addition to the city and the county schools we also have representatives from First Interstate Bank and Bozeman health and the number of people who had been in the telecom industry or retired senior executives from telecom companies and I think that help our effort a lot. I think any public-private partnership is a reflection of the community and its values and how it is put together. People come to me and say I want to steal would to have done in Bozeman. I say don't do that. You can take pieces of what we have done, but you need to have an effort that fits your community and the stakeholders that are there, both public and private. We in this city of Bozeman were largely facilitators of the effort for our private sector and our community and institutions and we will always focused on open access. We brought in some consultants and did a feasibility study and we were able to use that feasibility study and the performers generated from it to approach our community banks to get private financing. What emerged from that we actually had a representative from First Interstate Bank on our stakeholder committee and one day he said I want you to meet my boss. Is bonds, Bruce Parker came up with the idea of how to finance this network and CRA was a component of it. When I say this has to be a reflection of the community, we were studying this and had no idea how to put together and because of who we had in our community we were able to do that. Ultimately we founded a community nonprofit. The city has one of several seats on that board and got private financing and built about 22 miles of fiber in Bozeman and should be live in a couple of months. I can't tailor if it is really successful at this point that there is fiber in the ground.

>> I'm Chris Mitchell, the policy director for next century cities which I do within my capacity and organization for the Institute of local self-reliance which you may of heard about me before talking about municipal works. Next century cities is a group of cities across United States from Los Angeles on one coast and one size to Alfred, Massachusetts which has about 400 people that we have a range of members. We have every one from the Chattanooga municipal approach to the Google fiber cities to communities trying to figure out what they are doing and are alone member in Montana is Missoula. We also have a member that I will plug the next breakout sessions are terrific, but one of our member cities

is in Idaho and they had a wonderful approach. The mayor will be Mayor will be here talking about that in one of the breakout sessions. I would like to split myself and have to go to both of them but I wanted to make sure you were aware they are a member of next century cities and if you are representing a community you might talk to me or look online how to join up and get access to our resources. I wanted to thank NTIA and MTA. I'm from Minneapolis so are dissipating with this is great. MTA has invited me out to have discussions with members and I wasn't always able to take them up on the offer but I always appreciate the consideration.

>> In the moments I have I wanted to reaffirm the local values. One of the things next century cities believes is local communities should make up their own minds about these things. The path for making sure everyone has high quality access and every resident and business has access they need is going to be different from community to community. I very much second David's comments. Regarding public-private partnerships, whatever cities is Westminster, Maryland which you might be familiar. The company in Idaho, their first partnership with the municipality was Westminster and they are developing a network there. The city has financed itself and it will own it. Once a certain threshold is met. Ting will operate on that access basis. That may or may not lead to more robust competition. Sometimes we blur the technical challenges of open access and I don't want to states every technological approach will allow competition. The goal is that there will be multiple ISP choices in the community on the single network the community owns. Santa Cruz is doing a similar model. They are working with a historic ISP within their communities which has a terrific reputation and was looking to expand services but didn't have the capital to build out everywhere. In Westminster and Santa Cruz, the public partners have taken on some of the risk and financial burden to build up a network. I consider these true partnerships because in both cases the risks are shared and if the network performs poorly both sides will lose and if the network succeeds both will benefit. I have been pretty clear in my writings that I think partnership is a term that has been a little abuse at times. The last example is -- in which the community had a partnership with a local company. They spent more than a year I think trying to find a partner to work with them on a network they originally built with stimulus dollars from the program administered by NTIA. They are finding ways to expand that to the community. They found a local company they wanted to work with and three quarters of a year later that company decided to sell itself to a larger or newer company outside the state and they are still wrestling from the fallout. I think there are lessons for public-private partnerships that will come as a result of the experiences they have had but they also have a locally rooted process and I think they are thrilled they have taken action. I don't want to diminish that even though we look at the lessons learned from it. With that I will pass it to Mike.

>> My name is Michael Santarelli and I'm the director of the program at the New York lawsuit in New York City. In that position I have the fortune of being able to do the easy job and study what other people are doing and doing all the hard work so I get to sit back and observe and draw out some best practices and useful ideas and share them with folks in forums like this. The notion of community involvement and broadband and technology issues is a passion of mine. I started my career in city government and I worked with the New York City government right of school. This was the height of the Wi-Fi craze about 11 years ago. And when Philadelphia was exploring how to build a citywide Wi-Fi project and being a staffer in New York City -- we didn't want to outdo us so we had lots of conversations and those work themselves out as they did but from that experience I have grown to respect the desires and goals of local officials. I know all of the discussions and projects and ideas

around broadband comes from a genuine place. I think every local official wants to do right by their constituents and bolster broadband connectivity. I don't think anyone here would disagree with the general idea that we all want to get broadband to a better place across this country. Get it to people who don't have it in continue forward on a positive trajectory forward and improving. All that said I've had some experience in city government and ever since I have worked with and around city government in New York in New York State which believe it or not has some very rule areas and challenges similar to Montana. Certainly areas that need to be served. There is a program in New York I think it is interesting that I can talk a little bit about later that might again might be another idea for folks here. Over the course of our work, we do a lot of research and writing based on studying other projects and talking to folks across the country in state legislators and regulators and local officials so we have had the opportunity to extract out some guiding principles or general notions we think might be helpful to folks so on the specific issue of public-private partnerships, I think they are trying to boil down lots of things and I agree with my fellow panelists that there is no one-size-fits-all. It will be community specific to the extent we can extract out maybe a couple of general notions, I have two I will offer. One is when you are looking to spur these conversations and spur partnerships or in formal partnerships how you frame the issue you are trying to address is important, and how you seek to leverage public funding is important. How you frame the issue sets the tone from the beginning for the conversations to be had. What are the specific issues you are looking to address as a community? What sort of data or information or granular information do you have that sort of highlights these issues and working with the communities and a broad range of stakeholders and bring folks together for a solution focused conversation and getting information from the people you are looking to serve so rather than assuming there are specific needs, getting the information in from folks and narrowing down the challenges were issues that need to be addressed is a good way of getting buy-in to this so you're not just voicing an idea on folks in generate some recoil potentially. The converse of this is when an unhealthy dynamic could arise when you offer sort of a predetermined outcome you think needs to happen at the local level. For example, saying we need a fiber optic gigabit network that offers residential subscriptions at a certain price or the incumbent state to do XYZ. That generally doesn't create a healthy dynamic because it creates two camps. Usually people for the proposals and then everyone else who is not for was not for it more skeptical or satisfied with the status quo. We have seen a couple of instances recently where cities have gone down this path of again very specific predetermined goals and hire consultants and did some studies, but then they stopped or slowed down and try to pull back and then go the other route and get more information and input from local stakeholders and it is hard to reconcile that gap went to lay down a marker of the path you want to go down. Starting from a more collaborative place is usually a better way to create a healthy dialogue it seems like some of the folks here have done that. When it comes to funding, using public resources is a sacred duty of local officials. As taxpayers we will local officials to spend resources in a responsible way and put into effective uses. I don't think any local official take slightly the fact that putting public resources towards any project is something they just do willy-nilly. They take it very seriously. In the case of broadband projects, there is risk involved especially in markets already served by incumbent ISPs. Anytime you enter a competitive market as a public or private provider there are risks involved. It is important to keep that in mind when you're thinking about leveraging public funding for these projects. There are examples of failed public networks in the country and public-private partnerships. I am more pessimistic I will say than Chris in some of these issues that I will stipulate not every project fails and not everyone succeeds. There is no silver bullet or solution for everyone. Is also good to keep in mind the perspective again entering markets that are already served.

We think about a company like Google that is pulling back significantly on the Google fiber project, the fact that a company with \$75 billion of cash on hand is pulling back for financial reasons because they couldn't get the business to work, it is indicative of how hard the business is and it is competitive. Keeping that in mind is important. I would just leave it at that and pass it on to David. Thank you.

>> My name is David Young and I'm from Lincoln, Nebraska. I have a secret I would like to share with everybody here. I am a public partner. I am a polygamist public partner as you can see from the screen. I partner with a lot of people. Please don't hold this against me when we talk about later. Lincoln, Nebraska is the state capital. Is 250,000 people. One thing we like to say is Nebraska -- the rest of the state like Montana is very rural. Taking a leadership position at the state Capitol was important. In the early 2000's laws were passed that barred municipal broadband. As you see on the screen we have a 350-mile broadband system right now publicly owned. We believe in partnership the Nebraska. We partner with private carriers and public agencies. We build library and institutional networks. The fiber of the home networks. If you want to talk about partnership, I can do that. I'm going to end with that.

>> Dave, why don't you tell us a little bit about the actual way you have constructed the network because it is unusual.

>> In Nebraska we lease error. If you would like to lease error, I have a price for it. Initially we were building a stadium downtown and resurfacing 6 miles of road. Somebody came in with a great idea in said put some conduit underneath that road. That was about 17,000 linear feet of conduit. I was brought in and started asking crazy questions like do you have any abandoned water lines or sewer lines and traffic conduits, it turns out we had about 300 miles around the city so we started a program to map and inventory that and create a business model where we were looking to attract different tiers of broadband providers to our communities to provide service. That started in 2012 and I'm happy to say now our system is full. We have six carriers and we have a fiber in the home project going currently which will be completed over the next 18 months. All homes in the city will have access to fiber. We also have two competitive providers building fiber to the home as well.

>> Dave, you mentioned evolving stakeholders in the important stakeholders I heard you mention were the local providers and some others so I'm wondering if you could tell us a little bit about the process of bringing stakeholders together particularly some of the local providers in our community?

>> Sure, I would differentiate a little bit. We had a stakeholder committee largely composed of users and people that could help define why we were doing this in the problem we were trying to solve but I think in addition to that I would like to think we did a good job of reaching out. I don't know if everyone is happy with what we did, but we definitely had countless meetings reaching out with stakeholders, our local cable company and small competitive providers in the area. Small competitive providers that work in the area but wanted to be. I think overall people seem to be less threatened by our approach to open access. It is a layer two network where we essentially transport your bids the last mile, and that is what fiber does. I think a lot of people found that intriguing. They weren't quite sure about it. It certainly hadn't happened in Montana before although what happened in a number of other places successfully. We had to keep emphasizing the fact that Bozeman fiber doesn't want to provide services. I think that was really important to people. It was important not just to the providers but also to our stakeholder group. The Chamber of Commerce took a leading position in putting this Bozeman fiber collaboration together in typically Chambers of commerce aren't about anti-competitive practices. They really wanted to see Bozeman fiber provide this opportunity on an equal and nondiscriminatory basis. I think that

resonated with a lot of people. I'm not sure everyone we reached out to is going to ultimately participate. Bozeman fiber has them to providers that have signed up so far and I know they are talking to others. I felt like doing this process we had to have the same conversation 50 or 60 or 100 times with 50 parties in just keep talking. When you do these big public meetings where everyone is in a room and all the providers are eyeing each other and not wanting to share competitive information, that is not the best way to talk to folks so you have to be willing to put in the time to talk to each carrier and stakeholder individually and do the basic political organizing for a project like this.

>> Jim, at NTIA part of why we promote broadband is we think broadband is an important component of economic development. You are the Vice President of an economic development group and responsible for helping attract businesses and help businesses locally expand. What do you think is the goal of broadband when you are putting together packages for economic development?

