

MODERATOR: I will begin.

I know John Horri gan is here and he had to get some paper.

He will join us momentarily.

I will like to keep on time as much as possible.

My name is Bob Atkin son.

I am Director of policy research at the Columbi a institute for tele-i nformation located at the Columbi a business school in New York.

Because I am at the Columbi a business school and with Citi , I am not an NTIA employee or RUS employee or government agency employee, so anything I say can only be attributed to me and not even to Citi or Columbi a.

The program topic today or this afternoon is broadband mapping.

We have representatives from a number of stakeholders who will be participating in this roundtable discussion and they are experts and

have interesting and informative views.

Each of the panelists will make some brief comments, and then I will moderate the roundtable discussion amongst the panelists.

The last 30 minutes in the program will be devoted to the panelists or to the audience or from the webcast or from the teleconference.

I certainly would like to offer a brief observation, and that's that this process of these -- of the roundtables and other activities by NTIA and RUS is a very transparent process.

They are looking to get input from all interested parties, and there are numerous ways parties can participate, including at these roundtables, including questioning and comments from the audience as well as responding to the joint NTIA/RUS request for information that was issued about two weeks ago.

Responses to the RFI are due on April 13.

I urge everyone to take a look at that RFI and consider providing NTIA and RUS your thoughts and recommendations and suggestions.

It's a good process and one that is very inclusive and detailed.

Let me quickly introduce our panelists for this afternoon.

On my immediate left is Erin Lee.

Erin is the program Director for technology with the national governor's association center for best practices where she provides policy research and technical assistance to governors, policy advisors on information technology and telecommunications and its application to state government.

She has been working with states to improve public safety interoperable communications by bringing policymakers together to foster ideas and innovation including

coordination and planning of statewide initiatives.

To Erin's left is Sharon Gillett.

Sharon was appointed by the governor Patrick in spring 2007 to head the Massachusetts department of telecommunications and cable.

As Commissioner Sharon advises the state on broadband policy and oversees functions pertaining to telecommunications and cable services including promoting competition and consumer protection and responding to carrier and consumer inquiries and complaints.

To Sharon's left is Art Brodsky.

Art is the communications Director of public knowledge.

He is a veteran of Washington, D.C. telecommunications and internet journalism and public relations working with communications daily and later as an editor of "congressional quarterly" covering matters as the telecom act of 1996,

the digital Millennium copyright act as well as covering major decisions for FCC and state regulatory commissions.

To his left is John Horri gan.

John studies the on line behavior of broadband users, mobile internet users and consumers of other leading information technology.

He is the chairman of the board of the telecommunications policy research conference.

To John's left is Peter Stenberg.

Peter's is head of research at the economic research service, has been a leader in the ever a rural telecommunications policy and science and technology policy in rural areas.

He has a Ph.D. in applied economics from the University of Minnesota.

To Peter's left, Alan Roth.

Alan joined the United States telecom association last June and directs the association's affairs as

senior executive Vice President.

Before leaving Capitol Hill 12 years ago to join the private sector he served for 12 years on the energy and commerce committee including more than four years as democratic staff Director and chief counsel. And our last speaker will be Aimee Baldillo.

Aimee is the Director of programs at the Asian American justice center where she supervises and directs programmatic efforts of the association.

She has worked on issues of hate crime and discrimination and equal opportunity is a member of the adjunct faculty at Georgetown law school where she helped establish Asian Americans and the law as part of the curriculum.

As I sort of indicated RUS and NTIA are engaged in a monumental task with very short deadlines.

The American recovery and

reinvestment act, the ARRA, has a broad band stimulus program and NTIA and RUS are trying to develop a means for ensuring that taxpayers are getting the biggest broadband buck for every buck they contribute. Among other things this means that the agencies have to adopt rules, develop contracts solicit proposals, evaluate proposals, and select those that best serve the roles of the ARRA and award cry tearian the list of activities and tasks goes on and on and on.

Both of these agencies need help and input from stakeholders to public -- people who know about these issues. So the series of roundtables was established to provide one means of giving NTIA and RUS the considered thoughts and suggestions of experienced experts such as our panelists so that these agencies can accomplish their goals as quickly as possible.

So the topic of this afternoon's roundtable is broadband mapping. And this is an important subject with respect to the implementation of the ARRA and broadband stimulus program because the statute requires NTIA to develop and maintain a comprehensive nationwide inventory map that is searchable of existing broadband services capability and availability.

The ARRA sets a two year deadline for make the map available on a website, and allocate its up to 3507 million dollars for this mapping project.

So let's -- 350 million dollars for this mapping project.

So let's begin with Erin Lee of the national governor's association.

MS. LEE: Thank you to NTIA and RUS for having NGA participate on these panels.

A very important discussion and we were very pleased to be a part of

it.

In order to use these ARRA funds for broadband, we have to sort of answer that question, where are the unserved and underserved populations that we are trying to reach and trying to build to, so that we know that the mapping portion of this is a critical component to identifying these populations and to then identify the gaps in service.

It is the underlying data that is going to inform us, will provide that guidance and ultimately build that national map.

Sort of looking at what states have done already, we have a few states that have completed a broadband inventory map and other states that are underway and who have begun this process and while not all states have followed the same process there are some common steps.

Most importantly in interpretation of looking at establishing some

goals and metrics, it's about the map but also about linking that to the demand for the service.

