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Introduction and Moderator:

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The Brookings Institution

Keynote Speaker:

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Panelists:

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Member, Board of Directors
North Georgia Network

SUSAN CORBETT
Chief Executive Officer
Axiom Technologies

CURTIS LOWERY, M.D.
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and Gynecology; Director, UAMS Center for Distance Health
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P R O C E E D I N G S

MR. WEST: Good morning. I think we will get started. I'm Darrell West, vice president of Governance Studies and director for the Center for Technology Innovation at the Brookings Institution, and I'd like to welcome you to our forum on broadband technology and, for those of you who are on social media, we have set up a Twitter hashtag at #TechCTI so you can feel free to participate in an online discussion during the course of the event, offer whatever comments and observations that you have.

The American Recovery and Reinvestment Act included $7.2 billion to expand access to high-speed Internet services in order to close the digital divide, drive economic growth, and build the technology infrastructure and skills needed for the United States to compete in the 21st Century economy. Roughly $4 billion of that money supports the Broadband Technologies Program, also known as BTOP. That program is administered by the Commerce Department's National Telecommunications and Information Administration and it has invested money in around 230 projects around the country designed to increase broadband access and adoption.

Today, we have a number of distinguished guests to help us provide an update on the BTOP Program and also firsthand accounts of how they are investing that money, what they have accomplished, and what they see moving ahead. We will first hear keynote remarks from

NTIA Administrator Lawrence Strickling and then that will be followed by a panel of officials from across the country of people who've received actual BTOP projects describing what they have done.

So, to help us understand BTOP, we will first hear from Mr. Strickling. I'm sure all of you know he's the assistant secretary for Communications and Information at the Department of Commerce. It's a position he has held since June of 2009. In that role, he serves as the administrator of the NTIA, which is the principle executive branch agency responsible for advising the president on telecommunications and information policy. Among other duties, he has managed the oversight of the broadband projects.

Under his leadership, NTIA has launched America's first public searchable nationwide map of consumer broadband Internet availability. He's also crafted a 10-year plan to double the amount of commercial spectrum available for wireless broadband. He also is overseeing NTIA's efforts on a host of domestic global Internet policy issues, including promoting the stability and security of the Internet domain.

So, please join me in welcoming Larry Strickling to the Brookings Institution. (Applause)

MR. STRICKLING: Thank you and thank you, Darrell. I think everyone here knows that Darrell is one of our nation's leading experts and researchers on broadband technology. He's looked at it in

terms of education, health care and government, so, we're very honored that Brookings has wanted to host today's discussion and we're very pleased to be here.

Three years ago, I had the privilege to accompany Vice President Biden on a trip to north Georgia. We visited a metal fabrication shop in Dawsonville, Georgia, which is a pretty, tiny rural town nestled at the foothills of the Appalachian Mountains. It's only 60 miles from Atlanta, but it might as well be a world away from Atlanta, because it's the kind of place that could have been in danger of being left behind in today's knowledge-based economy. Local jobs were disappearing, traditional industries such as textile mills, auto parts factories, and construction trades contracted or disappeared and civic leaders in the region were worried about what the future might bring, particularly in light of the economic crisis facing the nation at that time.

So, what brought the vice president to Dawsonville was the opportunity to offer new hope to that region in the form of the very first broadband grant under the 2009 Recovery Act. As Darrell mentioned earlier, in 2009, Congress had appropriated over $7 billion to expand broadband access and adoption in un-served and underserved areas of the country and to important community anchor institutions such as schools, libraries, and hospitals. Our administration, NTIA, utilizing just under $4 billion of the amount created a new program for grants in six months, and by September 2010, we had awarded grants to about 230

projects from all over the country.

Our promise to communities that would benefit from this funding was this: The Obama Administration's investment in broadband would create jobs, stimulate economic development, spur private sector investment, and open up new opportunities in employment, education, and health care. But most importantly, it would improve lives. And three years later, I can confidently say we are delivering on those pledges.

In Dawsonville, NTIA awarded a $33 million grant to the North Georgia Network, a coalition of county economic development agencies, a state university, and two electric co-ops to build a 1,100-mile fiber optic network across 12 counties. The goal of local leaders, including Bruce Abraham, who we will meet later, was to construct the kind of advanced communications infrastructure needed to recruit information age employers in the region.

Today, the North Georgia Network is complete. It's delivering high-speed Internet connections to more than 300 business, 42 schools, 5 college campuses, and dozens of other community anchor institutions and it is driving economic growth and private sector investment as evidenced by Impulse Manufacturing, the metal fabrication company where the vice president made that first announcement. Impulse Manufacturing produces customized metal machine components for Fortune 500 companies and it must be able to exchange massive data files with customers located around the globe. High-speed Internet

access is absolutely essential for Impulse to be successful.

But before it got the fiber optic connection from North Georgia Network, Impulse was forced to make do with slow, spotty DSL service that sometimes could not even hold a connection. Ron Baysden, Impulse's president, told us that the lack of a reliable high-speed Internet connection became an impediment to doing business. His employees were spending too much time just dealing with network problems. Customers even resorted to delivering data files on thumb drives, but today Baysden says we just press a button and it's here.

So, Impulse manufacturing recently landed a major contract to supply parts for a 1.5 million square foot manufacturing facility that Caterpillar is building in Athens, Georgia, and with this new business, Baysden expects Impulse double its employee base over the next 3 to 5 years and he says that the new fiber optic connection is a key reason Impulse was able to handle the contract.

Now, the benefits for North Georgia Network extend beyond local businesses to anchor institutions. In White County, Internet speeds delivered to the school district have gone from 45 megabits per second shared by 7 schools to a gigabit, allowing teachers to integrate online video and online testing into the curriculum. At the local middle school, every teacher now walks around class with a wireless iPad connected to a desktop computer and to a projector screen through an Apple TV box. And at North Georgia College and state university, which was upgraded to

1.2 gigabits per second for its 6,500 students, professors are streaming lectures over the Internet, students are accessing course materials online, and administrators are offering more online-only classes.

But north Georgia's success story is not unique. We are hearing from grantees across the country about how our Broadband Grant Program is delivering on its promise to expand broadband access and adoption throughout the nation, and today is a particularly significant time to share these successes with you as our first projects are now crossing the finish line.

But first some background. Our investments have fallen into three categories.

First, infrastructure projects like the one in north Georgia are building high-speed networks to connect rural communities and other places not adequately served by existing systems to the Internet backbone. These new networks are also supplying high capacity connections to schools, libraries, hospitals, and other vital anchor institutions that need more bandwidth to survive.

Second, we are funding public computer centers which are installing and upgrading computers in schools, libraries, rec centers, housing developments, and other public buildings to provide the power of the Internet to those who do not have it at home.

And, third, we are funding sustainable broadband adoption programs which are teaching digital literacy skills to students and adults

and providing online job assistance to low-income Americans and others stuck on the wrong side of the digital divide. These programs are also helping small businesses integrate technology and get online to expand their customer base. These investments have the potential to reshape our nation. We know that Americans who don't have access to the Internet are increasingly cut off from job opportunities, educational resources, health care information, and even government services and communities that don't have a high-speed telecommunications infrastructure are increasingly at a disadvantage in attracting new businesses and new jobs, driving economic growth and competing in today's knowledge-based economy.

With our infrastructure projects, we have focused on building middle mile networks that bring high-speed services into an entire community or county. Our goal has been to spur private sector investment by encouraging local Internet service providers to connect to these networks to deliver affordable service over the last mile to homes and businesses. We have also encouraged our grantees to connect directly to the key anchor institutions in these communities since we have found that the speed needs of schools, libraries, and other institutions are substantially greater than for the community at large.