>> It is crucial, one thing we do is what we call attraction packages. A company is looking at her area and we put together local incentives that help us compete with other states. Here are the assays you get when you moved to Missoula compared to Texas or California or Utah. One of the components we are missing is the broadband component and it is important. We receive a lot of calls from information technology companies that have a high demand for redundancy. They need high-speed Internet. When we are giving them specific sites in this package related to their needs, we have the provider information there they can reach out to but what we don't have is at this building you have this speed and here is all the providers you can choose from essentially. We have been in certain pockets in Missoula were certain buildings have gigabit service to them or the technology incubator for example or the university system but we don't have that for every building and it should be as basic as lighting. We are really looking forward to having more readily available information because it is crucial.

>> Chris, I know you are view and my view and everybody up here is 3-P's can take all kinds of forms and structures and risk allocations. What makes a 3-P a 3-P or not a 3-P?

>> Your terminology has always confused me because I understand it is P3. I went to apologize, I was prepared to disagree with Mike, I didn't bank on the fact he was a Giants fan. I grew up in Allentown but we are united in our dislike of Dallas and the Cowboys.

>> I'm from Washington, we agree with you.

>> The other thing I wanted to clarify briefly is I agree with the challenge of fiber optics and expense and I would challenge anyone that thinks Google is pulling back, go to Charlotte or Salt Lake City. The various media stories have been somewhat overblown and everything we are hearing from the famously secretive organization. 3-P's and what they are or not, there is a lot of fights around Google fiber around Kansas City. Was a good or bad? The thing that came to me was I didn't think of this as much of a partnership and we saw that years later I would dispute anyone to say it has been bad for Kansas City. I think they are thrilled the relationship they had with Google but they don't know how many subscribers are there. There anchor institutions did not have a service level agreement. Some of these things are negotiated in different cities worked out different things but I would say for all the good Google has brought to Kansas City and the positive benefits from Google's various investments I wouldn't call it a partnership myself. When you say that it sounds like you're denigrating it. I am not. The city is facilitating private investment and that is smart for cities to do and almost all walks of life. There are various ways of doing it but ultimately Kansas City is not going to benefit from more people subscribing

to Google fiber necessarily. They are not going to get extra support for running their schools and first responders. They don't have much influence over Google and all of these things and putting out there as things that are overlooked because of the excitement around that. In other cases when we talk about open access arrangements where a city like [Indiscernible] or many of the other cities, there was an effort, and that is what I would call public-private cooperation in that you have and infrastructure. I would reserve the term partnership where a city and both the partner have skin in the game and if there are benefits, those are shared but most importantly is the decision-making process going forward. Look at the decisions around electrification. Those decisions have stayed with those cities. the cities. Cities that built their own electric grids continue to maintain them. Study shows showed they are at the very least as cost competitive and reliable as private sector systems. In addition they get benefits. That is 130 years later that we are still talking about that. We are trying to solve these problems with broadband over the next few years.[Indiscernible] and if only one entity is making that decision I would say it is not a partnership. That is not to say it's not worth doing the don't call it a partnership.

>> So the key for you is to have skin in the game. This skin can take a variety of forms and decision-making involves both parties or three parties.

>> Member cities have chosen to have partnership and not partnerships. I just take issue with the term partnership and it's important to not think the next five years of the next 50 years and what happens when the sector changes hands or changes interests like Google for instance. Who knows what Google is going to be doing in 10 years?

>> I hear you but I'm familiar with a couple of of public-private partnerships that have been put on hold because of local elections so it's not just private companies changing their minds it is a matter of local officials changing their minds as well.

>> The reason I'm so passionate about it if it is it is not magic. People want to talk about public-private partnerships being [Indiscernible] I would say public-private partnerships would be wonderful where they exist but they don't have to be everywhere.

>> David Young, I still wanted to get a little more thought on some of you are thinking. I understand everything is going to be separate in the community, but how applicable do you think conduit is as a way to bring broadband, selling airspace near conduit? ? y o u r conduit? I have got cities we doing their water systems. There are plenty of old cast-iron pipes. How applicable is this in terms of a strategy to bring broadband versus a city putting in their own conduit and fiber?

>> That's a big question. For our calculus in a dense urban environment -- the most expensive portion of the system. Lincoln took the approach that we should do what we do well. Manholes, right-of-way management. We should do what we do well, pipes, conduits and connections and allow the private sector to do what they do well, providing customer service and connections to homes. That is what worked for Lincoln. I can see other areas where that may or may not be a possibility but water systems have been in the ground, some over 100 years and you are replacing those cast-iron systems with PBC. Some of the most viable conduit asset I have are abandoned water mains. It is not hard to pull six or 8-inch and a quarter PVC pipes through 12-inch water line that has been abandoned. Those are very valuable to us so I would encourage communities to look at the one trench rule in Nebraska and utilizing those abandoned assets. Most of the time they are abandoned in place.

>> When you think about the range of 3-P relationships, I have read some of your things and some other folks associated with your group and it seems like sometimes you scale things in terms of the extent of the government involvement, could you talk a little bit about that? When you think of 3-P, it seems like at one end of the scale is the traditional regulatory approaches in removing barriers to entry in simple permitting and one-stop permitting it things such as that and on the other end you have fewer municipal ownership in one form or another. Can you talk a little bit about hey think about this scale?

>> Sure, I wanted to jump in when you and Chris were talking about the public-private partnerships. He would have been fun to put up a graphic on the slide to show all the different sort of diagrams and definitions and approaches to public-private partnerships because I have seen so many definitions. They all kind of overlap a little bit and share certain characteristics that Chris has one and some of the other groups -- we did diagramming about an open public-private partnerships. From my perspective a true public-private partnership is some sort of a contract that sets forth certain service criteria, reporting and things like that and usually involves some sort of public funding. An example I will provide, New York State has a good public-private partnership at the state level that has \$500 million of funding available and it is essentially a grant program that makes the money available and solicits applications and as long as you meet the various criteria in the grant program you would be considered for grant and once your bid is accepted you sign a contract and you stipulate to certain buildout requirements and timelines and speeds. Maybe pricing, but definitely speeds, where you have to build and who you have to serve so I consider that a public-private partnership. From there goes into all kinds of gray areas in what I would consider a public-private partnership may not be what others do. I initially start talking about the formal partnerships and informal ones which I think involve any sort of government activity that strives to get the private entity to do something. In our work we have highlighted things and programs across the country where the city said try to work with existing providers to get them to build out their network to unserved -- helping them with laying conduit, aggregating demand potentially in certain areas so I think there is a range of things that again could fall under the umbrella of public-private partnership but I think if people get hung up on if it is a 3-P or not, you can spend hours talking about if it is or isn't. I think a formal one involve some sort of contractual relationship and from there the skies the limit in terms of bringing folks together in a way that leverages again what cities do well and what they have authority over and what private entities do well.

>> One less question for me, in my past life I have done a lot of feasibility studies on these issues. Financing, you had some interesting financing opportunities. At one point you are exploring the use of tax increment finance is.

>> I think this gets to what is a public-private partnership and by Chris's definition I'm not sure what we did in Bozeman qualifies.

>> It is a nice restrictive definition. I think what we did was engage a number of efforts that proceeded simultaneously. We built conduit. Like I say we are not in the technology business, we are in the plastic pipe business. Our commission wouldn't buy error of plastic pipe is okay. We used tax increments to finance funds to install conduit in a couple of business quarters. We put out an RFP for the private sector to license that conduit. We are just getting into that again. We are nowhere near 350 miles of conduit at this point but we did put in multiway ducting and have multiple conduits available. That is a financing piece because Bozeman fiber was able to license city-owned conduit.

>> As far as putting the Bozeman fiber together and consultants, we were fortunate enough to engage you can consultants who are also engaged in operating open access networks so they had a track record of putting together fairly low budget open access networks usually in rural areas. It was a good enough performer we were able to take it to our local banking partners. It definitely required multiple revisions as we worked through that process and as we found out how many banks were going to participate in the loan Bozeman fiber ultimately received, but I think it was important, I have seen a lot of communities who have done feasibility studies where they get back this nice glossy 160 page document that tells them a bunch of things they can find out on the Internet for free. I think it is really important when the community starts down this process that they do some work on problem definition and then engage consultants to do things they don't know how to do and to answer questions they can't find out on their own and that is what we are able to do with get a consultants that can put together a business plan and operational pro forma for a business axis network. We financed the planning effort and we -- to help create this nonprofit. In some ways Bozeman fiber ended up being public planning that is now a private partnership with the essentially the private Internet service providers and private financing.

>> I think we can put it up for questions from the audience. We have about 10 minutes left. If you could just state who you are and where you are from.

>> My name is Russ Hendrickson. My secondary role is with our state -- [Indiscernible]. The year and a half ago we started a project with school administrators to improve broadband in schools and with the changes with the SEC last summer with e-rate has opened a tremendous amount of opportunities for schools. Our goal isn't just to improve broadband in schools and homes. We are hoping to partner with ISP's to build this public-private partnership. There is a lot of conflicting information in the recent changes as to what the regulations allow for this type of partnership and whether we can partner with that type of funding. My question is for the school districts which often are the largest institutions in all communities, if we want to partner with local companies or local ISP,, -- will or will not allow with that partnership?

>> I can take a quick stab at it. I'm not sure I can answer the question on how far out you can go but the new e-rate rules, if you buy services do you now try to build because the new e-rate rules will not only allow you -- to have managed services but allow you to use the money to fund your own construction project for fiber. Just as I can tell when you go online you can get most of the information you want in terms of filling out your application. You can do most of that online. There was no more people involved in the application process. It is unclear as to what it is. You can connect from the school system to a providers fiber. What happens after that I don't think is part of e-rate funding.

>> I think there are two scenarios, you might fall into -- I wanted to cover the second one for those who may not have -- where you might partner with an ISP and the school would become a long-term anchor tenant and that can be challenging because you have to rebid those connections but we have seen that in a number of places where there is not expected to be a lot of competition for that bidding. You would build out basically with your partner ISP and the school would take services as they were a normal customer and you don't have to do with the new e-rate rules under that scenario. I would throw out there is a new model for communities that cannot aggregate a lot of demand and a centralized point which is the -- model out of South Central Minnesota where they create a brand-new cooperative. It is a fiber and wireless cooperative that leases its fiber its fiber and wireless to a local ISP that been provides

services. The funding mechanism was fascinating as well. Next [Indiscernible] if you Google RS fiber the deals with the different things we have been talking about in through that you can get fiber everywhere in the community.

>> David Young we were talking the other night in you have a nice situation in Lincoln concerning access to the Internet for school children when they are at home.

>> One of the requirements in our fiber to the home broadband franchise is 15 public virtual networks are provided for public use. We are appearing with Lincoln public schools to provide an SS ID in every home that signs up for wireless service that is the Lincoln Public schools SS ID. If you are a school in Lincoln your laptop will connect to the Lincoln schools that work. We are doing this in partnership with the library system as well. We connected with the libraries last year on the state-sponsored grant and that was to bring a 20 megabit connection for Saban libraries shared to seven libraries shared to a 10 gigabit backbone and 700 megabit connection. That is how we are approaching connectivity for students in homes. We are piloting a project where if you do not have a student and home you can check a box and still allow the Lincoln Public schools SS ID to be broadcast inside and outside of your home and make that available to use for students in the neighborhood.

>> Another question from the audience?

>> I'm Matt Riley, the chief information officer at the University of Montana. I have a question I think were Lincoln about the role of the University of Nebraska Lincoln in the project you have.