Regarding the broadband speed and the coverage rates.

Many have tasked subcommittees to their broadband initiatives to take on this important work.

They have developed relationships with parties.

Together with getting the media there may be issues of provider sharing sensitive information and states have found ways to gather that information in a way that brings those providers early on into the process using public private partnerships and state have used connect as a nation to help them gather the data.

Developing those MOU's for those providers to share information and perhaps disclosing a non-disclosure agreement that providers can sign.

How are we going to effectively get

the data as quickly as possible to build out the model maps and we can look to the data from the citizen rather than just the providers many states have done citizen surveys to gather where there is availability and where there is speed and access or using the census to track information.

There is right of ways to get at that data and looking at the map through the address level.

This is really a dynamic process.

States may take that first knock and they continue to it to show accessibility and gaps and how they are building out over time.

Where they are starting to build out service to those unserved and underserved areas.

But they are looking to update and add to the granularity of information that is going to be vital to put the funds in the right places.

In terms of this process, we were going to build a national map.

We can look at how states have already done this process and use them as a model for helping other states who may just be beginning this process by sharing resources.

There is all kinds of vast information, template, and other things that states have developed that states early on in the process can use and pick up on.

We have such a short period of time we need to find a way to collapse the time period that it takes to collect this information and put together a map.

Certainly states and partners in NTIA and others will have to work together to integrate the criteria that states already utilize, linking to states that have completed projects to provide some kind of baseline criteria but also looking into other components of that

criteria as well.

Finally with broadband mapping is obviously critical to this process. Again, it's the data that we need to effectively evaluate projects and effectively I evaluate where we are going to provide funds and it's part of the overarching plan for states. So states may have their plan for broadband and they use this data to kind of tell the story about where those funds need to be allocated. And I think they can provide a lot of useful information in that process that can be helpful in moving this along.

With that I will look forward to discussion and dialogue with all of you on mapping.

MODERATOR: Our next speaker is Sharon Gillett.

I have given Sharon a waiver of the strict one-minute slide, because she is going to use some slides to illustrate some maps.

Thank you.

MS. GILLETT: Thank you, Bob.

Thank you to the NTIA and to RUS for inviting me here today.

Several states have done broadband maps to name a few, North Carolina, Vermont, California, Wyoming, there are others, too, those are the ones off the top of my head.

I represent only one state which is Massachusetts but it's one that filed comments in response to the notice and I wanted to share with you what I said in those comments.

First I said if a map is going to be used to form public funding decisions then it is my belief that transparency and accountability be subject to review.

One should think of mapping, not map.

There are many layers that could go into a map, because you are working with GIS people who are really pros at this kind of thing and they can

capture many, many dimensions, they don't have to go to one map at a time they can have multiple maps with multiple dimensions dimensions that I felt that at a minimum should be considered were availability, does an area have broadband or not, competition, how many options are there, quality, that encompasses things like bandwidth, both directions, interreliability, redundancy, service quality, metrics and so on and affordability, it could be said that broadband is available everywhere in this country if everyone is willing to pay for a T-1 circuit, most people are not so the price that is available is relevant in terms of thinking it's not just availability, it's availability with what price. Certainly we need a map showing where we do not have broadband to inform decisions on what is an unserved area.

That needs to be a part of the data. And mapping on the map, it is most useful when we compare progress over time.

So even states that have already started a mapping process, first of all, they will need -- assuming that NTIA takes the lead in developing a coordinated national map states will need to get in line with that national set of standards and secondly we will need some mechanism to keep their maps up to date over time.

And that should be thought of about NTIA's thinking of 350 million dollars application that it may not be just a one time thing but may be done over time.

Finally I will conclude that states -- we believe states do have the same authority and access to broadband mapping data but currently in the past states had to wait to get access to that data, so for

example, when industry has submitted data to the FCC, the FCC has made it available to the states about a year later.

It would be nice to get everything at the same time and to be able to request the same information for anybody that is submitting it to the federal government.

If it affects my state, I would like to see it at the same time.

Bob has been kind to give me dispensation of why methodology matters when it comes to maps.

This is a set of three slides.

They will illustrate the same region that you can look at it with three different methodologist and you will see what the difference is and why it matters to get methodologies and to approach the same things with multiple methodologies can be very valuable.

If you took the FCC data from 2006. You showed Massachusetts, that's my

state and as you see there is nothing -- the categories, green means that the area is unserved. Nothing is green, according to the FCC.

And the reason that's the case is that the FCC used a methodology that says if anyone in a zip code receive as bill for broadband that zip code is entirely served with broadband.

And that is a methodology very well understood to overstate coverage in rural areas where zip codes are large.

I will show you what we did to get a handle on our state.

The FCC map was mystifying to us because we got a lot of complaints from people in western Massachusetts which is mountainous, rural and lots of trees saying we don't have broadband, we don't have DSL, we don't have cable and we don't have wireless so we couldn't understand why the FCC was showing that

everything was covered so we actually did a survey and looked and asked the people who lived in the region and lived at the towns and lived on demand side organizations known as western Massachusetts connects and what they found is we have 32 municipalities that have no cable, no DSL and no wireless coverage. Red on that map indicates no coverage.

So we have quite a different map from what the FCC had come up with. So I show you that to show you that methodology matters and local knowledge is important.

People know whether or not they have service where they live.

And we should take advantage of that.