One of these projects is SDN Communications, a partnership of 27 independent telephone companies covering most of South Dakota. SDN used its $21 million grant to add 400 miles to its

network along with an additional 100 gigabits per second of bandwidth along high-capacity routes. The project is connecting nearly 310 new anchor institutions as well as providing faster connections to more than 220 anchors that had already been on the network.

One of these is the Arlington School District, a K-to-12 school with 300 students that serves a farming community more than an hour out of Sioux Falls. The school upgraded from a 3 megabit connection over copper phone lines to a 10 megabit fiber link over a year ago and this is made possible for every student in the school to have a laptop and get online at the same time.

High school English teacher Lisa Perry says that the broadband has transformed the way that she teaches. Before, hiccups with the school's Internet connection often led to frozen screens, painfully slow downloads, and caused her students' attention to wander as she tried to utilize online content in the classroom. Today, Perry has her 24 students all logged in at the same time. They watch online videos and study online lessons to complement the material they're learning in class. Having their own computers, Perry says, allows her students to absorb material at their own pace and become much more immersed in the curriculum. Lisa told us that kids learn better when education is self-directed and self-paced. They are so much more engaged when they have their own screen.

Altogether, more than 7,200 communities in all states and

territories will benefit from our Broadband Technology Opportunities Program. Here are some hard numbers. Our grantees have already deployed 78,000 new or upgraded miles of broadband network through the end of last September. They are building more than 2,300 points of presence or network nodes in 1,400 communities and over 80 percent of these communities will receive speeds greater than a gigabit per second. Our grantees are in the process of connecting more than 20,000 community anchor institutions in 5,000 communities and more than 20 percent of these institutions will receive bandwidth greater than a gigabit per second.

As I mentioned earlier, one of our major goals has been to prime the pump for private sector investment by supplying these critical middle-mile infrastructures that local carriers can use to deliver affordable broadband to more homes and businesses and that is why all networks built with Recovery Act funds are subject to open access rules that allow all other carriers to interconnect with these networks on a fair and non-discriminatory basis.

The Three Ring Project in Maine, another one of those first awards announced in December of 2009, is a good example of how this works. The project, which is supported by the Maine State Government, the state university system, and a group of small telecom carriers has used $25 million in Recovery Act funds to build an 1,100 mile dark fiber network across the State of Maine, consisting of 3 interconnected fiber

rings. Thirteen local carriers are now leasing that fiber to bring broadband to rural communities that in many cases had only dial-up service. Across the country, providers have signed over 500 agreements with our grantees to use BTOP-funded networks to better serve their customers.

One of those providers in Maine is Pioneer Broadband, which serves Aroostook County, a poor, rural county of potato fields and blueberry barrens, in which Interstate 95 literally comes to an end. Pioneer is leasing capacity on the three ring binder to bring DSL and even fiber to the home services of a string of remote towns that had no broadband before now. The three ring binder is also connecting anchor institutions across Maine.

The University of Maine system will now be able to bring 10 gigabit per second connections to all 7 university campuses to support data-driven research and collaboration with other major academic institutions around the nation. The three ring binder is also turning on a 10 gigabit connection to the Jackson Lab, a genetics lab in Bar Harbor, so that it can exchange huge gene sequencing datasets with a new facility in Farmington, Connecticut. Maine also provides an outstanding example of how our program to increase broadband adoption across the country, improving adoption, is key to bringing the benefits of broadband to our economy and it has been an area of great focus at NTIA.

Since this bureau survey data reports that only 68 percent of households subscribe to broadband, even though basic broadband is

available to about 90 to 95 percent of our population, nearly a third of households, more than 100 million Americans, do not have it at home and approximately 1 in 5 households does not use the Internet anywhere. This has to be a troubling statistic in the 21st Century economy when broadband access and digital literacy skills are needed to compete in the workforce and it is even more troubling when we hear what Americans tell us about why they don't adopt broadband. Nearly half of not-adopting households have cited a lack of interest or need as the primary reason.

We've been responding to this situation with the $250 million of sustainable broadband adoption projects and the $200 million of public computer center projects that I mentioned earlier. Our grantees are experimenting with all manner of creative and innovative programs to educate and train folks on how to use broadband and to equip them with the low-cost devices and services to allow them to subscribe. We have been assembling the materials created in these programs on our digital literacy portal, which makes these tools available to anyone anywhere.

In Washington County, Maine, Axiom Technologies is using a $1.5 million broadband adoption grant in very creative ways, and you'll meet Susan Corbett, the head of that company, in a few minutes, but Axiom is using part of its award to transform Down East Community Hospital, a 25-bed critical care hospital in Machias, Maine, that's been connected by three ring binder into a teaching facility for nursing students. The grant has paid for video conferencing equipment that allows nursing

students to take necessary classes through a nursing college in Lewiston, Maine, about 200 miles away. The grant also paid for a state-of-the-art teaching mannequin that's used to train the nursing students in Machias that can be controlled by the instructors in Lewiston. The first group of nurses will complete the program this May.

Shelby Layton is a 41-year-old mother who grew up in nearby Machias Port and will be in this first group of graduates. She's grateful for the program since it has allowed her to pursue her dream of becoming a nurse without uprooting her children and husband or moving away from her mother and aging grandmother. Layton hopes to find a local job after she graduates so she can, as she puts it, care for the community that raised her.

Axiom is using another part of its award to equip 10 local lobstermen and 10 local blueberry farmers with rugged wireless devices, broadband connections, and broadband training to help them manage extensive state data collection and reporting requirements. Axiom is developing software to move these tasks out of the old-fashioned paper and pencil logbooks and into the electronic domain. It is also teaching the farmers and fishermen, some of whom have never turned on a computer before, how to design Web sites, develop spreadsheets, and use programs like Photoshop.

Ellen Johnson, who owns an organic blueberry farm in Maine, took the training. She now has a brand-new Web site to show off

her blueberries, jams, and pies, along with the website design and Photoshop skills she needs to keep that site updated.

Axiom is also offering its digital literacy training program in multiple locations around Washington County, including 18 public libraries. Many of these facilities have new computers thanks to a $1.5 million public computer center award to the Maine State Library that they are using to distribute more than 500 desktops and laptops across the 107 public libraries statewide.

Several of these projects touch on two key areas where broadband can have a major impact on our quality of life: education and health care. I'd like to provide you with a closer look at the type of benefits that our projects are bringing to communities in these important areas.

Broadband is critical to improving our educational system. It expands access to teachers, classes, and instructional resources particularly for students at small, rural schools that otherwise might not have the resources to offer advanced placement courses, foreign language classes, and other specialized subjects. It enables students to take online classes and access cutting edge research at universities across the country, plus broadband makes it easier for students and parents to communicate with teachers and helps engage parents in their children's schoolwork, sometimes providing the primary link between families and schools.

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projects that schools will need bandwidth of at least 100 megabits per second for every 1,000 students and staff by the 2014-2015 school year and the association expects that requirement to increase to a gigabit per second by 2017 and 2018. Our program is helping schools achieve these speeds. Our grantees are connecting more than 10,000 K-to-12 schools across the country to broadband and more than 7,200 will be getting speeds of 100 megabits per second or faster.