>> Because we are not in the same conference, I can answer that. The University of Lincoln, Nebraska had a challenge. A couple challenges. One was getting to East campus through downtown. They were one of the first partners in the Lincoln conduit system to sign the lease agreement and that lease agreement was for no dollars. We did a fiber -- where they give us fibers on their cable and pull in that cable and they expand the conduit system owned by the city and it is that their cost. They are partnering in the Lincoln public schools Wi-Fi initiative to helping manage that implementation.

>> Time for one more question.

>> I'm James Scott with -- and I was happy to be part of the company that worked with Bozeman although I do business here in Missoula. I would love to by Chris and Mike a beer and talk with you guys, I think it is fascinating to hear the diversion of opinions. Somebody feels that public-private partnerships need to be grounded in reality, I think we went through process of some self reflection on what broadband initiative looks like in Missoula and we are still spinning our wheels a little bit on that but I have been a partner to those discussions and want to see that move forward. This question is may be directed a Bozeman but also Lincoln. As a banker we tend to think about transactions having [Indiscernible]. The University would be an anchor tenant to a rock band contact tier. I think Bozeman was successful in his efforts by having anchor tenants in the city, County and public school systems. I wanted to get maybe a little more color from Bozeman as well as Lincoln as how to think about things in terms of anchor tenants and that was -- and maybe just a some words on that as Missoula thinks about what it means to have a successful run at a broadband initiative and how we can think about anchor tenants and project success. Thanks.

>> In a sense, Lincoln operates a tenant list system. Our tenants are the carriers. The way we approach the business model is to full. There are studies when you cut arterial street pavement it degrades that

pavement slide by 35% and we are industry business in Lincoln. Putting in the conduit and providing that Condi went on an equal access basis to any carrier who would like to occupy it was a high priority for a business case for managing the street as set. The other side was we purchased business data and we purchased data on all of the businesses in the city and we created a model that showed gross income for those businesses, location and contact information and average telecom expense and we provide that your partners so when they come in they can identify the areas in businesses they would like to target and help them build that business model from a carrier perspective. In a sense the city partners with level three to look at regional tenants in multiple cities and Nebraska link which is a co-op of rule telecom providers to focus on a different subset of clients in the city and how they provide service to those.

>> I think when people are thinking about the assets in their community they have, public expenditures on telecommunication services are probably one of the really big things the community has to bring to the table, to attract a partner or engage in some kind of public-private partnership. It is unfortunate because it means the city, county and schools and sometimes the University are paying a lot of money for these services. In Bozeman we were paying \$256,000 a year between the city, the county and the schools. We had some conversations if we built our own network it would pay for itself in 20 years. I think for the anchor tenants, we realized we received tax dollars from citizens across our community and for that they expect us to provide good city services or school services or County services that it does dollars we're spending on telecom only help the government provide better government services but you don't think bigger about how those dollars could be used to harness more investment in your community then you are missing an opportunity and an opportunity to be a good steward of taxpayer money. The city, the county and the schools were at the table throughout the process. We have fiber right now but we are paying a lot for it and we ended up with dark fiber at the end of the day which means we kind of have control over our destiny in terms of our data growth and we have the technical capacity to manage that. That is a lot of money to pay for 100 megabit service and when we are not helping the businesses and individuals who pay taxes in our community for that amount of money, that's not helpful so we had to think about that as an asset. What you do and how you engage in those conversations, that is a whole range of partnerships and how you choose to buy and get services and there is a lot of great approaches people have. Sometimes the carriers will drop their prices. Sometimes new carriers will come to town and build you a network. Sometimes they do a little more something off the beaten path. It is really a big asset and probably the first one you should look at when you think about your community assets.

>> I think we are out of time. I love the idea being a good steward. That is pretty much the way to think about public-private partnerships and the way you can be the best steward of the resources and assets. Thanks to the panel and thank you audience.

>> One more round of applause for both of our panels this afternoon. They did a great job. We are going to take a break until 3:45 and when you come back we have two breakout panels and they are both in here. The panel on getting started on planning will be in salon Edward [Overlapping/Multiple Speakers] will be right back in here. We will see you at 3:45.

>>

>> [Event is on a break and will resume shortly]

>>

>> Okay, we're going to get started. That is the most well behaved crowd ever. People were checking their watches. I am Angela and then the director of the national digital inclusion alliance. I food your from Columbus, Ohio. They have asked me to moderate this panel on community anchor institutions. A couple things, because we have six panelists were going to run this and try to get everybody's incredible ideas out front so let's start with who everyone is and what community anchor institutions are. If we can that everyone go down in your name and what you do for living and maybe name one kind of community anchor institution and then maybe we hit most of the ones. Valerie?

>> Good afternoon. I would like to thank you for inviting me to be on this panel. I was also invited on yesterday's MTA panel and found this conference very informational. My name is Valerie and on the director of IT for the -- tribe located in North Idaho. In my role as director of IT I have worked for the past decade or longer on building out broadband infrastructure on the reservation. We started with a wireless ISP. We built our own ISP and eventually upgraded that to become a fiber and a wireless -based service. We recently completed that project last year. As far as anchor institutions go, I work with the tribal government and that is probably the biggest anchor institution on the reservation so it is really important in your territories or service areas you work with anchor institutions to build out and develop capacity to service the needs of the local businesses and institutions, the libraries, schools and residences.

>> My name is Barry Fowler. I am the director of human and system resources, I'm not really even sure what that is but I work at Clark fork Valley Hospital in Great Plains, Montana. I came this afternoon and brought the smoke with me from the fire. Our hospital is the largest employer in Sanders County. We are not even rural, we are frontier which means we have more callous. We are the largest employer. Besides being an anchor institution we are in light on the hill so if anything were -- were happen in the county people would like to come to us. The society we are in today, healthcare is using broadband in so many different ways, both to deliver care as well as manage all sorts of healthcare programs. I am not a real IT guy but I would tell you how we use it and what it means to us as we go along.

>> I'm Jerry -- the Vice President and chief information officer for Montana State University in Bozeman. I have responsibility for the campuses and our residual locations throughout the state. The anchor institution I represent is higher education universities. I look forward to talking about the opportunities there and the myriad of opportunities and ways we can think about anchors just beyond infrastructure.

>> My name is Hatton Lippman and I'd serve as the director of communications for Missoula County schools. K-12 schools are in a good tenant but it is important those -- 24 hour learning. That is what 21st century education looks like and recognizing the need access to broadband services is just as important of the anchor institution of the physical school structure of the building.

>> My name is Jenny Stapp and I am the State librarian for the state of Montana. I am here representing community libraries as anchor institutions and at the state library, we have no governing authority over libraries. The truly our local community institutions. In our capacity as a state agency, it is our role to provide support for infrastructure development that is scalable to libraries and communities around the state and would look for opportunities to support innovation and engagement that can happen at the

community level. Libraries are in a unique role within their communities because they support information needs for people from birth through their entire life. We talk about learning across the entire lifetime. When you think about learning across the lifetime information needs the subject matter and opportunities for support and run the gamut from your basic literacy needs to supporting curriculum and homework help to supporting team learning opportunities to higher education, economic development, and senior needs and healthcare needs so regardless of the conversation happening in communities, libraries should be looked to as resources within those communities so we are very happy to bring libraries to the table to talk about broadband needs at the community level and think about how we can support their needs through state and federal resources.

>> My name is Jerry Tilley than the CEO of me months. Newmont is five companies. We operate in several areas of Montana and into western North Dakota. We operate three -- the incumbent local exchange carriers. We do that in western North Dakota and roughly 11,000 square miles in northeastern Montana. We do drag down the average. I think I heard somewhere earlier the average of the state is about three people per square mile. We dragged that average down pretty badly. We roughly represent one per square mile if we are lucky. There are more callous than people buy a whole bunch in our part of the world. We also operate as a -- called project telephone. We started in the -- areas just outside the buildings. We reach South along I-90 into -- and that part of the world and further west reach into [Indiscernible] and even serve one exchange in northern Wyoming so we are spread out. We are also a wireless company with facilities -based -- I will talk about northeastern Montana, is where it is where we tend to focus a lot of our attention in western North Dakota. From a wireless standpoint we operate roughly 137 cell sites in northeastern Montana. Project telephone we do also operate a three G network there and we operate a three G4 G network in western North Dakota Dakota approaching somewhere along the lines of 200 total sites if you look at our entire footprint. I think it is important to note we are also an Internet service provider so we serve roughly 14,000 broadband customers in that footprint along with 12,000 wireless customers. As far as anchor institutions, we serve roughly 65 anchor institutions in our footprint. 40 schools, nine libraries and 16 hospitals. Roughly 81% are served by fiber infrastructure and those that aren't we are correcting to -- that.

>> Thank you. Anchor institutions as they mentioned or anything you want to define anchor institutions as being. It can be the tribal government. It can be the community center or senior center or places in your community that are not going anywhere and their role within the community and the community thinks of those as anchor institutions, that is how we think of anchor institutions. Let's go with the infrastructure question, what is the role of anchor institutions and broadband deployment?

>> I think the role of anchor institutions and broadband deployment is to demonstrate the concentrated area of need and that tends to anchor where your physical infrastructure needs are. For Missoula County Public public schools we have 17 school sites and four to additional sites around the community. Schools tend to be geographically placed in areas communities need service and they usually tend to exist along corridors where you also need other service so they tend to be very strategic entities to make sure you are building infrastructure to them. We in Missoula County Public schools identified that need in the 2013-2014 school year. There were contracts not meeting our needs as far as broadband speeds for prices we found to be competitive and affordable so we started engaging in the conversation locally and as a result of our requirements went out to bid for a big service because our contracts were expiring. We were lucky enough our anchor attracted more competition from the marketplace than it

had previously. I think because a lot of entities saw our locations were geographically dispersed and provided a great opportunity.

>> I would add, and we've really had some great conversations through the MTA meeting in earlier panels an earlier panels about the importance of community determination when thinking about broadband deployment and I'm sad this panel is paired against the planning panel because that would be a great session to be at. Because broadband planning and deployment is inherently community-based, community anchors are reflections of what is important in this communities and therefore are reflections of the needs of those communities which should be driving broadband planning to begin with so bring this community anchors together to have that kind of conversation about what the needs look like should be at the heart of driving that planning.

>> Let me challenge one of the assumptions of the question because the original way it was framed is what can anchor institutions do for physical infrastructure? I think we have gotten my homage. Our conversations about broadband are almost exclusively focused if broadband is an end in and of itself. Deliver high-speed connectivity and things are good. We don't have conversations about services or applications. Anchor institutions if you go back to the 1990s when community networks were first coming online when we were dealing with things as DSL and dial-up as a way to get information were more focused on what folks were going to do with that information and how that was going to drive the infrastructure. You see it in almost everything. I would point out if you -- look at page two and three. There are two X is on research and programs -- there is no discussion about building applications anymore. We assume anything that exist online must be good and good enough good works in the cities that certainly it would work in Montana. I think there is overall anchor institutions play because of the attributes in our communities of understanding those needs. There is a foundation that is important in terms of infrastructure but beyond the physical infrastructure, anchors play a role in that in a way that is in no complex with our incumbent providers we need to mesh with to get the coverage in the state that is necessary. Iker just beyond thinking about infrastructure, it is the necessary foundation you can go back 27 years. Right now this state is closed out of conversations that deal with what people are going to be building next. We were at a conference six months ago and a representative from the national science foundation talked about smart and connected cities Eric I sat down after five minutes because the speaker made it clear because the city was something that had over 200,000 people. Those are the opportunities that anchors are missing throughout the state because we focused that the federal level on what is big because big looks like it is complicated and that is where you should focus. The rural needs of the state or something we have to be advocates for. Anchors can do that across the continuum and it is important to add our voice to the conversation.