So I am delighted that the data improvement act was designed in consultation with the states.

Finally the last slide, if you would, which is to show you that in

the previous map there were red towns and also orange town that is were partially served.

How does one get inside of that. We are prototyping a methodology working in conjunction with the Massachusetts GIS agency so the branch of state government that does GIS this methodology lets us drill down and look at somewhere service goes, through cable through DSL, some day through wireless and tell us whether an area has multiple providers, one provider, no provider.

The red dots on that map are no provider.

So you can see that is taking one of our orange towns and exploding it and finding that in that particular town there were not a lot of unserved people.

Applying the methodology to others may result something else.

But I thank you for your time and I

I look forward to the questions.

MODERATOR: Our next speaker is art Brodsky from public knowledge.

MR. BRODSKY: Remind me not to follow Sharon again.

So good afternoon to the hard core in the audience and the hard core multitasking at home on your internet machines listening along while doing something else.

We are here today because our friends at NTIA will be allowed to spend up to 350 million dollars for a broadband map.

I emphasize the up to, because by one estimate, that of Jane Patterson from North Carolina, that is about double what would be needed to complete the task.

I have no doubt that every time will be called for, and the agency's goal is to make sure that the task is done correctly and that the money is well spent.

Mapping is a complex undertaking,

and this is no exception.

Let's start with the basic question, does the complete map take into account, the backbone and middle mile transport, or only the last mile to the residential customer?

We don't know.

NTIA is going to have to work hard to impose uniformity on the process. Without that discipline we will end up with as many different measurements of speed and service territory just to name a couple of factors as there are maps.

Without that discipline integration will be impossible, and the map will be useless and in addition any broadband map produced because this exercise will have to fit into existing mapping data showing mapping standards and Perestroika. For now I will leave the technical issues aside and focus on a couple larger basic questions and I want to frame it in a series of choices.

1, will the map be accurate and complete or inaccurate and incomplete?

Will it be done in the public interest, or will it be done in the private interest?

Will it be done with carrier cooperation, or without carrier cooperation?

These are not frivolous questions.

They go to the most central potential weakness in the data collection and mapping process and that is the quality of the information submitted by telecommunications carriers.

Sharon touched on that briefly a minute ago and an earlier panel KC Claffy and others mentioned it as well.

They have cloaked their data submissions under veils of proprietary and confidential information.

It is not information on future

business plans or on upgrades or on deployments.

Around the country states want to know what is in the ground right now.

How fast is it?

How much it costs.

Carriers have resisted supplying all but the most rudimentary information with every fiber of their being.

You should pardon the expression.

And what they do supply is on restrictive interpretation through the very harsh non-disclosure agreements.

Let me give you an example.

In the debate in the Maryland how fast delegates, Maryland lobbyists testified against a bill to require just the kind of reporting and mapping that we are talking about.

He told the house economic matters committee that 9/11 wasn't that long ago.

We don't want to make it easier for

them to take out the network.

He added that legislation requiring fuller disclosure could point to our vital public resources particularly in the wireless network.

What information that is reported under some of these mapping projects is frequently based on assumptions on availability of service from central points like wire centers or cell towers but that data is secret so no one can see the basis on which the maps were made.

Maps made from selective data put forth grudgingly by carriers that can't be verified are quite simply useless.

Maps created by organizations supported by telecom carriers, likewise.

Now we can frame this in being able to do it the easy way and doing it the hard way. The easy way to a good map is for carriers to cooperate in providing good,

accurate granular transparent data.

But the agency would be wise to think about plan B to gather data without territorial cooperation.

One survey in North Carolina used students and found broadband penetration 10% to 15% lower than information that carriers had supplied.

So to sum up for my not fancy slide and I haven't done well in crafts since a very young age mapping will be successful if it's done by a public agency with transparent and verifiable data, uniformed standards and comprehensive information.

Thank you.

MODERATOR: Our next speaker is John Horri gan from the Pew internet project.

DR. HORRIGAN: Thanks, Bob and thanks very much to NTIA for having me here today.

I have my requisite one slide up.

So let me in the time I have touch

on a couple of points pertaining to consumers knowledge gaps when it comes to broadband infrastructure and research's data gaps and needs.

As you see from this slide, according to the Pew internet project, 14% of non--broadband users say they can't get broadband where they live.

The trouble with a datapoint such as that is respondents can be wrong about what kind of infrastructure is in their neighborhood so we like to get a read on availability that is more exact than was can get from asking consumers questions in a survey.

Second point is that 83% of broadband users say they don't know what their home connection speed is, and that's remarkable for a couple of reasons that is remarkable in part because 1/3 of broadband users say they pay extra money per month to get more speed but they have a

hard time telling you exactly what the speed is. Third data point I want to share with you is that consumers often don't have enough information about the number of providers in the area in which they live.

In a survey we conducted almost five years ago in 2004, 22% of broadband providers said they didn't know how many providers were in their area.

And that was at a time when broadband was an elite activity.

And in this early set they did not know how many providers were in their area.

These kinds of polls for consumers as to what is going on in the marketplace are only likely to grow as wireless broadband disseminates and more choices are out there in the market.

You might say with enough hustle a consumer could do enough research on his or her own to address those data gaps.

But wouldn't it be nice if there was a single interactive place on the internet could go where a consumer could find out quickly what is going on in his or her neighborhood, allow these different dimensions of broadband infrastructure.