The Jordan Valley School near Salt Lake City teaches 150 kids with significant physical and cognitive disabilities ranging from infants to young adults. Many are nonverbal, but the school is using technology to transform the educational experience for these children. The school has equipped all of its classrooms with iPads plus an Apple TV to connect the TVs to a projector. On each iPad, the school has loaded software that allows students to communicate their thoughts, feelings, and needs by navigating icons, screens, and keyboards. Thanks to broadband, Jordan Valley School is able to have as many as 50 iPads and 30 computers online at the same time. Mark Donnelly, the school's principal, says technology has given his students a voice that they otherwise would not have.

Jordan Valley is 1 of 140 schools, libraries, Head Start Centers, and other anchors across Utah, being connected to broadband as a result of a $13 million Recovery Act Grant to the Utah Education Network, a statewide research and education network managed by the

University of Utah, and many of the participating schools, including Jordan Valley, now have up to a gigabit per second in bandwidth.

In inner city neighborhoods, broadband is opening up new opportunities and broadening horizons. A non-profit called CFY, previously known as Computers for Youth, is using Recovery Act funding to provide digital literacy training in computers for low-income sixth graders and their families in New York City and Los Angeles. The CFY Program focuses on high poverty schools, offering Saturday workshops to teach students and parents how to use the Internet and to find online educational resources that promote learning in subjects such as math and reading. CFY also trains families on its own powermylearning.com platform which provides free access to activities and games from across the Web that are designed to make learning fun. Families who complete the training are given a refurbished computer loaded with educational software to take home along with assistance to sign up for affordable broadband service. This helps extend student learning beyond the school day and improves communication between parents and schools.

Marakar Cadeline is a sixth grade math and science teacher at the Doctor Julian Nava Academy of Arts and Culture in south-central Los Angeles. They're participating in the CFY Program. Cadeline teaches two groups of students, one a group of kids on specialized learning plans and one a group in a gifted and talented program. She uses the Power My Learning Program to customize material for her students. The online

content, she tells us, allows her to find challenging activities for the kids who are more advanced and provide extra support for those who need to catch up and she tells us it's like having an extra person in the classroom.

Zola Perez, whose daughter attends Valor Academy in Arleta, California, is a parent who signed up for broadband after her family took part in the CFY Program. Perez explains she used to think that the Internet was a dangerous place, but the CFY training helped her see the value of broadband, particularly for education and now her daughter does not have to go to the library to get online access she needs to research her homework and complete her school assignments. Perez herself has begun using the Internet to pay bills and look up healthcare information and even her 4-year-old is using an online program to practice his ABC's. We'll hear more about CFY from its president Mark Malaspina in a few minutes.

Broadband also has the potential to transform health care. Telemedicine expands access to health care services, particularly for people living in rural areas with few medical facilities and not enough doctors. Patients can consult with medical specialists located many miles away using video conferencing technology and doctors can monitor patients using remote diagnostic equipment. Telemedicine also permits physicians to transmit X-rays, CAT scans, medical records, and other big files to hospitals anywhere in the country with the simple click of a mouse.

Our grantees are using Recovery Act funding to connect

more than 3,000 health care facilities across the country. Seventy-five percent of these facilities are getting at least 10 megabits per second of bandwidth which enables high-definition video consultations. More than 1,300, about 40 percent, will be connected to more than 100 megabits per second of bandwidth which can support continuous remote monitoring of patients.

Rhonda Smith, a 43-year-old mother of 5 in Arkansas is living proof of the benefits of telemedicine. In December of 2011, she suffered a massive stroke while helping to prepare for a Christmas party at the nursing home where she worked. She was rushed to the local hospital in Bentonville, but what happened next has to be considered a miracle not only of modern medicine, but of modern broadband technology. The local hospital did not have the resources to adequately evaluate her stroke to determine whether it had been caused by a blood clot, but Rhonda was more than three hours away from the major regional medical center in Little Rock, and that was too long to wait. So, the doctors at the hospitals in Bentonville consulted with an on-call neurologist affiliated with the University of Arkansas for Medical Sciences over broadband. That neurologist was able to talk and examine Smith over an interactive video conferencing system and they quickly determined that she would benefit from a blood-thinning drug and after that drug was administered, she was then transported to the UAMS Hospital in Little Rock by ambulance. By the time she got there, she was able to speak and today she is just

grateful to be alive.

And we'll hear more about UAMS from Dr. Curtis Lowery who has been working with our program there. UAMS is using a $102 million Recovery Act award to build a statewide fiber optic network that is integrating, upgrading, and extending two existing networks used for health care, education, and research. The new network, which will reach all 75 counties in Arkansas, is introducing telemedicine to some of the most remote pockets of a heavily rural state. The system is connecting or upgrading 81 hospitals, 12 health care training centers, and 113 local health facilities. Our grant is also paying for telemedicine equipment, including digital stethoscopes and ENT probes with digicams that allow doctors to examine patients remotely.

Another example is the ANGELS Program which gives women with high risk pregnancies access to genetic counselors and maternal and fetal medicine specialists who can monitor them and conduct live fetal ultrasounds from hundreds of miles away. The program aims to lower the number of low birth rate babies born in Arkansas and UAMS has used its grant to expand ANGELS to 36 sites around the state up from the previous 24.

One participating facility is Mena Regional Health System, a town of 6,000, more than 100 miles from Little Rock. Dr. John Mesko and the other obstetrician in town deliver roughly 450 babies a year and Mesko estimates that at a quarter of those mothers have had at least 1 long

distance telemedicine ultrasound and for these women, the ANGELS Program means they don't have to drive hours to get the care they need.

Lastly, I want to spend a few moments discussing the impact of our program on workforce development and entrepreneurship. Our infrastructure grantees have directly created thousands of jobs in areas such as construction, fiber splicing, and network engineering, but our broadband adoption projects and public computer centers are also driving employment. They are reaching people who may never have even turned on a computer, a group that includes a disproportionate number of low-income Americans, senior citizens, and members of minority groups and teaching them how to use a mouse, how to navigate the Internet, and how to set up an e-mail account. These programs are also instructing people on how to write résumés, find Internet job postings, and even apply for jobs over the Web.

These are skills many of us take for granted, but for those stuck on the wrong side of the digital divide, not having this basic digital literacy can be a barrier to employment. Many job listings are only posted online these days and many employers only accept job applications online. What's more is that today's job market simply demands a basic knowledge of computer software and the internet.

Cheryl Corbett a 49-year-old mother of 2 in Los Angeles knows this firsthand. After being released from prison in 2010, Corbett was determined to turn her life around, which meant finding a job. So, she

made her way to Chrysalis, a Los Angeles non-profit that helps the city's homeless and low-income residents find work and get on a path to self-sufficiency.

Chrysalis enrolled Corbett in a BTOP-funded digital literacy program that taught her how to go online and then set her up with an e-mail account. For Corbett who had lacked the confidence to use a computer, it was a major step. Chrysalis also helped her land a job with the Skid Row Housing Trust, an organization that operates housing for the homeless in Los Angeles.

Today, Corbett manages her own building for the Skid Row Housing Trust. Her new job requires her to use a computer practically every day to update rents in the system database, to e-mail with Los Angeles County housing officials and to make flyers to be distributed to residents and she credits the digital literacy training she received at Chrysalis for her new success.

Chrysalis is 1 of 19 programs across California that has received a piece of the $14 million Recovery Act investment in the California Emerging Technology Fund. Through all of its programs, CETF has helped over 2,600 persons find jobs.

In conclusion, I'd like to leave you with three thoughts. First, that our program has been very successful due in large part to the dedication and skill of the communities, companies, and organizations that have been on the frontlines of carrying out these projects.