>> I don't want to talk about infrastructure, I thought I had to because you like to talk about infrastructure. I'm a digital inclusion person so I would like to talk about equity. The next question gets to where he is that, how is this broadband discussion important to the work of anchor institutions?

>> My first career was in secondary education. I have seen the result of young people making poor choices at an early age and what that means to their lost potential. I was lucky to live in areas that had opportunities for those young people to continue education and build a career and not just settle for a job. In rural Montana, at least in our communities, we are seeing the things in adult education that are being offered are things like fly tying and things like that rather than things that are moving adults and young people from jobs to careers. I think as a healthcare institution, one of the things that is really

important to us is workforce development. Getting people to come to places in Montana or someplace in a rural community, you have got to provide a place for their spouse to work, too, and that is not always there. We have people in our communities, if we can raise their awareness of a career in the opportunities, we can partner with schools and community colleges across the state. We can partner with universities. We can start to let these young people -- our friends and neighbors we work with everyday see there is potential for a career they can access. That is how I see that going for us.

>> I have got to share this story. This is something we as a company were unaware of until several of us were here at the MTA conference here this week and our CEO got an e-mail from one of the national associations we interact with. It was good job Nemont. It is a young girl from North Dakota playing on a farm in extreme eastern Montana on a four wheeler and has an accident. She is gravely injured and at least an hour's drive from the nearest medical facility of any sort. Her mother does get on the cell phone and called 911 from the middle of nowhere. Regardless of whether she bought that phone from a national carrier or from us, the cell site that carried that call is the one that Nemont built and manages. The infrastructure discussion whether it is broadband or wireless is important and want to keep in front of us. The call went through. The folks closest that could respond to take care of the little girl got there and got her stable. They got her to Sheridan County Hospital in -- Montana. Not eight to your one trauma center by any sense but certainly good folks that work there and are very good at what they do. A physician's assistant there was concerned about the level of injury of the little girl. She latched up a telemedicine conference with an emergency room doctor in Sioux Falls, South Dakota. While the life flight transport was in the air to pick her up and get her to a place where she could get the care she was going to need, the emergency room doctor remote-controlled the physician's assistant to stabilize her. She had to collapse lungs and broken ribs. A cracked vertebrae and also I think a broken leg. Pretty severe injuries. I think that is the application of what broadband means to an anchor institution in the real world. It was not something we prepared for as a company. It is something that as a course of doing business we want to work with those institutions and bring them what they need and try to solve problems they feel need to be solved with networks. The hospital had thought about those things and thought about bringing as much of the outside world to them as they could possibly get long before this little girl was injured so I think that is a fun story to tell.

>> I would like to add to that application conversation. In Missoula County public schools, for the first two years we couldn't have conversations about applications or layer three things into the infrastructure was there so I went to recognize for K-12 or any other anchor institution, it is the gateway. In the library context we were having conversations with librarians who were ready to get services like overdrive in the school systems where they could download -- we couldn't even have that conversation. We are limited in the applications we can provide. We are so happy with the help of e-rate funding and Missoula taxpayers we have resolved a lot of those internal connection issues but in reality the bottleneck exists for us at the Internet and at the broadband layer right now and that is primarily an affordability issue which is an equity issue. In Missoula, we are paying for service that at the same price different communities in the state are getting five times faster service. That limits our ability with limited taxpayer funds to pay for those applications. I have to say to the curriculum director we don't have money to share for the cost of this do great digital software because it is tied up in paying for bandwidth. That limits our ability to get to that applications layer. We are excited to leapfrog there and excited for infrastructure investments to enable us to get there but in our opinion it is a necessary gateway to the result.

>> Can we jump now to why the home broadband, you brought it up in a couple of different places, but why home broadband significant speed, affordable home broadband is affordable to the work you do?

>> On the reservation we have approximately 8000 households and the reservation in the center has a leg. Our main service is on the west side of the reservation and the population center is on the -- four townships and multiple Lake communities as well as a bunch of scattered homesites. The majority of the people on the reservation have pretty limited income. We have two counties on a reservation. -- County is really suffering. In order to make sure we keep everyone included we have to make sure the broadband access would provide is very affordable so we basically take a look and see what our competitors are doing and try to offer the same price range but higher speeds. I think we were at the same MTA meeting in DC and we were talking about how we should define broadband and it changes every year, I always think it should be something like 100 megs to the home and when we reach that bar we know we have done something that as soon as we reach that we would need a gigabit or something like that. I think the price ranges are important. I appreciate there is that lifeline is going to be expanded to include broadband because right now most of my subscribers are unsubsidized so they are paying for when they can and when they can't they turn off the service and they come back in a few months later when they can turn it back on. Because of that where we are flexible. We don't have any contracts good data limits. What you see is what you get. If you sign up 10 megs you get 10 megs. We are pretty transparent in that manner.

>> One of the things buried brought up earlier is the fact that Scobee is so remote. Our young people when they graduate from high school they go away to college and probably are not going to come back to Scobey to work and that is a problem because we are a technology company located in Scobey and we need skilled labor. There is a need for teachers of the school and doctors in PA's at the hospital and those sorts of things. One-story I can relate is we did have a young lady who graduated high school and went on to the University of Wyoming and got her bachelor's degree. She is now pursuing her Masters bit she is able to come back to Scobey and take a job as a teacher at the local school and get her masters for the most part online. I think that is one of the reasons why those broadband connections are really important.

>> [Captioners Transitioning]

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>> -- in both their applications of technology and their needs for data as we move into an area of decision agriculture as we look at climate change of what is going to mean for rainfall and planting, those data need to get a lot more intensive and one of the things that's interesting about the research centers throughout the state that are focused on Akron out his or her experiment, Montana research initiative with that balance between the appropriate bandwidth to allow people to do precision agriculture, but will eat almost anything that we want to do in the home anymore has a degree of data intensive associated with that. We want to do precision medicine when we are at home. We want to have access to data. We don't want to just look and read about something on WebMD, would be better if we could actually look into video of what something might look at or how it could be there for. I think

the other area and again we as a society in particular in Montana haven't challenges mental health. One of the challenges right now is the lack of equity in terms of access to broadband is you have to go some ways to get mental health care. That's not true in all states. I think acre institutions are great to think about for coordinator some sort of services but the barrier to go into an acre institutions and get mental health is no different than what it is to go to the hospital to get mental health and until we think about the capabilities that we have to provide adequate outreach to leverage both resources that we have and hospitals and universities and school counseling we are limiting something that we know is a mission criticality be toward a citizen the importance of it. I want to add one of the new wants. Talk a lot about wired and wireless. I want to make sure that we are not missing the fact that there are places in Montana that you will probably never easily be able to go to in the wired way. We talk about wireless we need to really be thinking about the opportunities to look at the next generation of cellular data because this would've infrastructures will get us likely the coverage that we need to really get right into the home in some places that the market forces will never drive and the feds will never invest. And again, I will go back federal agencies why not best and in the next generation of wireless broadband in terms of cellular data focused on big cities and their needs, they are not the get about world communities, rural communities have a critical role to play in the mission need to be part of that conversation.

>> I just wanted to briefly add visible unique model and libraries around the country and is a growing model here in Montana where libraries are actually checking out Wi-Fi hotspots to their patrons. I know in Helena the libraries would be checking them out for a period of six weeks. It is really in particular a way to serve low income people who cannot afford to have broadband but have students who need to be able to do homework or participate in flip classrooms or take advantage of the online information resources available through their libraries or the medical research going on for go certainly broadband is at the heart of the services that libraries offer and this is a way for libraries to expand those services to other populations.

>> We've talked bit about the barrier of cost to interaction with the Internet and broadband adoption, can we talk about digital literacy? How is digital live is really important to the work of anchor institutions?

>> I will start. So the Montana state library was a recipient as was mentioned earlier our broadband technology opportunity program grant a few years ago to support the development of a look competing centers and about 43 libraries around the state and one of the primary efforts that we supported was digital live this rig and digital inclusion pick we did that in a number of ways. First and foremost was basic online literacy and application training to help want wanting the citizens become comfortable using different kinds of technology. But that then expanded to other forms of digital literacy because we know that my tennis citizens need to access E-government services. Between that and homes, they are doing that libraries. We know that they are applying for jobs online. We know that they are looking for educational and health resources and on and on. They need to have a place where they can learn about those resources, the existence of those resources, they need to learn skills in order to make use of those resources. Basic tips and tricks for using the Internet, using the devices that they have and there's really all for those people in libraries all around the state. Toget the skills they need in order to take advantage of those resources so we are really proud of the partnerships that we have made with schools, with job service, with a wide variety of state agencies and so forth in order to bring those kinds of resources to Montana.

>> I appreciate that Jennie, identified what we usually think of when we talk about digital literacy and that individuals adults and children, accessing knowledge and resources on the Internet and expanding their potential as result of that. I also want to talk about another challenge around digital literacy and that's the strategic thinking around what IBM can do for your anchor institution and with 492 school districts in the state of Montana, Russ and experience a significant lack of digital literacy amongst our tech Director Holly's and superintendents and school districts across the state of Montana. It terms of understanding the real needs, how much they are spending on broadband versus there other utilities that are becoming so monetized and what they could be doing if they were resulting in a strategic way their broadband access for their students. It is a different way of thinking about digital literacy, but it is a strategic business level need amongst leaders within the K-12 sector.

>> I have not had this conversation previously, that is [Indiscernible] they were defined in the digital literacy that we pick we've been having the same discussion with an indie I ate my the term digital divide because are so many different digital divide it and so which one are we talking about and so really there's one of you set a goal to bridge the digital divide you might reach the goal but it matters, but don't think you are done. Because then you have another goal like you are always the same thing with the digital literacy. All of us are always learning the technology is always changing and we should not restrict ourselves to thinking about it in terms of those who are less educated because of those two are very educated are also stuck with some lenders on about what is that this tillage you when you can do the that and what it means to them.

>> Any other comments?

>> I think that's a very interesting comments as well and as far as my role as an IT Director working for the tribe, it is governed by tribal council that has seven members, seven elected officials and when I first started working for the tribe as an IT Director I would go to the Council, propose ideas on building out infrastructure and after about 15 minutes they would start me in a state you are speaking English I don't understand a word you said. Sore always dated to interpret. I had big year and a way to figure out what was important to each travel -- trouble councilmember into make my work important to them so we had some Council members that were advocates for medicine so I had to approach how broadband can help telemedicine and there's others who wanted to really, data focused on education so I would have to talk to them about distance learning so as I made important each and every one of them that I felt like it was their network and was something that help them on the works I think digital literacy we are talking big people you have to figure out was people don't care about the wires and bids and zeros and ones, they just want to know what is going to do for me.

>> That's perfect. I think we can go to questions from the audience. I have plenty more I can ask but it is probably a lot more fun for you guys to engage their esteemed panelist.