A final point I want to make about consumers was a point that Sharon made.

Don't underestimate the power of passionate users in helping mapmakers check the quality of their maps.

Probably about 5% at least of broadband subscribers I think would be compassionate enough without their service to really get into what they -- a map produced by NTIA. 5% doesn't sound like a lot.

But when you start to think about the number of people in this country, 5% is going to be a couple of million people taking an active role in checking the map that is

produced by whatever process we have.

Let me turn now for a couple of seconds to the research community and what its needs are with respect to broadband mapping.

We have heard this before.

We heard this when the Pew internet project conducted a workshop on measuring broadband a couple of years ago.

The research community needs granular data on broadband in order to do its job to try to figure out what the impacts of broadband might be.

Second, we need standard data collection across jurisdictions.

It may be that the final plan says states go out and make maps.

That might be a good approach, however, if states are going to do that, the data collection methods have to be standard across jurisdictions so it could be

aggregated into a national map.

That is not only user friendly for consumers but it's crucially important for researchers to do their job.

Finally I will live you with a thought that it is important to have the research community active and participating in the mapping process.

I mentioned briefly a workshop that we held at Pew internet workshop on this issue.

When you gathered in this room, economists, sociologists and mappers.

Each of them asked important questions about mapping.

To get those constituencies in the room as the mapping plans were made is very important so that researchers can participate in the kind of assessment of broadband that policymakers are often pining for but often do not have enough

information on.

With that I will conclude.

MODERATOR: Thank you very much,
John.

Our next speaker is Dr. Peter
Stenberg from the Department of
Agriculture economic research
service.

DR. STENBERG: I would like to thank
RUS and NTIA for having us here.

I will address broadband
availability and actually I will be
talking about a report that was
released recently.

If you would like copies, I do have
some copies available, and you can
just see me afterwards.

Broadband basically has become
widely available and you see from
the FCC data that we have been
discussing is there on the screen.

The subunit is zip code zones.

From this you can see that it is
widely available, at least one
provision in each zip code, but

while the map gives a strong impression of universal service availability today, many areas in reality are underserved.

This can be seen in lighter shaded areas of the map, especially like Alaska, parts of the desert west and great plains and northern great plains.

Some of the reasons why we see this wide distribution is wilderness is something that comes out white away. This can be seen in the high Sierras in California, the everglades down in Florida and parts of Maine and basically it's also showing that broadband availability is less in rural areas than urban areas, the less population density and the less broadband availability and this again, seeing the great plains or eastern Washington.

Households are another factor of availability of broadband internet use that can be seen in the grab on

the screen.

The reason why is the relationship between household income and broadband use.

As income increases so does broadband internet use in the household.

As a consequence of the household use relationship areas of higher concentration with low-income households, these areas have less broadband availability than richer areas.

And this again can be seen in the Appalachian regions and some of the Indian reservations serves as a circular argument.

And I would like to say with regards to research we need more granular information and I would like to conclude that again with thank you.

MODERATOR: Our next speaker is Alan Roth from the United States telecom association.

DR. ROTH: Thank you for the

opportunity to participate today on the panel.

I am representing a group composed of the U.S. telecom association where I serve as Senior Vice President as well as the national cable and television association, CTIA, The Wireless Association, the independent telecommunications association and satellite industry association and wireless communications association international.

Of the 4.7 billion dollars appropriated for the BTOP program, as we have said up to 350 million dollars was made available to implement two things, first the broadband data improvement act and second to have NTIA develop and maintain a comprehensive broadband inventory map.

The center piece of the VDIA is to map broadband availability and speeds acrossed several states which

is why the BDIA colloquially came to be known as the mapping bill as it moved through Congress but Law provides for much more than maps alone.

It is an important thing to the deployment and use of unserved areas and an areas which broadband is low. To achieve that end the statutory language requires collaborative service providers and IT companies to access maps, aggregate local demand and market intelligence needed to improve business deployment.

Allocation for demand site programs reinforces the expression of Congress's intent in the BDIA that mapping must be linked with demand stimulation to achieve the goal of universal broadband availability and adoption.

For that reason we believe BDIA grants should be given to public private partnerships that have

demonstrated the capacity not only to map but to create the collaborative organizational structures at state and local levels, that you gain the trust of local and public private sector participants whose cooperation is necessary to the success of the effort.

A necessity for cooperative effort looms large because BDIA assures protection for sensitive business information whereas the NTIA provision in the ARRA does not. Thus the most efficient way to implement the national map program is for NTIA to establish a mapping template for us to use and then act as the aggregator for the maps produced by the NTIA grantees, if the FCC completes its analysis of the recently submitted 477 data which by the way has more granular data than zip code that analysis can be validated into appropriate maps

by BDIA grantees and the NTIA.

Someone said that the awarding of broadband funds should come after the mapping process is done.

Given the state of the economy I believe that is inconsistent with the goal of preserving and creating jobs as quickly as possible.

So where maps are not yet done, NTIA using appropriate selection criteria and working in close collaboration states, with BDIA should come to the absence of broadband service is well known and documented.

Thank you.

MODERATOR: Thank you, Alan and our last speaker Aimee Baldillo from the Asian American justice center.

MS. BALDILLO: Thank you for the opportunities to present.

We believe accurate broadband mapping should ensure that not only the technical factors of broadband deployment are addressed but social factors including employment status,

poverty and race and language are addressed as well.