Second, that while the statistics are impressive, it's just as important to appreciate the impact these projects have had on the lives of so many people. I have shared only a few of our testimonials here today, but our grantees are delivering these sorts of benefits across the country to their citizens and customers and our transforming their lives.

And third, there is still work to do. We are working to determine how we can extend the lessons learned from our projects to other communities that did not receive Recovery Act grants.

For example, we will soon release a toolkit highlighting the successful strategies to increase broadband adoption in inner city, rural, and ethnic communities that can be used by communities anywhere to increase the level of digital literacy and broadband adoption in their area.

For schools, our program will bring 100 megabits per second service to less than 10 percent of the nation's K to 12 schools. Another 30 percent it is estimated already see broadband service at the speeds recommended by the School Technology Directors Association. But that leaves about 60 percent of our schools still needing upgrades in order to deliver the quality of education that our students need in the 21st Century.

At NTIA, we are committed to working to improve broadband service in all communities and to schools and other anchor institutions and we look forward to working with all of you on this important challenge. Thank you very much. (Applause)

Darrell, I turn the mike back to you.

MR. WEST: Okay, Larry, first of all, thank you for your remarks. It's actually impressive hearing about all the new infrastructure projects and the new applications that have come online.

I actually grew up in rural Ohio, and I remember going home to visit my mother, and I would have Internet access 10 miles north of where she lived and 10 miles south of where she lived, but not where she lived, and as you can imagine, this was very annoying to me personally. So, I'm very interested in all that is happening to extend broadband access in rural areas, in urban areas, and in other communities across the country.

So, to hear what is happening on the frontlines we brought together several grant recipients to discuss what they are doing.

Bruce Abraham is the president and CEO of Connect North Georgia, so, you heard a little bit about his project in Larry's presentation. That is a regional broadband economic development agency. He's a current board member of the North Georgia Network, which is the fiber optics initiative organized in 2008 to bring high-speed Internet to rural north Georgia.

Susan Corbett is the owner and CEO of Axiom Technologies, a telecommunications and information technology company headquartered in Maine. She has spoken throughout Maine, advocating for rural broadband and she is a 2010 Mainebiz Woman to Watch awardee and she's also been recognized as a recipient of the 2011 AT&T

Technology Innovator of the Year Award.

Curtis Lowery is the chairperson for the Department of Obstetrics and Gynecology at the University of Arkansas Medical School. At the university, he has spearheaded efforts to improve telemedicine in Arkansas and to increase Medicaid reimbursement rates and to promote understanding of the opportunities of digital technology.

Mark Malaspina is the president of CFY, where he is responsible for driving its program's innovation and research agenda and deepening the organization's relationships with school districts, software partners, and education organization.

So, I want to start with Bruce. I'm going to have each of the awardees basically tell us about their experiences with their particular projects.

So, Bruce, tell us a little bit about the history of your north Georgia project and how it came together, what prompted local officials from across that region to apply for the federal funding, how are things changing now that the network is complete and operational, what's the economic development that you're seeing that wouldn't have happened otherwise?

MR. ABRAHAM: Okay. Thanks for allowing me to be here today. I'm looking at you all and I kind of feel like the Forrest Gump of broadband. (Laughter) I'm wondering how I got here.

It's been an incredible journey that started in 2007, when we

weren't able to bring companies that just needed basic Internet into our rural region. So we talked to our local provider who talked to the company and they didn't get solutions and we had a 12-county economic developer group and we had the same problems, and, so, we did a study to figure out broadband. And fiber, I didn't know fiber from muffins at the time.

And, so, we put our heads together on it and the State of Georgia helped us with this and we came up with a conclusion that we had a 50-year-old telephone network in the region that had been started as a dial-up network then a DSL network, and that got out all about the horsepower out of it that they could and they couldn't go any further.

So, at about that time, the NTIA came along with the National Broadband Project and we took our group of counties and cities and schools and hospitals and folks who had thrown in with this -- and it was described as pain up there. I had one company try to relocate there and it said it's too painful to move to your area. So, the NTI was feeling the same pain nationally with broadband, and, so, we were fortunate enough to apply.

And, Larry, I want to thank you for protecting and providing for us in this region through this process. It's been incredible, made incredible change, and I also thank Scott, our program manager, Scott Wood, sitting there. Scott helped us get through the woods of a big federal project.

But let me tell you some of the big effects that we've seen

now that we have 1,100 miles of network built in the region, and Impulse Manufacturing that Larry had mentioned, they couldn't communicate in the Fortune 500 protocols, whatever those are. They got cut off the Internet, and, so, you're talking to Mercedes Benz in Europe, and your Internet cuts off where you can't fill out their forms or you can't manipulate their design. So, you're really in the backwoods of broadband when you try to work in the world economy.

United Community Bank has nine banks up there and they couldn't talk to their other banks. Now they can store their information online and they can hit their customer information within two milliseconds, which is the speed of this big honking network that we got up there now.

Dahlonega Foot and Ankle is a local doctor who would send his patients over to the hospital and they'd take an X-ray then he'd have to drive to the hospital and look at the X-rays and come back and give his advice and now they can send him that X-ray and he can download it instantly with that patient in front of him and he can manipulate and have medical information.

The same hospital is now connected to seven other hospitals and they used to keep their records in boxes in the basement because I went down to the see them and now they can keep their record and their patient information stored online in our network and we can provide them all the space and all the speed that they need to pull up any patient information.

Babyland General, I don't know how many of you all grew up with Cabbage Patch Kids, I know we've got a basement full of them, but Cabbage Patch just opened an office in Europe, a store in Europe, and they do online baby sales now and to bidders, and, so, they can sell these expensive dolls all over the world from little north Georgia.

The Louver Shop, a company that just moved there, they have an office in California, and they are now reaching to be the biggest louver producing in the United States. Because they can communicate up and down the east and west coast.

Our churches can now broadcast their services to homebound members. I know the mother has never missed a church service in her life, so, she really appreciates this, just being able to see her preacher and sign songs with her church over the Internet.

Telecommuters, the guys in the region who worked in Atlanta that worked at home, they'd have to get on the Internet at 12:00 midnight because the pipe was so small back and forth to Atlanta.

Finally, we have two new technology parks that have sprung up in the region and they're both anchored by technology companies that could not be there before we had broadband.

I'll tell you two more things and then I'll get on. We have raised expectations by bringing this infrastructure into the region. Not everybody wants it. That we had a push effect here through this and now everybody's pulling us. I feel bad because we only had $42 million to

spend and Larry will take some more. But not everybody's pulling broadband and it's a great phenomenon and the next thing is what to do with this stuff? Most small companies have not had the opportunity to use it; they don't know what they don't know. We had to teach fundamentals. We're talking about a broadband extension service for the fundamentals of how to send more than 10 e-mails without hitting the spam filter or do video conferencing. We can't find a good video conferencing vendor in the area because they just don't exist. So, we got to create that talent there and that those are sources that are locally.

But thank you again, Larry, and thanks to the State of Georgia for also supporting this. Thanks to all our partners, universities and electric companies and thank you, guys, for your investment in my community. Appreciate it.

MR. WEST: Okay. Thank you. (Applause)

So, Susan, as Bruce just pointed out, when it comes to broadband, just making the access available is not enough. We do have to teach people how to use it and how the Internet can improve their lives. So, can you tell us a little bit about what you're doing in Washington County, Maine? I know you've worked with blueberry farmers, lobster fishermen, and local businesses. What kind of exposure to technology did they have before taking part in the program and then how are they using broadband now in their businesses?