>> I'm Jeff today from the Confederate [Indiscernible] five just north of here. I'm IT program manager and as you were talking about the future being cellular it struck me that within the cities versus urban versus rural conundrum in the city the issue their becomes overwhelming because of density where as in the rural environment it becomes overwhelming because of distance. So you have a completely different set of issues that you were dealing with. I was wondering if you could they be expand on that a little bit as to the sum of those are because I can see some of them but I don't know that I know all of them.

>> We struggle with that balance. We would love to build a fiber network to every location that we serve and that 10 or 11,000 square Miles but it is not possible so we go back and forth and argue a lot internally about whether or not it is cheaper to build fiber to a cell site that we can reach within the radius of that cell site, 30 or 40 customers then build another one and to build another one. We also understand too that in some cases you are going to have to because of terrain and because of some of the other things that in fact the way a radio frequency will move around that you may have to build more dense cellular networks and you really can't afford to. It is a challenge but we do see that we believe wireless ways a big part in the future of how we deliver broadband to everyone we serve. It is not the only solution and it is not always the best solution but in many cases it might be the one that we have to deploy. We also understand too that there are different ways versus, not just a cellular wireless delivery, but also other forms of wireless delivery that we should be taking a long hard look at to see if we can serve some of the pockets of population that we have that are really remote and we are looking at those peer a hope that answers your question.

>> Just to leverage off of that, I think when we think wireless data we tend to move over into the license background in the license that realm certainly has great capabilities, but the reality is also there's a fair amount of flexibility dependent on his cases of applications that you can get out of unlicensed spectrum to cover very broad distances now. I think there is a very interesting model in Southern California that runs basically from the coast all the way to Arizona it was a network that was started as a research network to try to get wireless connectivity to a planetarium by one of the original architects of the Internet, Hans [Indiscernible] was one of the architects of an assessment which would then be turned into the commodity Internet as his second phase of life went down and started thinking about how do we get connectivity to places in the backcountry? An awful lot of what he did covering tribal lands, covering emergency operation centers for while fire responses use unlicensed spectrum. I think were hesitant to do that sometimes with because of expertise, the technology is a little different, does have a lot of variability what I think right now given the fact that 5G doesn't really even exist unlicensed spectrum in areas and Mantegna is something that we should probably look a lot more at it again I think if you look at the federal programs it is not really clear how welcome and a licensed spectrum as opposed to wired or as opposed to more conventional wireless would be another area we should be pushing on.

>> Other questions?

>> I am Michael for -- one thought on the cellular versus the wired is looking at the utility model for building out the electric grid what you are seeing expand in that kind of financing. The challenge we are seeing is where the financing is going in the subsidies are going right now in really reaching rural America on the federal level. A lot of money sent this is really going to reach those really rural Americans to make a difference they are going to need long-term. I'm concerned with the cellular service is for bid to lack of words, they have to pay for everything you eat so when you put the cellular service into a role model I think you are still putting those people behind in the curve then further than they would be if you can actually figure out a way to get a wire or fiber to that premise. I think we've got to continue to work with where the subsidies are going to reach those really were role customers so that they do truly have the same potential for bandwidth and bandwidth consumption that those who are closer to the municipalities and or dense areas.

>> We've looked at that. We actually do employee a fixed wireless infrastructure to some of the most remote areas of northeastern Montana and we do that on a fixed cost. So it is not a usage-based charge, you pay for a particular speed at a flat price and then use what you use. We've looked at that. I want to add onto what Jerry said, he's absolutely right that there's in this part of the world where there's not a lot of potential for interference that unlicensed spectrum is almost a frontier that is perfect. For a lot of the remote areas and it is something that we are here in the last two or three months I would say started to take a real hard look at as a company and as a service provider. That's what I do.

>> I was going to add onto both of those questions and comments, I think there is something you identified in your question that we did not talk about as [Indiscernible] but the utility is one of our rules is to be an equity partner for lack of a better word because quite honestly the capital that's available for example prom you rate is not accessible unless you are school partner in the mix. I think is important to recognize that government agencies that can act as anchor partners represent a lot of federal or other tax textbased funding that can help build infrastructure. I also think it is important that when you are talking about cellular or wireless to think about how scalable that's going to be as an acre institution that's currently on wireless we realize realized pretty quickly that the build-out wasn't scalable to meet our needs. So I think you can design for it to be Scoble and I think that's entirely possible and I think the license spectrum issue can be a challenge especially if you are we are considered urban in the state of Montana and so if license spectrum is hard to get because whatever is going on and it cannot scale to meet your needs then you can be really time-limited pretty quickly.

>> Thank you. Other questions from the audience?

>> Okay, so resources that you all think they should know about? National, local, whatever.

>> Everyone should visit education superhighways compare and connect website. It is a wealth of information, it takes all the information from federal the rate applications and put into an incredibly searchable incredibly usable Valley database. You can see at least with regard to K-12 institutions what service is being provided at what cost and that is the best transparency tool I've seen in a long time.

>> I think the other thing to harken us back to the past, we've been doing this now for the most 27 years but we forget the lessons that we've learned in our community networking asked and to go back into look at the models and evolution that have happened in Virginia, Champaign, champagne, other areas across the nation every time we get a new broadband we start back with the different cast of players and we begin the game again like it is never been played before. I think it is too important to understand that this Bob Brand challenge was a little differently in terms of speed but these exact questions are asked nearly 27 years ago. We have things that I work, we have things that we know haven't worked, going back and reflecting on we learned out of those experiences and some of them have failed, some of them have succeeded. I think it is important again as technologist is always easy to chase after the newest technology with the new zero that goes after something show how fast it can be but most of the time they don't change the nature of the game, the disruptions happen infrequently, the pace is pretty much always the same.

>> Anyone else, resources?

>> A couple resources. As Jerry was alluding to we have been looking at this for so many years and budget really for those of us in Montana, their states have put a red very viable models for us to think about and evaluate. We are not forging new territory and some models are successful, some are less successful ago we can pick and choose from the best of the best that's out there and we need only to look at some of our neighbors for some really, really good waddles to follow the structure follow-on. I also put -- would be remiss if I do not question a great new document from the schools help libraries broadband coalition, I haven't to be the chair of their board so it would be found upon if I did not bring this up. This document is a very, very well researched policy document that's targeted at policymakers at all government levels. It takes a look at 10 different policy issues that communities, cats when they are thinking about how to deploy broadband to their communities, the policy issues are wide-ranging ago they've been authored by experts in those areas so I really encourage you to go to [Shelby.org](http://Shelby.org) and take a look at their broadband connecting anchor institutions a broadband action plan. I have one copy. I'm not going to give it away but I do have a copy of the executive summary that I could share.

>> If I could adjust one other thing. I think this resource that we don't have and I would like to issue a challenge to MCH think about this. We don't know where the private sector is thinking about building or the capacity that they are thinking about building in those areas. Throughout the state we are ignorant of that. The understand the reasons that some of that is proprietary. Coercing happen in other states California, alone why, Indiana and there is state on the table those planning Maps it talked about in way that allows anyone to form a strategy. I now our individual interest the allows us to the comforts of Ms. Of where is the state we could go in that means that many of us as anchor institutions may be trying to solve problems that if we could partner we could result but we don't have the right forum I think this would be really interesting area for MTA and anchor institutions to talk about how can we have the right conversation about where you are thinking about going, also won one is a set because the state network hasn't been talked about where variety of different reasons and affect the state is in here as a panelist is an indication of a lack of one of the anchors that would probably need to have in these conversations. But until we get that picture, there will be always another state that will run loops around us because we don't understand how we can work together, I understand the private interest, I want to see a Wave we can identify a public good to a Leasure common understanding of capabilities.

>> Thank you.

>> Perfect segue in what I wanted to say. Not the only thing I can offer in terms of where to go from resource standpoint is, see me. See my counterparts at the other telephone companies that serve you in the areas that you are in. We are willing to sit with you, we are willing to plan, we're really to tell you what we know about what we are going to build on it works and so I think it is something we forget to do. We get busy as a company doing all the things that we do get busy as an acre institution and it almost makes sense that a be we should all take time maybe once a month or once every two months sit down and let's talk about where would direction as it were RSs. Let's work together.

>> I good way to go.

>> Fabulous. Any other resource suggestions?

>> I feel that the beginning to tell you what I do. I'm the Director of the national Digital inclusion allies and we are another resource for you to go so we are over 200 affiliates now but these are broadband adoption we call them digital inclusion programs around the country that are figuring out how to

increase access and use of technology. They do it through public access, home access, digital proceed training and low-cost devices. Those folks are some of you folks and some of these folks and having a place for them to all talk to each other is turnout a listserv is one of the most popular things we ever did and I just had no idea. Yes, sir?

>> Without parole, Montana -- -- if Theodore here -- who used -- if we are playing background throughout rural Montana we were Montana here. One of the challenges we have is how do we entice arena how to entice school districts to become part of this conversation where the thinner the department gets and we met classy schools where the tech Director the tech person is the console so with their workload help can they even have the time on the data think about broadband planning in Scobey, Montana or upon the high line or South of the [Indiscernible] those types of communities. So my question is how can roll with these anchor institutions hope that? How can we reach out to the communities that need this information the most?

>> The causes of it what Jean you said at the beginning that the planning session is happening down the hall is there are some states that the state of main has planning grant and it specific also acre institutions and it specifically calls out digital inclusion. It gets folks to come together because they are putting not a lot of money on the table but a little bit of money, they the give folks to work together and sometimes the fact that there's that money there gets folks to talk to each other and then maybe they don't end up with that grant. But get them talking to each other. I think would've the things we have throughout the state that we haven't talked about our extension offices and extension offices usually exist in a County location. It they usually are in a community that has a school this energy synergy potentially because of the support of the land-grant of those extension agents that have always been meant to be transferring knowledge perhaps broadband is something that we should include in those conversations with state government K-12 and extension again I think the University is can partner to help share some of that information. The education superhighway information is really great but you have to understand where you want to go before we know if what you have is sufficient or not. I think that's an important part of the conversation and the gets back down to not knowing what the applications are going to be, the dollar amount knowing that you are pain more and maybe that something you cannot really influence in the market but you don't know if that's important until you know if it stopping you from doing something. It goes back to at the end of the day every network that I've ever sold and I've done this in Illinois, Indiana, California, all of those are all about how the network was used and the users of the network. That's the conversation that has to happen from literacy, gets to cost, gets to application that makes this something that people care about because until then it seems like we are talking about if you dig all you want to pull wires and eight and is that not enough even during a City Council to probably get you a lot of attention.

>> The extension agencies are a fabulous point and there are some that are already doing a lot around broadband so if you want to pull them into your discussions it is fairly easy to find them, Mississippi in Oregon are doing a lot in those of those states to put them in and they are happy to share what they are doing.

>> Every once in a while you get a moment of clarity --

>> Let's hear it.