Broadband mapping is vital for rapid and efficient deployment of service for unserved and underserved areas.

We believe if accurate maps were available today Congress would have been able to justify the 350 million that is in it for national broadband service instead of the 7.2 billion we have now.

Given these limited resources it is essential we get the process right the first time and broadband mapping is an essential part of this process.

We cannot understate the power of maps as a visual tool to educate and inform the public.

One need look no further than the numerous civil rights cases in the past 50 years that have relied on maps to show disparities in education.

In gamillion versus lighter foot the

Supreme Court published a map of the city of Tuskegee, Alabama that they considered irregularly shaped demonstrating the discriminatory intent.

30 years later a map clearly demonstrated to the court that the city of Yonkers, New York had failed to the persisting patterns of discrimination.

Maps have been vital in school discrimination and providing access to healthcare, municipal service and facilities, banking, consumer credit, insurance and environmental justice.

Accurate broadband mapping will ensure that disparities of broadband service irrespective of their cause are quickly identified and remedied appropriately.

For example, mapping would help my organization the Asian American Justice Center understand why some predominantly Chinese and Korean

working suburbs in Los Angeles and San Francisco don't receive the high speed broadband service needed to attract high-tech jobs to their communities.

From our experience with mapping in the civil rights, first we need street level data to identify the geographic and social dividing lines for broadband maps should provide technical indicators such as speed, price tier and competition to be overlaid with poverty, unemployment status, race and language.

One possible way to attain accurate social data is to provide adoption of the census bureau's annual community survey. Second, to be useful in support of the national broadband plan, maps must be comparable among the states and over time and they must be updated promptly by data provided by service providers on the ground.

Third, to the extent possible the

mapping process must be transparent and verifiable.

We appreciate from the experiences in groups like connected nation that full transparency of the underlying databases are impossible due to security concerns that should not be problematic if the maps themselves are made public and the underlying databases are subject to audit.

Thank you to NTIA and RUS for presenting this perspective on broadband mapping.

MODERATOR: Thank you very much, panelists and let's get into a bit of a roundtable discussion.

One of the overarching issues I would like everyone to keep in mind is that a -- there are deadlines, two-year deadline to get the map on the searchable database or searchable web site.

So, first of all, is two years a realistic timeframe to get what Congress has in mind actually done?

Does anybody have concerns with a two-year timeframe?

John?

DR. HORRIGAN: I am not going to comment directly on the two-year timeline but to get it done in that timeline it would behoove officials in NTIA to consult with other agencies in the Commerce Department which has experience in gathering data about industrial activity, in the Labor department and Commerce Department that gather data that under circumstances has to suppress data for proprietary reasons but there is a practice within this area and it would make sense for NTIA to reach out to in order to avoid making mistakes that would delay meeting that two-year deadline.

MODERATOR: Aimee mentioned the Census Bureau.

DR. HORRIGAN: The Census Bureau, the bureau of economic analysis. County business patterns has

detailed data from counties that is used commonly by regional economists there is a suppression methodology for certain kinds of non-dense counties in the collection of that data and it would make sense to have NTIA reach out to specialists there to -- MODERATOR: Not --

DR. HORRIGAN: Exactly.

MS. LEE: I think NTIA could do a quick snapshot of which states have a map and where the gaps are and then notebook to how they can class the time that it has taken states to do.

They have better information.

They can learn from states that have done that and they can get over their humps a little bit faster.

So I'm not sure if that two-year timeframe is reasonable or not, but maybe it would go faster if you would learn from states who had done this before.

MS. GILLETT: Just a quick comment

on our experience and I know this is shared with other states the thing that is most time consuming is the negotiations with providers about what they are going to provide and what they are not going to provide. And I think part of the rules can clarify what can be reasonably provided and what is reasonably provided, that would take sometime.

MODERATOR: How long did it take you to do your second map, which was your map versus the map based on the FCC data?

MS. GILLETT: The map with the red communities was just a few months, it did not provide any proprietary data.

It was just user data.

MODERATOR: Now you were house to house?

MS. GILLETT: We were using all public data.

To save time.

MODERATOR: John, you mentioned in

your comments the need for standard data collection so that -- however this is done, if there are multiple maps being made that they can integrate.

If that is true, what does that say for existing maps that have been done by states presumably with different data collection methodologies and data that may not integrate well.

Is it better to start over and have all 50 states start the same time with one set of criteria as established by the NTIA or hope that once can be integrated with the established form?

DR. HORRIGAN: That has looking over the mapping processes.

You wouldn't want to Chuck state efforts that aren't in league with say a state that is seems to be the most well developed map.

But if you have the right people in the room you can see -- well, North

Carolina did a little differently from Massachusetts but in fact those discrepancy we can live with so I think with a little consultation from the research community we could determine the recent fees whether certainly maps are not up top snuff or how to independent great data across different maps that might have been collected with a slightly different methodology.

MODERATOR: Anyone else with expertise on the knitty gritty of map making?

Are we all observers?

DR. ROTH: I am not an expert on the knitty gritty but I agree with John's point that you don't want to Chuck out a lot of work that has been done and presumably a lot of effort and money that has been expended by states and others in the process of doing that.

As I said in my comments and some of the other panel has said it would be

useful to have NTIA establish a template but a template does not necessarily mean a uniform and by that I mean straight-jacketed system for mapping.