MS. CORBETT: I'd be happy to. Well, thank you also, Larry

and his staff and our program officers Laura Breeden and Tim Kelly because their support has been tremendous over this two-year journey.

Axiom is an Internet service provider and an information technology company located in Washington County, Maine. We are 2,500 square miles and have 13,000 homes spread along those 2,500 miles. It is a tough topography. We have mountains and hills and ocean, and, so, getting broadband to last mile has been a challenge for several years.

We knew as a company that, going into this back in 2005, that it wasn't enough just to connect someone. We had to teach people how to use it. And, so, we brought an educator on almost right out of the gate.

Several years ago, our farming and fishing community came to us and said we have all these reports that we have to write to the state and Federal government, it's all done by hand, and there's got to be a better way and can you help us? And, so, we thought about that and said we probably can and we can bring a lot of people around the table to help you get what you need.

So, we applied for a Sustainable Broadband Option Grant and we enlisted the help of 10 farmers and 10 fishermen, our industry experts statewide and local, and with their help, they created a software to record all of their statistical data. That software will go live to the public in this second quarter 2013 and it will be able to record how many lobsters did you catch, were they hard shell, soft shell, where did you catch them?

For the blueberry farmers, how many blueberries did you get, how much is the price per pound, what was the weather that day, what's the wind, what pesticide did you use for your crop? All of that information will be available on an online data collection software.

We knew that when we started all of this that we couldn't bring a program and offer it to the farming and fishing community, which were not traditionally a technical group. Washington County in Maine is a natural resource space industry, and, so, teaching people how to use it was going to be critical to making the software successful. So, we offered classes to all of our farmers, fishermen, their crews, and their family and we started with basic computer skills, we added in all the Microsoft products, Photoshop, QuickBooks, anything that was going to make their lives and their businesses go smoother. We also added in an entrepreneurial coach to help them figure out what they didn't know, because we don't know what we don't know, and we've had several businesses over the years have come to us and said "I need you, I don't know what anything is called," and they're right because the world is changing and technology is changing every day.

We opened up the classes to the general public about a year ago and over 500 students have come through those classes, but we needed to hold the classes in places where there were public computers, and, so, we turned to our Maine State Library, who received a BTOP grant. And, so, in 18 libraries in Washington County, those classes are

offered. That's increased the patrons to the libraries who are offering -- their online resources through the library are then promoted.

It's been an incredible journey for those farmers and fishermen. Several of them have never turned on a computer before and today, they are blogging and they're Facebooking and they're creating brochures and value-added products and they're promoting them. They've learned how to make labels and business cards. We have still a lot of work to do. We can't assume that just because someone sits behind a computer that they know how to use it. We all kind of came into it backwards.

When I think of the average business owner, we'll all between about 40 and 60-years-old and if we look at how we've learned how to use technology, it's because someone has taught us. We've turned to a friend and said how did you do that or we've taken a quick course. And, so, we kind of have to go backwards. And, so, our job, Axiom's job, and all of us is to continue to promote, to teach, because I think we're all teachers.

So, it's a challenge across the country and I think that if we can bring the classes right down to the grassroots level, we bring our classes all over the county; we hold them in all different places. We don't expect everyone to come to us, we need to go to them.

So, it's been super and we're looking forward to continuing what we're doing. So, thanks a lot for having me here today.

MR. WEST: Okay, thank you very much. (Applause)

So, Curtis, a major goal of your project has been to expand access to healthcare throughout Arkansas, especially in rural areas that face a shortage of medical specialists. So, tell us a little bit about the issues that you faced in Arkansas, how the technology's helping to overcome some of those challenges, and what we can do to reduce some of the discrepancies in access to health care between urban and rural areas.

DR. LOWERY: Right. Thanks a lot. It's an honor to be here.

So, if Bruce is Forrest Gump, then I must be Bubba, Forrest Gump's slightly dumber friend. (Laughter)

So, how does an OB/GYN physician end up being the PI on a technology grant such as this? And I'll tell you as a physician, one thing I'm really sure of, every day, I deal with patients in my clinic and the things I do have an impact on their lives. Hopefully, we make their lives better. I'm one of only five maternal fetal medicine high-risk obstetricians in the State of Arkansas. There's a 20 percent reduction in the workforce by me being here in Washington. (Laughter) Okay, that's the reality of Arkansas. It's the only teaching institution.

We have 73 out of 75 counties that are designated medically underserved. It is difficult to get physicians and other healthcare providers go to the rural areas, and you say why is that? Well, 40 percent of our

population between age 18 and 65 have no health care. So, there's just no money there. Physicians and other health care providers struggle to make a living practicing in these rural areas.

So, how can we solve this problem? Well, Albert Einstein said the definition of insanity is the person that conducts the experiment in the same way over and over again and expects to get a different result. And that's true. So, you have to do something different and I think taking technology and applying it in a meaningful way is how we change the world and that's what we're trying to do with this program in Arkansas.

Less than 50 percent of the households in Arkansas have PCs in their home and around 30 percent of people in rural areas don't have access to broadband. Now, that means don't have access, that even if they had access, they couldn't necessarily afford it, but right now, they don't have access, so, it's a real problem.

So, before we started this program, patients would have to drive more than 200 miles often to get to health care facilities to get treatment. This is very difficult if you don't have cars, if you don't know the roads. Believe it or not, people in the rural areas in Arkansas are afraid of going to the megatropolis of Little Rock to get care; they're just scared of it. So, what we've done now since we've deployed this program, which is a $102,131,393 program, and believe me, I have to keep up with it, which we should. We need to be frugal with the government's money, so, we keep up with it. We've now made it so that of our 2.9 million population,

every patient is within 60 to 90 miles of a health care facility connected to this program. So, that's changed everything that we've done in this thing.

You've heard examples of the stroke. There are countless other examples I can mention of, for instance, Phillip and April McDaniel, who had twins with a very serious medical problem of one of the twins, and, so, we provided real-time ultrasound live streaming consultation services through maternal fetal medicine physicians in Little Rock. They lived in the Fayetteville area, didn't have access to subspecialty care. We provided care to this patient and managed her and this was of great benefit to her, particularly since her husband was deployed, was a military man, he was deployed and he was away from home majority of the time and she had another small child.

So, that's the kind of stuff you change people's lives using the technology. And that's what we're attempting to do through programs like ANGELS and Arkansas SAVES, which is Stroke Assistance through Virtual Emergency Support Program. We like to come up with names like that; it's easier to remember that, ANGELS is a good term and sort of means what you're doing. But through these programs, we've developed sort of a plug and play system so that we did ANGELS and we did STROKE.

We have about 10 other programs in the pipeline that we're going to plug in and function just the same way. We have a telephone call center, scheduling center, and, so, what we do is we begin up on each

phase another aspect of subspecialty support in the State of Arkansas.

Now, this is particularly important. Not only do they get access to subspecialty care, but as we begin to move in health care reform, health care is too damn expensive. I'm a doctor, I can say that. It's too expensive. It's too expensive for a lot of different reasons. One of the things is we need to be more efficient in the management of the patients, so, we have to make diagnoses, less testing, move the patient to treatment, treat them, and move them back to the rural areas in this process, and the only way we can do that, if you become connected.

So, as a result of these programs we're deploying now, we're beginning to establish these sort of virtual health care systems that really kind of go across funding lines, if you will, so that we're able to manage like, for instance, obstetrical patients across the entire State of Arkansas in a more efficient way and we're doing that with all these programs we're trying to do.