>> My moment of clarity is as an acute institution as a hospital that we rely on broadband to do so much of our work are electronic medical records that are patients have our housed in Branson Washington. All of our x-rays are housed in Kalispell, Montana. When you call our hospital the phone is answered at Saint Patrick Hospital in Missoula and transferred to wherever it is needed. We are communicating but I have not done a good job of articulating the importance of broadband and connectivity to the people in our community when they continually the feet new levies to enhance equipment and necessary services at school districts because people in rural Montana don't want to pay more taxes and they see eight new line the being a negative thing so I've seen three technology will levies defeated in our communities and I just don't think I've done a very good job explaining why technology is important. Our top of that host all of Montana gets television and sees the advertisements on satellite so when I'm sitting in my home in Plains and my satellite is advertising that I can in Missoula I can get high-speed Internet, telephone and cable at prices much less than what I'm currently pay for my broadband services that I love. People need to understand why that is and I think that's in rural facilities in rural communities I don't think people really understand what the potential is. Back to something that's real for us, the feds are trying to deliver health care at lower cost, that's the driver, lower cost and we all know that healthcare is cheaper if it is done in the home. If we can keep you went home it is going to cost less and that's a good thing. But in rural Montana as a healthcare worker comes in or even if you are a doctor put you on something that you have to check in and let honestly and send the information back to your physician, if you don't have the connectivity, you are not getting that opportunity and the cost are not going to be reduced in rural communities. That's a problem. Dust on the solution, it is not a resource, it is just a problem. But I've got to be a better advocate were schools and to knowledge you.

>> We appreciate a self reflection, that's all.

>> Question in the back.

>> [Indiscernible--Low volume]

>> Responsibility to be thinking about how they can support folks who are less resourced and I think my organization I think we try to take that responsibility seriously. Just like every other industry I think one of the unique things about healthcare is we just to healthcare but we are very reliant on telecommunications and so many of these very role so these will have one or two days of cash on hand. I know very understands that challenge. The a lot of our colleagues face across the state so we are constantly try to figure out how can we not only benefit cost curve to deliver healthcare more affordably but how can we begin to be more efficient and effective about pushing out these critical resources. I think she says I don't think about broadband as Internet, think about it as utility, it is like electricity a month gas, water. We think about it same way in my facility, how can we make sure that people are not spending hundreds of dollars in gasoline that they cannot afford to come in for care by making an inpatient monitoring a reality whether you live in brought us or Conrad or [Indiscernible] it because it is hard doesn't mean it is impossible. So we just went to come into these discussions with that goal in mind and pick up tips and tricks and I guess I wanted to also use this opportunity thank you for self reflective very but also I wanted to call out Valerie, surely inspired me to go I was at the meeting with her in Great Falls, had this apostle problem I'm trying to solve about nobody has a problem as hard as me and then I listen to Valerie talk about how she took [Indiscernible] home on the court ruling as a base and it my mind and really I began to apply that solution to this healthcare problem and I'm trying to solve in front of Montana so it can be done, it is hard but it is critical isn't it for our patients. We are

try to make sure they have that are outcomes, more affordable, we can capture more reimbursement, more hospitals can be more strong and support their communities but it is early we have to think were you said Barry, we have to really begin to talk about how healthcare really is I think even more than just an anchor. It is the ballgame, telecommunications, technology is the ballgame so thank you for that but thank you Valerie. You really put us on a different path on a project I'm working on and I'm pretty excited about so I wanted to thank you in front of all your colleagues.

>> That's fabulous.

>> We have two minutes left.

>> Yes?

>> [Indiscernible--Low volume]

>> The state of Tennessee [Indiscernible--Low volume] the reason why I'm here is TBS a fiber infrastructure [Indiscernible] power system and I know this is an infrastructure related comment and I can appreciate that that is a piece of that solution but I would encourage all of you to reach out your utilities because a lot of utilities are the point fiber for their own health can you shouldn't need centrally in that way you can compare your benefits or your needs with utility to share cost. Really that was a comment I wanted to share with you on that.

>> Great, thank you. I think we are going to wrap up and there's one more session, I don't know why they did that, don't tell you when that I said I don't know why they did that. It then Amy, I was pretending like I did not see you. Then we get to the reception. Big thanks to NTIA and MTA for having us here.

>> [Applause]

>> [Event break in progress and will resume shortly.]

>> Good afternoon, everyone. I want to call us back into order so we can have our final panel for our big sky broadband workshop for today. Although we have a lots of super exciting things happening tomorrow, I give you a little teaser about that any minute with the two handsome men standing behind the omelette they are going to tell about the very special Zillow filmstrip we are doing. Then we will have our final panel and then we will go to the networking reception where you can continue your super exciting conversations. Let me just has off to Russ Hendrickson and Matt Riley so they can tell you what to expect on tomorrow's exciting one-of-a-kind versed ever to work.

>> One-of-a-kind, first ever. I am at Riley, the CIO at the University of Montana and I'm going to be happy to invite the group over to have first lunch with our students and sort of on your own fashion in our University Center that's going to be great. That for our group to then make our way across campus just a little ways to a modular data center that we set up recently, super energy energy-efficient also a take off point for much of our networking, much of our research note and much of the ideas that we furred and some of these panels today about how we get information around our state and get what we need for education and our researchers. We are excited to have you guys on campus. You give a big welcome and we will do that tomorrow.

>> I'm Russ and also the IT manager for Missoula County Public schools per I got to see their IT room and it was amazing. It is the top, the stratosphere as far as what 90 room look like. Then we will go to Missoula County will schools and what you will you will see is a school in transition, two years ago where we were with infrastructure was troubling to say the least. Both internally, externally, everything needed to be fixed and we are coming on the heels of fixing all of that and you will notice some of you have seen our cross Missoula this agreement, trucks when Ron digging fiber so as we talk about broadband you will see a server room that's been transformed from an old system and they are still servers and their with Bobby drives in them. The old days when you fiber switch that in a month to two months will relate to them fiber between every school in our district and ribbons the managing it ourselves so we will talk about the complexities of what does it take to manage her own when fiber network. Then --

>> I was going to talk about this as part of my introductory comments but that's okay. I bill squares with [Indiscernible] here in Missoula the third stop on the tour will be at Blackfoot to get little overview of our network that is in all paid that bone network, first one actually in the state. Was a look 10 years ago we do that and we will talk about our use of that network for providing broadband in rural, Montana.

>> All right, I am very happy to kick off the final panel for today. Which is broadband and big sky so we are going to talk about broadband for the entire region from local been disabilities Tuesday to regional to national to federal and give you a hint of some of the challenges not cycles that people have come across and a taste of some of the victories and sweet successes. I'm going to start with an introduction of my esteemed panel. Then we will go through each of them and let them give a little brief snippet of what they are working on and we will have time for some Q&A. Excitingly, so to my immediate left is Joe Briggs whose the Commissioner for cascade County. He's also the chair of the telecommunications and a technology steering committee, the national Association of Counties, chose been working with us on the community to connectivity initiative which is another plug what you will have an opportunity to see our new work in progress online Interactive oral that way really dated testing and showing you tomorrow morning. He was at one of our kickoff meetings and I know he's been involved in many other elements of broadband in Montana and nationwide. Robert Kerris is the CEO of Vision Net and also a member of the governors the industry network. He's going to talk to us about some of the challenges and opportunities that he sat here in the great state of Montana. Third over for me is bubbly to Bob like to speak to Mr. Of Montana Public Service Commission district four which I believe we are in right now, is that right? Okay, let's hear it for district four everybody to go a round of applause. It doesn't get better than that.

>> District four. While Squires, CEO of luck put to medications who is -- sitting on the far and there, I skipped you Dan, but save the best for last summer right? It is coming, it is happening. So Bill Squires, CEO of blood but telecommunications on the far right. Also a member of the governors key industry network and they will talk about Main mainstream Montana and some other really innovative new approaches that they have taken to launch broadband statewide. Then finally not best for last, but among the best of our great and all, Dan would come economic development specialist, governors office for the state of Montana and he's going to tell us about some of the work that's being done some of the goals and objectives for the state of Montana. With that, I will abbreviate my opening remarks little bit to go right to Joe Briggs, Joe, why don't you take away with a quick summary of all the good work that you were doing? Remack.

>> Mike assistance with said this point of work doing I should just shut up. Passed the microphone. But in my role as national Association of County chairman of telecommunications I get to see what's going on all across the nation and its environment and there is a saying at NACo that if you exceed one cap see you've seen one county. Everything is different and every things local and that's one of the challenges that we have in this issue and I'm happy to say that I work with NTIA has convinced me that they get that. They understand all of these decisions are going to have to be ongoing because everyone of your environment is different. The players that you're going to have our different, the regulatory environment you're going to have our different. Some things going across the nation there so buried, there are places that are doing it there were municipal broadband is the word of the day and cities in some places even counties are deemed the ISP and the entire service provider package. Here in Montana cities have authorities that allow them to do that. I would not rest we recommend it but it illegal. Counties do not. So when we are talking about truly the rural segments of Montana, that's not part of the equation. So you have to be following the partnership models that you were talking about that you heard about earlier. It is not Pacific legal in Montana for counties to lease facilities that we are going to a private provider. With that I think is something we can have fixed legislatively. To me, the best thing about I'm seeing as a lookout of us room is the fact we've got the right players in the room and its composition that doesn't happen I'm not. I would like to take this opportunity to thank NTIA for putting this together out here and were Jeff buys and MTA for hosting us because in Montana in the world segments, is the members of MTA there are Axa getting this stuff fixed. Iwon't name names but anybody who knows who plays in one arena in Montana will understand this. In my home county our whole I would not have a classified basically are whole County as underserved at this point and I'm from Cassa County, it is Great Falls. Theoretically we are one of the big seven, we are the cities and the reality is that my friends in the rural communities have far better Internet service then I have in my central downtown. Dave Gibson will tell you I up his we asked him when is he going to bring the service to me and his response is moved to Fairfield and you get 100 maggot your house which is true. In cascade County I live about a mile outside of the city I can get 1.5 DSL pick one of our earlier panelist mentioned people even have to deal with DSL and dial-up. That's real in Montana. My whole focus is how do we fix that, get all of us together that needs to be a regulatory a set of changes, we need to change some financing issues so that's why the national level I spend a lot of time on this tour, issue. We will have to adjust how the service we words, how the individual federal agencies work together, have fun the patent align and quite big we also need to open up the Telecom act and make some fundamental changes in that and so I hope to learn them all of you what your perspectives are and how we need to change those things and translate that into action for NACo to take to Congress.