Different states may have different needs and as recently as six months ago Congress enacted a law and recently enacted another law that has NTIA doing a comprehensive nationwide map but you have to read those two statutes together.

And my suggestion would be that NTIA find a way using maps that have already been done, taking the best information that they can from those two maps to integrate those two projects and have a consistent but not necessarily straight active approach.

MODERATOR: Does anyone dispute Alan's contention that the two statutes have to be read together that the ARRA -- does anybody think that the ARRA supercedes?

MR. BRODSKY: There are certainly two different types of maps.

Sharon's map was done her way taken from federal statistics and then improved upon.

Other states may do it their way and as a free standing project that's one thing but the free standing project may not play well with others when it comes time to integrate it to the whole and that was the goal of the ARRA.

MODERATOR: Seems like what I have heard from the discussion there are two ways to get the information.

One is to send out the boy scout or some other independent agency knocking on doors, that was one publicly available information sharing use, et cetera and the other is to get information from service providers themselves.

From what I heard those seem to be the two major ways to get info.

Is there any particularly best way

to get it?

What would be the most reliable if you could have a wish?

If you could be compelled?

MS. GILLETT: There is no such thing as a perfect methodology.

MODERATOR: How about a best and fastest way.

MS. GILLETT: To your point, what is best is depending on what is called best, best accurate or best certifiable in the public domain or best as fastest.

There are different answers.

MODERATOR: You just identified three more dilemma areas for NTIA and RUS to evaluate because they were told to produce a searchable inventory map that shows surface capability and availability.

MS. GILLETT: It doesn't say perfect -- it doesn't say it has to be perfect if you use ARRA for public domain you may be able to do it and you don't need negotiations

with the providers but it may not be 100 percent accurate.

On the other hand, you kilometer ask them to provide the information but you have no idea.

We can split the baby and see that perhaps the AA can come up with a common conclusion and if -- it might be necessary to have that dialogue have that negotiation and where we are going to land on the tradeoff metrics and replicated that over time.

I would like to just flag one other point to what don was saying earlier about differences among states and what Erin was also -- Alan was also saying.

One big difference, growing up in Texas with counties and unincorporated areas and counties are sort of the way people think about things be living the rest of my life in New England where home rule is the thing that everybody knows

and loves.

The geographic entity used to represent this on a map tends to vary a lot around the country and there is no way to get around that. You can use federal distinction like census block and census tract which are defined throughout the country, but I would just draw a distinction between the data and how you gather it versus how you represent it on a map.

How you represent it on a map should not be the same but you should have standardized methodologies for collecting it.

MODERATOR: Anyone else have a comment on that?

DR. ROTH: I don't think it's an either or choice in interpretation of how data is that is collected. There are different opportunities for different states working with localities and working with public/private partnerships go about

doing that work.

It may be easy to send the Boy Scouts out in an urban location.

But unless the driving age is 12 it will be hard for Boy Scouts to be running around houses in Wyoming.

MODERATOR: Or 4-H.

DR. ROTH: I am from Brooklyn, we don't have these kinds of problems.

But I go back to the contemplation

here was a series of state level efforts focused primarily at

building organizational

infrastructures at the state and

local levels.

And my thought would be the greatest

chance for success is allowing folks

at a state and local level working

with whoever their PDIA grantee is

to figure out if they are in an

application process or ultimately

carrying out the job what both

and -- and asking it.

MODERATOR: John?

DR. HORRIGAN: Should it be the Boy

Scouts or the provider?

You definitely need both.

When you look at our national surveys on broadband subscribership and report on that as report bide carriers you get discrepancies in broadband penetration so the census has to get back into the game as it was doing in the earlier part of this decade conducting surveys about people's technology use at home.

You overlay those kinds of data sources and you can you can have users serve as a check as you get the passion natural broadband where you can poke holes where discrepancies just seem to be egregious or a healthy part of this discussion is to verify the different data sources.

Definitely both.

DR. HORRIGAN: I don't know if the Boy Scouts would be up to task.

You could send girl scouts out and let them sell cookies, another thing

is Elizabeth state university when they wanted to survey 20-some counties to see if there was a market for distance learning and you can leverage off of university geography departments, mapping students and other capabilities that would be existing.

MODERATOR: The act, ARRA talks about a map that shows service capability and availability, not usage.

How do you map availability and capability versus usage.

Are these fine words that don't have much distinction?

DR. HORRIGAN: In terms of how you do that there are private companies that have relationships with ISP's that -- there are companies in the private sector that collect click screen data and have relationships with ISP's so you can get a sense of what is going on at the computer level with actual usage of broadband.

Surveys are also a useful way to ask people about their behavior.

So you can measure it.

There is methodological pitfalls with each of those. KC claffy earlier and I'm sure she spoke about the need to do a better job measuring internet traffic.

So there are certainly enough expertise out there to get at that question.

Either the university community or from a private sector.

MODERATOR: A big purpose of the map is to identify unserved and underserved areas.

Let me stop at that the satellite community has suggested they serve everybody.

They have a capability to serve everyone.

How do you distinguish satellite capability, for example, that has sort of a broad area versus the street by street, which tends to be

wire lined oriented.

How do you resolve that?

The wireless, undistinguished, unmapped people have yet to subscribe to it but it is available and capability in areas that wire lines --

MS. GILLETT: That's what I was trying to get at in my comment if one is capable of paying a lot of money broadband is available everywhere.