Now, once we get into the payment reform issues, then this thing will be the most valuable program in America because we have so many connections in health care, rural areas, everywhere, and can utilize this system to more efficiently manage patients. So, it's making a difference every day. We're changing the way we do health care and we're just very proud that the BTOP, this program exists and we can expand on the successes that we've had prior to this point in time.

So, thanks a lot. I really appreciate it.

MR. WEST: Okay, thank you. (Applause)

So, Mark, we've been talking a lot about the digital divide between urban and rural America, but there's also a digital divide in many poor inner city communities across the country, and I know you focus on education. So, can you talk a bit about how your program works to break down those barriers and help students and what are you doing to try and improve education outcomes?

MR. MALASPINA: Sure. Well, first of all, thank you, all, for coming here today and letting us share a little bit of our work.

CFY is a national non-profit that has a really unique approach to education, which is that we work by partnering with schools, working directly with three constituents: students, their families, and their teachers. Our mission is to use digital learning to improve educational outcomes. Prior to the BTOP Program, we had demonstrated that our program has statistically important effects on student achievement and what the BTOP Program allowed us to do is demonstrate that this program with some additional features could really drive broadband adoption among underserved urban communities.

So, I want to tell you a little bit today about our Los Angeles program. In Los Angeles, over the past 3 years, we've served more than 15,000 families from high poverty middle schools in partnership with the Los Angeles Unified School District and 42 schools in the area. And I want to tell you a little bit about these families. These families are typically

very low-income. More than 80 percent of the parents of these families do not have college degrees. More than 60 percent of the families are primarily Spanish-speaking. And our approach with our program is to recognize that despite the socioeconomic status of these families, they desperately want their children to achieve in school and the problem is many of these families lack the tools, the knowledge, or the confidence, sometimes some of both, some of all three, to really make that kind of difference in their children's lives.

So, our program is really about trying to empower these families and work with them to help them be learning partners with their children. So, in our program, we provide training to the families in the schools and part of the training is to help them understand that a lot of the learning that their children can and should be doing is actually outside of the school, that there's afternoons, evenings, nights, weekends, vacation, when kids can and should be learning and that parents can through the investment in home technology and home learning can actually provide a lot of that support to their children.

And, so, at the trainings, we provide them with hands-on experience using free online educational games, videos, simulations. We have an online learning platform that's free for the parents to use called Power My Learning that they get experience with and the purpose of this platform is to encourage kids not only to be learning what they're learning in school and reinforcing that, but also to go beyond that to areas of the

children's own interest and really infusing in these homes the idea that kids can be not only completing the work that they started doing in school and learning that more, but going onto explore other areas of their interest. We equip all the families with broadband-ready, refurbished home computers and provide them guidance on enrolling in broadband programs locally.

The final part of our program is that we also work with teachers in the schools to help them think about how to partner with the families better in the educational process and how to use digital learning to extend learning beyond the classroom through homework and project-based learning.

So, some of the impact that we've had, I think, has been really exciting. First of all, in terms of parental attitudes and expectations, we've really changed the way that these families view learning. More than 98 percent of these families leave our program feeling significantly more empowered to use the Internet and to use digital learning to supplement what their kids are doing in school. And as a result of this program, these families are enrolling in market rate broadband in the Los Angeles area. So, we've seen the broadband rates close to double among our families from 40 percent prior to the program to 76 percent after the program and that's actually just the broadband subscription rates. Many of these families are also finding other ways that their kids can access broadband through neighbors, libraries, public computing centers, the school labs

after school, et cetera.

Finally, I want to mention one really interesting statistic that we've seen from our program which is that we survey families prior to the program about their children's TV-watching habits. And more than 80 percent of the kids in our program are watching more than 14 hours a week of television prior to the program. After the program, several months after the workshop, once the families are actually trained and using these tools and techniques, what we're finding is that of those families where children are watching more than 14 hours a week of television, those children are now watching 11 hours on average less of television every week, moving from a passive activity to much more engaging online activities, and with the support of their families, really focused on activities online that are improving learning and complementing what they're doing in school.

So, thank you for that opportunity to talk about it. I'm happy to answer any questions later.

MR. WEST: Okay, thank you. (Applause)

So, Larry, I want to bring you back into the conversation. A fundamental premise underlying of the entire BTOP Program is that in today's world, broadband is no longer a luxury, but rather it is a necessity. So, can you tell us what you see moving forward with BTOP and what you would like to accomplish in the future through that program?

MR. STRICKLING: Well, obviously, we need to continue on

with these ideas and with these learnings. We're trying to find a way to do that thinking about it both in the context of there not being any additional grant dollars to provide to communities around the country, but, obviously, if the opportunity were to emerge that we could go back and do more grants, we'd certainly be prepared and ready and eager to continue to extend the program benefits through the grant dollars.

I think I hit on two of those areas in my remarks. I'll just emphasize them again. One is adoption. The programs that are being run to improve broadband adoption and to improve digital literacy we think can be transplanted to any community anywhere, even though we had many of our grantees that focused on particular types of communities.

I mean, you heard Susan talking about focusing on lobster fishermen and blueberry farmers. I don't know how you might think that doesn't translate to the rest of the country, but, in fact, the skills, the way you go about teaching folks really does. And, so, we are collecting all of the lessons learned from these adoption programs and going to provide that in the form of a toolkit that would be available to any community that wanted to undertake its own adoption program. So, I think that's an important thing and I think that's an area where we intend to continue to provide leadership in the future.

I think school is another absolutely key area and we talked about some of the statistics, but as I learn and talk to education leaders and continue to look at some of the research reports coming out of the

school technology folks, it's pretty clear we've got to be ramping up bandwidth into our schools.

Again, I mentioned our program hits less than 10 percent of the K to 12 schools. We've got a large group of about probably 60 percent of our nation's schools that need to get upgraded broadband and I do think that's an area where we all need to come together and figure out how we can deliver that kind of upgraded broadband. And, again, we're talking, as I think the report indicated, it's 100 megabits per second for every 1,000 students, ramping up to a gigabit in a few years. I mean, this is going to take a national effort. I think it's one where it's going to require a partnership of private industry along with the educational community and government to make this happen.

MR. WEST: Okay, thank you.

I'd like to throw out a question for everyone on the panel and get our grant recipients to reflect on the lessons learned from your projects. So, some communities have gotten the grant money, others did not. So, what lessons do you see that can help inform the efforts in other states? And if you can keep your answers brief and then we'll go to audience Q and A. Bruce?

MR. ABRAHAM: I always got to start. Lessons learned. I think that these projects are best done if they're done from the ground up, if you will, where you involve your institutions and your educational folks and governments and everybody understands this. I used to say it took

three meetings with folks before they really grabbed what this broadband thing is, at least in rural America. So, I would encourage you all to socialize this deeply and widely in your communities and then it seems that the money and the support and the recognition that folks need this follows from there. So, I wouldn't advise to start from the top down to push it on somewhere. I would let it rise up with people who have the real needs and who have to stay up until midnight to operate on the Internet.

MR. WEST: Susan?

MS. CORBETT: I think there are two areas that we focus on. One is on what are the barriers in your communities, figure out what is it that's preventing people from learning, and is it because they can't afford a computer, is it because the classes aren't convenient for them, and really do a good assessment and that's going to vary community by community.

And then the other is collaboration, collaboration, and more collaboration. The more people that you bring around the table to support the work you're doing, the more successful the project is going to be. Axiom is a collaborator. We work locally, regionally, statewide, and nationally. Even if all the collaborator is doing is hearing what you're doing, it will make a difference and it becomes everyone's idea. And, so, the success rate becomes very high.