>> For all of you whoever the Vision Net story multiple times, my apologies. For those of you from outside Montana, welcome, thank you for being here. Thank you orbited we first thing here in front of cocktails. Vision Net is a privately held for-profit corporation that was formed in 1995 99 very forward-looking telephone companies and the Genesis had three points. The first was to provide Interactive video distance-learning to rural case -- K-12 symbols and connect them to the higher education facilities in Montana. Second was to provide a statewide Internet capability and we are talking 1995 so that was a pretty big dream 21 years ago. The third goal was to construct a state [Indiscernible--Audio cutting out] -- the first statewide high-speed network. Over time as everything changes so has Vision Net and our broadband network today and we are a statewide classic middle mile carrier, we manage about 4000-mile fiber network. We own every little of it. We least our fiber InfiniStreams is but we manage and monitor the entire network. When it comes to rural broadband a point to make per middle mile

carriers carriers like Vision Net AdobeConnect most of Montana telephone companies in high number of Montana's ISPs that only to the Tier 1 Internet in Seattle, Denver and Chicago, but we connect them to virtually all of the nations inter exchange carriers. When we talk about why this Internet more expensive in Montana, we tend to get wrapped up in this last mile community fiber the provisioning of services by all the telcos and [Indiscernible] in this room doing an outstanding job at that connection from the local telephone company to get to the Tier 1 Internet as a couple of components of expense that because I'm a capitalist I pass on and that is I have to continually update and upgrade the in-state network to meet the growing demands of those telephone companies and ISPs and I also have to upgrade the connections to Seattle and Denver and Chicago. Doesn't sound like a amount of things it but what does it, with that is additional revenue either typically for the telephone company ISP or for Vision Net so that's a challenge that they were will states face that when you are sitting in downtown Seattle getting \$1.50 per mg for Internet it is a little different when you are in Montana. That's my speech on MapR. Vision Net this a few other things as well. Undersub contract we have on our network 42 of Montana's 56 and 911 centers. They are on an all IP network which by the way was the first all IP 911 network in the nation. So Montana's not as backwards as many people might think. [Indiscernible] might think. We support at least some segment and in some cases in entire tea we play part a part in all of Montana's telemedicine networks and as most of you know there are I believe last count seven of them. So we not only provided network transport in transit we provide videoconferencing services, videoconferencing equipment, all the specialized kinds of things that Jack King talked about on his penalty yesterday. We have a 24 by seven network operations Center where we not only manage our own network or monitor our own network and we monitor the network of many telephone companies not only within Montana outside and we do network monitoring for some electrical companies. We have an Internet support call center, we do Internet support literally nationwide. We support telephone company ISPs and standalone ISPs and cable companies from main to Alaska and that's a lot of fun. We customize everything and everybody's calls are answered in-person -- on a personal basis. That's the thumbnail sketch of the Vision Net story, very proud of our employees, Chumlee proud of our owners and their continual forward thinking and investment in the company. Brief blurb on the main street, Montana project. I was fortunate to voucher with Bill Squires the broadband can key industry network and builds bills in my position from the start as we were -- the unfortunate folks that work for two years with us on this committee that we wanted and even mix of industry professionals and what we would call customer professionals and we were able to somehow convince six or seven C level customer folks to participate in the key industry network and trust me, we all learned a lot from each other. I think public industries are more from the customers than they did for must but if you want to see all the details, with three recommendations were at the governor's office [Indiscernible] it is all there at the main street, Montana website under the telecommunications and interconnectivity of kin which we named broadband. Thank you.

>> Because Montana Public Service Commission actually has is more of a gatekeeper for the applications for the companies that are looking to apply for the -- funny, some of your higher costs for funding, we really, that is our responsibility. As far as the authority if somebody doesn't perform as they say they are going to, we may get involved but we will you don't have any authority to do anything about it. We watch, one of the biggest things that we hope for in the Public Public Service Commission and this comes more of a personal wish and hope and coming from the business back on a look at it from saying this could work. Because in the Starbucks for the [Indiscernible] to the high cost delivery of the broadband network out they are going to be running those fiber cables next to a lot of other people.

Hopefully. The way the business runs, this is a distinct possibility that we are going to end up with a lot of Ron Vance service just because they are going by not necessarily because it is a hope of ours the Public Service Commission if we get caught in the corner and we get a lot of complaints that is one of our many things that we do have is we have a phone where anyone that has a problem they call us. We passed the message on to the carrier and if they don't get service they will call us back and we nudge them along, hope for the best but and maybe we will ask a carrier to comment come in and please give us an update because we ate seem to be getting some contacts from the people in the field, the customers out there, that I have not seen this guy get looking to tell me where he is at, you will come out and do it. I do appreciate being on the panel because a lot of people think that the Public Service Commission has a larger role than what we actually do. But we do sit there at the gate and say okay, you give us your people work, you make your application, we're going to give it the okay and send it in as long as we think is put together on it. Thank you very much.

>> Hello, everybody, Delek, Governor's Office of economic development. I will also be brief as Rob mentioned I know that we are what is data between you and a cocktail so we will be quick. Sorry, I have worked at the governor's office for about three years now. Were a lot of different hats, one of those is looking at broadband infrastructure so I got to work with Bill and drop on the broadband kin. I've been working with our partnership with education superhighway and then my first foray into the legislative process I worked on a bill last year that the governor supported the house Bill 14 that would have established a state matching grant to invest in broadband infrastructure. Did you want to talk about the recommendations? So Brochmann to the broadband can, the tangible outcome from that group was report giving to the cover that had four recommendations for things that could be done to help move broadband forward in Montana. Some of them have already and talk about today and over the last couple of days but the first one was a broadband napping program. I thought it was pretty interesting to hear what they've done in this concept -- in Wisconsin. We looked at what Utah has done, there's good models out there. But to get information out to the general public to businesses to better understand what is there, what their options are the second recommendation, these are really no particular order, was establishing a broadband task force that would be appointed by the governor to look at bargain issues. The third recommendation was legislation similar to hospital for two last session that would create a matching grant program. I think the funding for this was suggested was \$25 million, recognizing that that's not enough to every house up to fiber but show up by the project. And the final recommendation was to look at what are the impediments to broadband infrastructure to plummet so that's actually something I am actively working on right now looking at permitting processes, permitting these and all of that. With that --

>> Rate, thanks, Dan. Again, hello. I am Bill Squires of the COO but what tell it -- TeleCo medications good. Now Leon the last panel of the day between all of you in the reception but the last person on the last panel so I will keep that in mind. Please excuse me I took my jacket off, I did not realize that have been slowly was trying to land up here on the platform so it got a little warm. Anyway, Blackfoot TeleCo medications group is a diversified group of companies at our top we have Blackfoot telephone walked up, we started as a rural total cooperative in 1954 right here in Missoula serving about 6500 square Myles of Western, Montana. From there we have expanded into [Indiscernible] operations in Southeast Idaho and are competitive operations that we go statewide in Montana but into other states in this region. We become somewhat diversified company most of my comments today intend to focus on what we in Montana consider rural and that's the 6500 square Myles in Western Montana not

necessarily our service in Missoula in Bozeman we've been active per dispense in but those meniscal fiber projects probe thus far. For us, Missoula in Bozeman our urban. For a lot of you coming from out of state that may not necessarily the more definition. We have roughly three customers per square mile an in our world service area so it is really meets the definition of world by any definition but not quite as world as we just heard Jerry Tilley talk about in Northeast, Montana. Over 10 years ago decided to convert are entire backbone network to an IP transport platform mode for efficiency of services, but more importantly for ability to provide broadband services out to rural Montana that in hindsight that's going to great investment and a good move for us and will continue to capitalize on that as we continue to push higher and higher speeds out to the rural service areas. We will probably talk a little bit more about some of the challenges that not only Blackfoot faces in getting service out to rural Montana, but any of the companies in Montana. We all face very unique challenges certainly the sparse population so very few customers out there. Very difficult construction territory. I like to refer to it in Western Montana as steep and deep. We've got very large steep mountains that we have to file sometimes through and around and over. And down into the very deep mountain valleys that are in Western, Montana. There several companies represented here in the audience that have those same challenges. Once on Eastern Montana have different challenges just with the sheer distances that they have to file cabling to provide services. Attend present some great geographic challenges. In a rural deployment. Notwithstanding that I got to say we've got a approximately 60 schools ranging from indicate 12 scenario in our rural service area and by the end of this summer the summer we will have fiber to every one of those 60s goals. So that's something that we continue to push and the other MTA members that are represented here continue to push out into the world areas. We can talk some more about the can recommendations of that and went through. It was a great experience for me. Really enjoyed it. Is I think Rob said, we as providers learned a lot more from the user group, if you will, or that or represented on the can that came from K-12 and her and in healthcare, etc., I was a great experience that I think helped open my eyes at least to some of the things that some of the demands we have to step up and meet as an industry.

>> Barbara?

>> Take so much for your story and for helping us understand some of the challenges that are out here in rural antenna and all across the big sky region. You outlined a couple of the challenges that they can identified the governor's key industry network. As you are working, did you and Rob and the rest of your team uncover some key drivers of that help to facilitate the work going forward in what kind of hope for the future do you see? What specifically emerged as things that might accelerate growth and development would that be financing, partnering, stakeholder engagement? Maybe touch on that so we can think about where to address future needs.

>> Yes to all of the above. I think is the short answer. Financing is absolutely you a critical piece of it. Just not so much the access to financing I think as an industry in Montana we have two good access to financing. But we are financing very high costs. It is just a simple as that. Rob alluded to this, Blackfoot has Tier 1 Internet connections in Seattle, Denver and Chicago. Those are not inexpensive if you go if I live in downtown Seattle right next to the Western hotel or one of the 21 plots is, access to a Tier 1 pop is fairly inexpensive, that's not the case here. I think the other thing going forward then that we identified and Dan mentioned this is one of the cans recommendation is we need more accurate and timely information on more facilities currently are located and in order to be able to it to go user to be

able to in real time identify not only a provider that's available but at least a range of speeds that are available.

>> Okay, so maybe for another panelist, what role or maybe Rob this could be for anyone, what role has industry and the [Indiscernible] middle mile have as you help to build out the held care network and other regional networks that we see emerging?

>> -- [Indiscernible] I understand. That are a couple of shareholders that were [Indiscernible] up against and in truth type had little exposure [Indiscernible] no experience with it and I don't know if Bill --

>>

>> Okay, we will go onto the next topic. I know you mentioned Mr. Montana, can you give a better disruption of that was was and why that was unique?

>> The old Main Street, Montana project is a governors overriding economic development plan plan1 across all industries so the broadband industry network was one of 14 so this is a far-reaching statewide program. It was actually kicked off the most four years go by the CEOs of Washington corporations one of Montana's largest corporations and the CEO of D.A. Davidson, a company nationwide brokerage firm that's headquartered in Great Falls. They did literally dozens of town hall meetings to form a search is just plant from which the 14 key industry networks came and then across this date age of these networks recruited anywhere from about a dozen members to ethics some had three dozen to get input for all that. Crystally enough when we started ours we sat around table and said what is broadband? I think low for list popular we defined it as the bandwidth that the customer deems appropriate to give them the only satisfactory user experience but a functional business application experienced. We spent from that and interestingly enough surprisingly a lot of the conversation centered around availability versus affordability. We brought in a lot of stakeholders from around the stage tell us what their expenses have been so the commission broadband networks from Missoula in the Bozeman came and talk to us. That spoke about the University system so we tried to hear everybody out and a consistent theme was availability and affordability. Are some issues along that that are always going to be issues.

>> I got a question for Dan. Then, as you are working on economic development, what role did travel and tourism played obviously you need high band high-speed Bob Brand in order to serve and engage those to rest and make sure that that continues to be a driver here. But you've got a very world small population so it is hard to monetize that against your existing population. What kind of initiatives have you taken to merge those two worlds?

>> So the unique thing is a lot of people come to Montana to get away and there are folks that say my Kevin I don't have cell service and it is great. I love it that way. Then you have the other people that come, go on vacation but they still need to be checking their e-mails and working so I've heard from both camps on that one that I read love Montana because I can get away from my cell phone or muscle coverage is really improved or I can get bogged been to my cabin which is great because now I can work from my cabin. As far as specific initiatives, that isn't the isn't anything that we've been working on time the tourism which is obviously a big industry in the state to broadband, but other than as I said hearing from folks that it is great that they can now work in their cabin, that kind of thing.

>> [Indiscernible--Audio cutting out] so speaking about industry, you've got obviously farming and many different other kind of industries here including among them aerospace so Jodi want to talk a little bit about the project that you know of that leverage broadband to help really bring dollars to the region?