The spectrum is how much does it cost and what do you get for the money.

Folks in red communities on our map think that many are subscribers but they are the same ones who say I can't do VoIP, it costs twice as much I get half as much if I try to download everything.

I get throttled.

That's what I think capability is.

MODERATOR: So you thing price.

>> Price, bandwidth, maybe for

legitimate reasons, nevertheless the broadband loop.

MODERATOR: That would be part of the interactive capability that you would be able to look at all the parameters if you collect all the data in the first place.

MS. LEE: The mapping is important but also is the issue of demand. The issues of price or is it what they are looking for in terms of speed.

So mapping is important but you also have to factor in how you increase demand for those service and they kind of go together.

MODERATOR: I will ask the audiences, we will start the Q and A in a few moments so if you would like to get up to the microphones, please do.

So in fact, let me think, 350 million dollars is that a good value?

Does anybody have experience on the costs of mapping?

MS. GILLETT: I don't really want to negotiate against myself here but I will tell you when one does it in the public sector it doesn't have to be terribly expensive.

What is concerning to me is a number of states have managed to do this once.

A hard part is how do you do it every two years or six months or whatever the interval is going to be, how do you provide for that?

That is a bigger challenge.

DR. ROTH: I would look at Erin's thought about demand side stimulation and what they did is up to 350 million for funding BDIA and NTIA mapping project but not less than 350 million for the other demand site projects.

So every dollar that you save on mapping gives you another dollar you can spend on the demand site stimulation projects and other things that Erin talked about

before.

To my mind that means not shorting the mapping process so you don't end up with a good viable usable national aggregated map of 50 states, but by the same token it argues for doing it in the most efficient way possible.

And my thought would be that means using the resources that are already out there working on this in the states, on the ground and taking advantage of the knowledge that has been gained already from several states that have already done this.

MODERATOR: Let's go to our audience.

The ground rules for the audience.

Basically we will ask you to limit your comments or questions to about a minute.

If you are substantially more than a minute, I will be the designated rude person and ask you to sum up.

If you could begin your comments by identifying yourself and any

affiliations that might be appropriate, and also indicate whether it is a question and in which case if there is a different person on the panel you would like to respond or if it's just a comment.

Microphone number one>> my name is drew Clark and I am executive director of broadband census and I am in fact a former boy scout but equally relevant I am cochair of the metrics working group of the U.S. broadband coalition.

So we were interested in being able to fine tune the metrics that should be collected uniformly.

My question is for the whole panel, but I would like to spring board off what Alan Roth said which is that carriers involvement is essential to the success of this.

I guess I would like to say that it's only essential if you view the argument that the information about

where a carrier offers service as confidential.

If you don't view that as confidential, indeed it's essential to know where the carriers offer service so you can identify speeds, prices, competition, all the things that the panelists have spoken about, then my question for the panel would be, what do you think about funding efforts to send out the Boy Scouts and do this and secondly, what do you think about forcing carriers to disclose that information?

MODERATOR: Boy Scouts versus forcing?

>> Or both.

MODERATOR: John?

DR. HORRIGAN: I start with the Boy Scouts.

We have capabilities that has the ability to Marshall the Boy Scouts so I think you do want to use that tool to collect data that is

essential going forward to have census involved in community surveys in getting community-based data that most national surveys don't get to.

MODERATOR: How about forcing?

Is there a mechanism for service providers to provide data?

DR. ROTH: I don't know if there is a mechanism or not but this point is generic.

Congress looked at these issues in the last Congress in the context of passing amendments.

A lot of these issues were discussed.

Ultimately what Congress opted for was a collaborative cooperative process and not an adversarial and hostile process.

Their conclusion based on all the information they got and all the arguments presented to them was that they would get more of what we wanted, more of what they wanted more of what America needs by doing

this in a cooperative collaborative way rather than attempting the forcing mechanism.

There seems to be some concern or notion that some of this information is confidential and business sensitive.

It's not a unique situation in the mapping world and it's not a unique situation here.

The Freedom of Information Act has protection for confidential business information.

There is a federal statute on the books that makes it a crime to disclose confidential business information.

This is nothing unique to mapping.

The argument that or I think the debate that occurred in the context of congressional consideration really related to I guess what I would call a sliding scale.

More granular you want of the information the more nervous

providers were about providing it without some protection for sensitive and confidential business information.

The more high level the information was the less the need for confidentiality but also the less use of the information.

The Congress struck a balance.

It was a good balance and was widely supported and passed overwhelmingly in both houses of Congress and that's the task that NTIA now has to put into place -- put into practice.

To me it's less important whether you use Boy Scouts or college students or paid volunteers or paid government employees to go out and collect the information as that being done in a way that gets the information puttedly put on a map that is useful for purposes we have here.

MODERATOR: I received a message.

Somebody has my phone number.

Ask Sharon or Erin, what is the process by which states keep the mapping up to date?

Especially with respect to pricing.

MS. GILLETT: That's exactly -- the answer is to some extent I don't know.

Whatever process.

I know for example California did this phenomenal broadband task force report.

It has phenomenal maps and it's a one-time thing and now they have to figure out how to replicate that.

I think that is a challenge.

I think whatever, the way I foresee this is that the BDIA designated the identified an eligible entity, and that entity is tasked with keeping up to date.