MR. WEST: Curtis?

DR. LOWERY: Well, my list is pretty simple. Wet wood

does not light. And what I mean by that is that you may have a really good idea, but if the local community's not ready to accept it, they won't accept it. But so you go find the people that will accept it and you get things going there and they'll often consume and begin to engage the other individuals not initially engaged. That's been very successful if we do that, go for the low-hanging fruit first, help them, support them, and then they'll engage the other people that are the slower adopters.

MR. WEST: Mark?

MR. MALASPINA: I think our lesson learned is also about collaboration, and for us, it's really around schools as a fundamental institution in local communities and I think that's probably true in the urban areas where we work, but also in other communities.

We scaled our program, thanks to the BTOP dollars, from 1 school in Los Angeles to 42 schools and we didn't know what that would really look like on the ground until we did it, and what we found is that school principals, other people in the administration, and especially teachers really embraced this notion of using different tools and techniques to improve their families' lives and extend learning beyond the classroom. And I think just as we're looking at piping more bandwidth into the schools, I think we should also recognize that the schools can be great institutions for helping to drive broadband adoption in really sustainable ways in the community itself.

MR. WEST: Okay, let's open the floor to questions. There's

a gentleman right here. There's a microphone coming up from behind you. If you can give us your name and your organization and keep your question brief so we can get to as many people as possible.

MR. BROWSKI: I'm Mark Browski, retired physicist and engineer.

I have two questions about sustainability. I'd like to ask each of the panelists what is sustaining their program after this initial grant, what's the financial model?

And the other question is: This was a onetime grant from Congress and the administration. Given the local success of each of these programs, what are the views of your local representatives in Congress about such programs?

MR. ABRAHAM: We are close to breaking even as a business and the project just finished two months ago. We have goals this year to interact more with the carrier business because we have to cover a wide stretch of territory. We have all the school systems in our region; they're some of the biggest customers, the hospitals, institutions, keep those folks happy and grow those services. So, we have a viable business in sight here.

And what was your second question, sir?

MR. WEST: What does your representative think?

MR. ABRAHAM: Well, you know what, I mean, that's another thing where it takes three meetings to talk to people. (Laughter)

When this first came out, part of the Stimulus Program, I went to see our governor and our representatives and I'm pretty much of a red state, if you will, but I said I don't know about all that money going to the banks and General Motors and everybody else, but I said I know that we need infrastructure up here and we can't do it ourselves. A local community just struggles to build water and sewer and if we all get together, we can leverage this and it's like an interstate highway, a Federal project that we can get here. And you get the other folks to kind of agree with you and go along with it, and, so, we got actually a lot of support, but it took a lot of explaining to folks about the effect of the project and to convince them that we needed it.

MR. WEST: Susan, your thoughts on sustainability.

MS. CORBETT: We developed a software. So, the software will be available throughout the country and we're hoping that that's going to sustain, we'll get our return investment, and as a result of that, continue to promote broadband and adoption as a result of that.

We also received some private funding just in the last month to continue to do digital literacy classes throughout Washington County for the next two years. So, we received some significant funding to do that. We put a Facebook page up to promote the program on Sunday. Within 6 hours, I had 100 likes, and by the following morning, we had 40 people requesting classes. So, I think we're on to something.

And as far as our Maine's congressional delegation, they

rock. They're awesome. (Laughter) I E-mail and I get a return, but we also keep them in the loop and we also do that for our Washington County delegation. I don't want any of our congressional or political people to ever say “I have no idea what's going on.” I’m going to make sure they know what's going on.

MR. WEST: Curtis and Mark, sustainability.

DR. LOWERY: Well, about 10 years ago, I was in one of my clinics and I was talking to one of my nurses, Debbie Holcomb was her name, and I said one day, they’ll be a computer in every exam room and she laughed and said there's no way in hell that’ll ever happen, and five years later, of course, there's a computer in every exam room.

So, for us, the question is: Is this thing of value and does it help in healthcare? If so, healthcare’s one of the biggest industries in America, maybe the biggest industry in America. So, it’s of value, then it’ll be sustained and I believe I don't know of any example where people have said we don’t need this much broadband, let’s give some of it back. It almost always eats more broadband.

And I’ll tell you, our congressman, Senator Pryor and Senator Boozman have been influential in helping us get this thing started and I’ll tell you death does not know a political party affiliation, one is republican and one is a democrat. So, if you're helping people’s lives and improving their lives, then the congressmen will come in and support what you're doing and they have very much in this program as it got started.

MR. MALASPINA: So, for us, sustainability is something that we're addressing in three different ways. One is that we have a number of companies who are beginning to donate equipment and volunteers for our program. Secondly, we have foundations in the Los Angeles area who are now supporting our program. And, thirdly, schools are now contributing significant amounts of cash towards sustaining the program going forward.

So, we feel good about our sustainability efforts locally. We're also sharing a number of our training modules and online tools nationally. So, we hope the things that we've been learning thought the BTOP experience gets spread nationally. And I would say in terms of elected officials, we've had very positive experiences with all the elected officials who've come to see our programs. So, it's been exciting.

MR. STRICKLING: Could I add a comment on that, too? Just sustainability was a very important issue for us as we evaluated the applications we received. And coming back, I think you've heard every one of these panelists talk about collaboration within their communities in terms of developing and carrying out their programs, and we found that the absolute best applications and the ones that provided the most convincing case for their ultimate suitability were the ones that showed that sort of collaboration.

We called our infrastructure projects comprehensive community projects because we were really trying to encourage applicants

to sit down with all of the key players in their communities and work out a plan that could lead to the ultimate continuation and sustainability. That's because we all knew that it would be a tragedy for this program if we spent the capital dollars, put the equipment in, and then didn't have an ongoing in effect business that could sustain itself over time to continue to deliver services to people.

So, it was a focus of ours from the start. I think you hear from the people here today, as well as if you were to talk to any of our other grantees, that this is foremost in their mind in terms of how to make sure that these projects continue on into the future.

MR. WEST: Real quick.

DR. LOWERY: And can I say one thing?

MR. WEST: Sure.

DR. LOWERY: If you want to say what's the most expensive element in healthcare, it's me, as a physician. It took me 17 years to get trained after high school and then another 3 or 4 years as a doctor to really know what was going on. So, and there's a shortage of people like me around and this technology really does allow me to be virtually everywhere all the time in ways that we haven't experienced at this point in time. So, I think that the sustainability model is if it's of value, then it'll happen. If it's not of value, then it should go away. I think we shouldn't sustain programs that aren't productive and do anything positive.

MR. WEST: Okay, other questions? Right here, there's a

gentleman with his hand up.

MR. PEHA: Hi, John Peha, Carnegie Mellon University.

Having spent some time this year doing assessments of BTOP grant recipients in Pennsylvania, I've got two related questions. When putting your programs together, were you able to sort of learn from the experience of other communities to help figure out what works and what doesn't? And are there things you're doing now to help other communities learn from your experiences both positive and negative?

MR. ABRAHAM: I've got to be very, very honest with you. We had some electric membership companies that had been in the fiber business, but in the scale of this, they'd done some local things with local schools and hospitals, but the scale of 1,100 miles of network and being the carrier network and going to Telex and running a network, this was new stuff to us, but we figured it out, again, with help from our program managers and the NTIA.