>> Actually there's a number of them I but I don't think it is a surprise to anybody in this room that high-speed Internet is now viewed as a commodity and I'm sure Dan you fight the same issue that we do in Great Falls when we are trying to do economic development go the availability of editable at a defined priced like Rob was just saying, it is a huge element so when you are talking to and Aerospace Corporation that's looking at coming in and needs to be able to share asset drawings with its counterparts in Seattle or St. Louis would depend upon what aerospace firm you are looking at, you cannot tell them we think you can probably get maybe five mg up and down. That's not an acceptable answer. You have to be able to show these people the areas in particular of your community or of your area where they can be guaranteed high-speed fiber. Because it is a reality of their business. It is an interesting dichotomy in mind cannot because like Dan was saying, people like the idea of coming here to get the way but on a part co-pay says our quality of life is now also expected to include the same high-speed Internet that they have in downtown Chicago. Because of the cost that is already been discussed, that's really difficult measure to hit. Even with on the two words him side that's a dichotomy because any of you who drive the roads of Montana and you know that you don't even have necessarily good cell coverage between the major cities. Before we switched to digital and trust me I do want to go back to analog but the beauty of that was I can get 35 miles of my car phone so I can actually have a conversation between Great Falls said Helena since we went to digital, I don't even put my headset on because there's no way I'm going to hold a call. This too many dead spots. To rest notice that. We get a lot of that feedback. What if something happens? How to buy call 911 when I don't even have cell coverage? Layer onto that the first proposition coming down the pike now of the high-speed dedicated first responders network and the coverage cap that we currently have in Montana really damages the availability and functionality of that whole first met project because if you can only get first responder person that capability inside of the three or four major cities, it really undercuts that and those are becomes serious issues for people looking at relocating their businesses here be it aerospace or anything else because they don't want -- they want to compare and be able to see the deer but they don't want to feel like they are living in the woods. If you know what I mean. This a strange dichotomy there.

>> I think we are getting to the point where we can take some questions from the audience, do we have any Q&A?

>> We have time for one or two questions.

>> We've got back here.

>> My name is Randy Wilson Compton Journal manager with in a Bell telephone in reference to the KIN ago where is the governor at with those recommendations? Are they approved or will they be approved? Do you know the timeline?

>> Also the \$25 million broadband grant accommodation, is that an annual amount that you are recommending?

>> Sure, so I can touch on the recommendations there's not a formal approval process, but all of the recommendations have gone out to the various agencies that they touch so moving barriers to entry example DEQ, Department of Transportation have all, it is going to be -- your credit stuff, they've gotten the memo and they sent a memo back at identifying here's the permitting process, here's the cost associated with that, here are recommendations for administrative rules that could be changed. Etc. On the \$25 million and it was for the [Indiscernible]. So that one is a little trickier. We are going to the executive planning and budgeting process and putting priorities out there so at this point I cannot say one way or the other if it is going to be \$25 million, if it is going to be some other figure, what exactly that's going to be but all of those recommendations have a guy I said, they are going to the process and I'm hoping sooner than later we will have some things to report.

>> Randy, part of the reclamation on the \$25 million fund was it is a matching one, it requires private investment as part of that so as we furred from other panels, it is important everyone has a little skin in the game. So to speak to go as recommended at least by the KIN it would be a matching fund

>> The mapping recommendation we recommend it that mapping be embedded in the Department of Congress because they already have extensive mapping responsibilities for things like right of ways, construction, etc. and this would be another application layered on that is my understanding they have begun some of the work. Obviously there's going to be a lot of data collection required from the providers in order for them to complete that so there some other work going on in the Attorney General's office I believe in terms of how do we protect confidentiality of certain kinds of information so they are all moving forward although probably not as quickly as anybody wants probably particularly young boy because he gets to the questions all the time.

>> Good questions go we have another question from the audience over year.

>> My question was related to the mapping proposition you just talked about. So right now provider submit their data through form forces 72, the FCC, previously years ago through the state broadband initiative program and I think we talk about this before writers would submit the data directly to the state entity or to their designee to create the state broadband Maps which that into the national broadband map. Sense that effort has shuttered, is a possible that you will use the form 477 data providers already are submitting to the feds for the mapping or are you expecting all of the Telecom providers to provide a separate data submission?

>> Maybe it is a little early to say one way or the other, but I just I would ask.

>> [Indiscernible] I'm asking a specific question like this I used to run the mapping program for the state of Utah so we've talked about that quite a bit.

>> Yes, I appreciate the question. It is maybe a little into the weeds kind of down the road but I can say that one thing you not into recipient is creating a new form and creating a new reporting requirements so if there's existing information that's out there I think that's what we would be interested in.

>> Giselle, we have a question upfront.

>> We will wait for the microphone and you can give your name and --

>> This is Lindsay with Nevada. I run the Nevada program and I cannot believe she went to the dark side. I'm shocked and awed. I question the NARUC tiers question though is I know this is getting into

the weeds but I think a lot of states are dealing with this issue as it relates to the mapping. I'm interested in your take on it. The original collection both of the 477 data and of the state broadband Maps was last mile. We found in our states specifically that middle mile is our biggest issue and across those very large geographic state that tends to be a concern. My question is have you had a lot of providers support you and say they are going to participate in this effort and which of the two are you most inclined to map?

>> Middle mile or -- by middle mile I mean on call, whatever, there's a lot of weeds and there.

>> As one of those providers I will provide a response to because I've had a lot of these conversations with Dan and others. During the initial broadband mapping project that terror referred to, my company did not anticipate because of our concerns over the submission of what we consider proprietary information. And our state has an extremely strong constitutional right to know provision and there was a feeling at least that's there was no way to protect that information unlike what happens with some of the 477 data that we submit to the FCC and [Indiscernible] which is kept confidential. As Rob alluded to conversations were going on in our state Attorney General office to try to address some of those concerns because as a carrier that didn't participate last time I really want to participate that there's certain aspects of our information we consider proprietary. I think we can overcome a lot of that if we go down the road of middle mile mapping which you suggest because we ran into a lot of the confidentiality issues were how many fibers what kind of capacity do have going into building X? And more clinical to that, how many subscribers in that building are using your service? I think every provider in this room would consider that kind of information proprietary. Particularly customers and your customers are and what they are buying from us. If we can concentrate on middle mile I think we will get a long ways down the road on having that map be timely and accurate because I also think there's probably not a provider in this room that if somebody came to me and said I see you've got middle mile facilities going down deserve Street in Missoula, I'm building this office bully, will you put fiber to me I would say yes. I think anybody else your would. I think if we concentrate on the middle mile side we will get a lot further down the road.

>> Okay, so we have time for one last question.

>> Anyone? Okay. All right, I will ask the last question then. The last question of the day since we are in Montana and at big sky country is just what role and what challenges do you see with travel government I know they have unique circumstances and have seen a lot of growth over the last couple of years, but does anyone want to respond to how that's evolving and maybe make an improvement since we are here in Indian country?

>> I don't mean to monopolize this I guess I will take the initial crack at it. We have the honor and pleasure of serving a part of the Confederated [Indiscernible] reservation. The tribal government and its entities are great customers. They cooperate with us on when we need permits for buildings, things like that. From our standpoint there are no impediments to what we are currently doing on the reservation. I don't think that's necessarily true across the state. There or across the nation that we've got a great partnership with the reservation that we serve.

>> We definitely want to hear from Bob and I'm sorry I did not get to you early. I should have remarked that he was in House of Representatives and served on a number of different elective offices so really I'm sure you will have people want to talk to a networking reception.

>> I can wander off topic very fast and very far if given the opportunity. I think one thing and we are talking about expanding broadband Montana tragic it it to every person in the state of Montana, but what I think we have to have reality check on do we have a fairly strong number of individuals that would be totally happy with a predictable [Indiscernible]. We have tried to get a product to them and number one they have access to emergency services, get that call in. Be able to have somebody respond to it. Two issues. Will put them take money. One if they broadband goes in quite frankly the contact will be served. But under [Indiscernible] two, the people that are putting or using the cap to funds to supply have an obligation for 95%. It sounds like a high percentage but that does leave 1% out there and those really difficult high-cost areas to serve that are still going to be ignored. Whether we can bring them wireless or whether we have to do something to get the contact to those people we need to have that as probably a very high priority in the state. It is going to take some serious work I a lot of people to find the adequate funding to reach out to those people. Because they do deserve, they do need and we do with them the opportunity to have the content. Arbor, thank you very much.

>> A great summary and I want to thank all of my panelist for contributing to the discussion and to other people that came today to anticipate and I'm going to pass off now to Doug Kinkoph go to them. Round of applause for my fantastic panel.

>> [Applause]

>> Let's give her round of applause to all of our speakers and panelists for today, I think they did a great job.

>> [Applause]

>> It is interesting because the last comment was as we've traveled around the country and have done these jobs, it is clear that what we are working towards now are those immunities were economics and geography work against appointment. What we are left with and it is a big job but I have to save for megi on the people and all the ideas that have been shared around the country it is clear that industry and government and communities working together that this will get done. It is a matter of when, it takes money but I think there's enough people focused on it now that will bring it to conclusion. I would like to just take a moment to thank a few people. Jeff, thank you to MTA for the lunch and I think you are sponsoring the reception after so thank you very much.

>>

>> Drone. Angela [Indiscernible], thank you. With your team. ChemPoint and [Indiscernible] Sparley of the governors box office for all their help in pulling this together. Over the last month was kind of a short window for us and then of course I would be remiss if I did not think my own team, Barb Brown, Gisele Sanders, Pandora [Indiscernible], Lynn Chadwick and Patricia Penman. All of them have been a key part of the team to get this pulled pull together. And of course, Amy each him by senior team I sometimes [Indiscernible]. But thank you very much and I'm going to now remind you that we have the four events tomorrow, that workshop, the tumors with the folks in University of Montana, but what -- Blackfoot and there's another one in there.

>> Muzzle of public schools. We also have the tribal reading and the office hours so at this time I will turn it over to to one.

>> I really appreciate it CIA coming here. And I shuttled between the two breakout sessions. It is been a pleasure to work with NTIA and welcome you to big sky country. I detected two different themes sort of a two different cities or I heard some people saying let's do a reality check, let's check our assumptions at the door. So I picked up on the one hand a field of dreams concept that if you build it they will come. And won't we achieve nirvana if only we had the gigabit and every garage. And let me be clear, I'm all for a gigabit in every garage. I think there's consensus on the utility and benefits of broadband connectivity. There's there is universal agreement to that. I think the other side if you flip that going over it is the same coin, but that is the one that says let's take this one step at a time, let's be economic about it, let's expand resources public resources especially in an efficient manner. That's what's our assumptions and we tend to and this goes in the private sector in the book sector both, we tend to overestimate demand. We think we have to -- this great idea, everybody's going to love and they will buy it and we will sell it and what is going to be wonderful. We underestimate the cost of building a network. We have public institutions that think they can build and work better than private institutions. Perhaps they can, but perhaps they cannot and so [Indiscernible--Audio cutting out] don't look at that as opportunity cost. Our public building broadband networks or are they the spent elsewhere. We only have limited resources, with the best way to spend them. We have millions of dollars of investment and infrastructure already committed, can we best find the ultimate solution for leveraging those assets rather than thinking if we build broadband nirvana fall from heaven. Those are the undercurrent and the conflicting and yet consensus thoughts we all have. Broadband is great, let's do it but let's do it right and let's do it efficiently. Thank you again NTIA for coming. It is a polite and it is been a pleasure to work with you. The panels have an great, the speakers have been intelligent and informative and then wonderful day and I look forward to tomorrow.

>> [Applause]

>> With that I'm not going to give you any longer. Reception is out in the foyer and look forward to speaking with you. Thank you very much for the great day.