And then the second part, we figured a lot of it out, we learned a lot from our vendors, also. I mean, for example, the carrier equipment that we bought, whenever we'd go through the process and we'd talk to 19 different vendors and that was our exposure to the technology about what's the latest and greatest stuff and what we'll do and what do you want to do with it and it's a tall learning curve to go here through, but it's a valuable learning curve and we were kind of on the edge of this technology. So, we just grinned and bared it and learned it.

MS. CORBETT: We listened. We did a lot of talking to a lot of people from all different industry sectors and we listened and we put those ideas together. And in the end, what we figured out is that through technology and education we will change the economic status of a region. And at the end of two years, that's what we're sure of.

MR. WEST: Okay, in the very back, there's a question. There's a microphone right next to you.

MR. CLARK: Hi, I'm Drew Clark, executive director of Broadband Illinois or the Partnership for Connected Illinois. We're the state broadband initiative entity of the mapping and planning and coordinating states.

MR. WEST: Then you've come to the right place at this event, it sounds like.

MR. CLARK: I sure have, I needed to be here.

I have a question for the panel, but particularly for Mr. Strickling. When the stimulus was passed four years ago, there was a lot of talk about it as a CAPEX or a capital expenditure, and we need to sort of be thinking about the OPEX or the operating expenditures. So, perhaps, this is, likewise, a sustainability question. There are two funds that haven't really been talked about today that I'm interested in your thoughts on as being sources for operating expenditures for broadband projects, the Universal Service Fund and the ongoing changes in that at the Federal Communications Commission, but also there's been talk of an

infrastructure bank proposal and, in fact, former President Bill Clinton discussed this last week and said he wanted to see this this year. So, I was just curious if either Mr. Strickling or the panelists have any thoughts about existing or new natural sources of ongoing revenue as opposed to a new, big stimulus effort.

MR. STRICKLING: I don't have any real comments to make about either of your programs other than to say that the USF, the Universal Service Fund Program, is pretty much a closed system only available to carriers of last resort. So, many of our grantees wouldn't even be in a position to qualify for support under that program as currently constituted.

But I'd go back to what I said before, when we approved these applications, we did it on the assumption there were not be operating subsidy that would continue on for these projects, particularly the infrastructure projects. In other words, we had to be convinced that the applicant had thought out at front of their program, understood their community, understood their likely revenue sources, that they could demonstrate that they could operate on a break even basis when the capital dollars ran out. And you heard Bruce talk about how close he is to being break even and it's, again, something we expect from all of our grantees.

MR. WEST: Okay, up front we have a question. There's a microphone coming over to you.

MR. McCRAY: Chris McCray (inaudible) Foundation.

My father and I first saw young people sharing digital network 40 years ago, so, I absolutely get this bottom-up collaboration community. But my question to you is: How do you demonstrate that in a city like this to politicians, journalists, and professors who maybe get it individually, but don't seem to be in systems who get it?

MR. STRICKLING: That's a very good question. I think partly by being able to demonstrate the successes we're having in this program. I think attempting to humanize it a little bit more like we, I think, did with our presentations this morning so people can see the actual tangible benefits to individuals who are touched by these programs. But it's a challenge, clearly.

MR. CLARK: But could I just ask are there any of these demonstration cases anywhere near here? I understand why you gave examples from all the rural states, but I mean the things that they have learned, are any schools demonstrating this in the states here,because the University of D.C. has problems in terms of not understanding, not percolating this, but it could be used to be a host almost every day of the great case in all of your 200 grantees?

MR. STRICKLING: Sure, we had an hour-and-a-half here this morning. I could bring in probably any one of our grantees and they could tell these stories.

We have a very important grantee here in the District of

Columbia in the form of the city itself. They got the triple play, they received infrastructure money, adoption money, and public computer center money, and they have their own program once a year where they celebrate some of the successes of what they're doing. So, it's out there. I mean, you can go into any state and find the same type of success stories that you've heard here this morning.

MR. WEST: We have time for one more question, this gentleman over here that has his hand up.

SPEAKER: Hi, thank you. It's sometimes alleged that government programs and government funding is harmful to the private sector, but my understanding from these projects is that a lot of this funding has actually been beneficial to the private sector and I just wondered if the panelists could comment on how they've been working with the private sector, if they have, and to the extent that it's benefited the private sector, as well.

DR. LOWERY: Well, I can tell you in Arkansas, pretty much 100 percent of the money passed through to Internet telecom providers. So, it was a huge stimulus to our state in terms of companies that operate in the state to put in the fiber and then provide the bandwidth for us to function.

MR. WEST: Mark?

MR. MALASPINA: Yes, from our perspective, our Los Angeles program, I think, is stimulating the private sector in a couple of

ways.

Number one is we're helping low-income families kind of get over the hump of having equipment in their home that can be used that's broadband-ready. Then these families in Los Angeles are actually enrolling in market rate broadband. So, they're out of their own pockets given assistance both in the equipment side and the training side that we're receiving. They're investing in broadband on an ongoing basis. And I think we've really excited a number of the local companies in Los Angeles about the potential of our program just to improve education and they're contributing to our program as a result. So, I think there are interesting ways that we're working with the private sector on our program.

DR. LOWERY: I want to say also by having the connectivity in the critical access hospitals in the rural areas, we can keep patients there and manage them in those facilities and actually stimulate economically the local environment by supporting them through subspecialists in the urban areas. So, there's an effect from that besides just the cash layout for the hardware purchase.

MR. ABRAHAM: And we scared the private sector to death with this program. (Laughter)

I'll tell you, there's a lot of resistance up and down the scale of this, but they have since seen the value of this. We're trading with them for carrier service. Redundancy is huge with a lot of enterprises who needed two providers where they only had one. Well, that's kind of a

boast, but I think we've made better companies out of them because they've had to run faster and be more competitive and they've had to look at areas that they took for granted that with, again, a lot of old technology and they've had to reinvest and they've hard to earn those customers back. That's the American way, so, let's get it on. (Laughter)

MR. STRICKLING: Plus, I mean, I don't think there's any doubt about what this program has helped private industry generally. I mean, in terms of suppliers of fiber optic cable, I know there's a company in North Carolina that ended up getting a lot of business from a number of our grantees such that they were able to maintain a very successful business down there, the local construction companies that are involved in actually building. So, there's no question about on what you're having an impact. Then improving the opportunities for businesses that want to take advantage of this infrastructure by moving in the communities and bringing jobs into communities that now have the kind of infrastructure they have to be successful. So, there's no question that's happening.

The one area where I think you've heard from people has been the carrier community, but, in fact, our projects, our whole program was designed to try to make it a win-win for the private carrier community. That's why we focused on the middle mile. We for the most part aren't serving homes and businesses. These networks are open networks. I think I mentioned that over 500 companies have signed interconnection agreements with our grantees to get access to this fiber. The carrier

community is able to get access to reasonably-priced dark fiber if they want to expand additional capacity to improve their own businesses and improve the services they offer to their customers.

So, overall, I think the message here is a good one across the country for all different segments of the private industry community.

MR. WEST: I think we'll make that the closing statement, but I want to thank Larry, Bruce, Susan, Curtis, and Mark. We really appreciate all of the great work that you're doing. Thank you. (Applause)

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CERTIFICATE OF NOTARY PUBLIC

I, Carleton J. Anderson, III do hereby certify that the forgoing electronic file when originally transmitted was reduced to text at my direction; that said transcript is a true record of the proceedings therein referenced; that I am neither counsel for, related to, nor employed by any of the parties to the action in which these proceedings were taken; and, furthermore, that I am neither a relative or employee of any attorney or counsel employed by the parties hereto, nor financially or otherwise interested in the outcome of this action.

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