How the bucket for that works is not clear to me yet.

MODERATOR: Let's go to microphone number 2.

>> Jeff Daly.

I have a comment that leads into a question.

The comment being that I think it's vitally important that we put an emphasis on gathering data related to market demand and usage broadband.

Market demand is as we refer to under served as we fill the gap between what we want and what's available.

Usage is important in terms of broadband development programs.

There isn't specific accommodation in the ARRA for this kind of data.

The question being how should we put this as an emphasis for the kind of data we are collecting if so should that money be coming out of the mapping side or broadband demand side and how do we ensure these would be in agreement together.

MODERATOR: Avenue you have a response to that?

DR. HORRIGAN: I'm not quite sure.

MODERATOR: Market mapping data and market demand, and should that come out of the -->> tracking the usage as well.

MODERATOR: Tracking the usage and should that come out of the demand side of the budget or mapping side of the budget.

DR. ROTH: In the BDIA there is specific provision for these organizational efforts, if you will, or state and local efforts to specifically look at aggregating local demand and helping to build a business base for deployment in a given area.

To the extent that is a concern or an issue, it strikes me as money that may not be specifically allocated to mapping per se, but money that is necessary to carry out the BDIA which is actual what the appropriation in the act provides.

MODERATOR: John?

DR. HORRIGAN: Organizations like

ours, the internet project we do surveys that help understand what the barriers are to broadband adoption.

That is kind of an on-going participation by the nonprofit research community that I think is important.

Another element that I think is a challenge for the nonprofit sector in this space more broadly is basically mapping the ash absorbent abilities in communities for this issue.

Most are familiar with this group one economy which has a model to try and reach out and train underserved people.

There is a lot of disparate efforts in communities around the United States and I'm not sure there is a database that tells you where computer training courses are being held.

So some of the red spots on Sharon's map, the people not writing about

broadband will one day get broadband made available where they live yet they may take sometime before they actually subscribe to broadband because they lack the training and skills to use a computer.

It would help them know where they could turn to in their community to get the support they need.

I'm not sure that kind of mapping in communities to help train people has been done in the public and ought to be done.

I don't know where the funds would come from and I don't know if this legislation perpendicular mits that but I think it's certainly a need.

MODERATOR: A question from the teleconference line.

Should NTIA make grants available to applicants absent viable area maps?

If so, what empirical data should be used for unserved underserved areas.

The question is should any grants be

made until the mapping is completed? And if so, what should they use in the meantime.

DR. ROTH: There are several states that have done maps.

They may or may not ultimately comport with what ARRA would like to see in its template but there are some and most have done a good job. At least in those states there is a lot of information data available. Second, I think we need to keep in mind the main focus, main purpose of the ARRA was to stimulate the creation and preservation of jobs and to enhance economic recovery as quickly as possible. Waiting until the conclusion of this process, whenever that might be to hand out infrastructure grant money is not consistent with the fundamental purpose of the act.

There is a lot of data out there and states working together with mapping grantees or working together with

applicants and NDIA and offer selection criteria, we are confident that we will be able to handle and hand out appropriately grants to projects in areas where it's widely known or well established that, for example, there is no service.

>> Let's go to full 3.

>> Donnie Smith Jaguar

communications a sea lift

communication provider for broadband and wireless in remote areas.

I have a comment on the mapping.

MODERATOR: Could you speak closer to the microphone?

>> Certainly.

I have a comment on the mapping, and it's in the methodology being used.

As the methodology ask being used with the zip code you saw what that can do.

And it can also do the same thing if we use census blocks.

I have a county that is rural, 13 zip codes, 19 thousand people.

Which means it only has.

Four census blocks.

The data is distorted even worse with census blocks.

I would like to thank the lady from Massachusetts who did such a good job with her map.

Speaking as a company we would be happy to provide our GIS maps and what we do provide and what is available.

The last comment is simply that some of the state maps are not actually accurate we have areas that are unserved that we actually have fiber to homes and we have other areas that show competition and there is nobody there at all.

Thank you.

MODERATOR: Microphone 4>> I am Michael Calabrese. I represent the new American foundation.

I have a comment there are two critical and gross underutilized conflicts for ubiquitous forms of

broadband that are owned by the public and should be part of any national broadband inventories, one is public airways and the other is private sector fiber networks used by federal service agencies both have tremendous unused capacity in part because we have no map and no policy to open them to broadband providers so we propose that funding for broadband mapping provides an enormous opportunity to map not only existing last mile broadband offerings but also the public infrastructure available from an affordable competitive and pervasive conductivity.

We believe spectrum mapping an inventory of the airways could be impactful.

Contrary to wisdom, spectrum capacity is very abundant.

The National Science Foundation studies have shown that any particular time and place the very

best spectrum is 95% unused on average.

So we need to know what frequencies are available, at what times and in what locations.

The government cannot manage a broadband resource nor can the public hold the government accountable when nobody knows what public capabilities are being used or left out on.

An inventory of the airways can expand access in three-ways, I will mention quickly, one is to improve the functioning of secondary markets with respect to access and second it will reveal bands and what it would take to clear them completely for licensing and third, it will reveal which frequency bands are available for opportunistic such as what we are doing for TV white spaces in the future.

MODERATOR: Thank you very much.

Microphone number one.

>> Kathleen, application service provider.

I thought the gentleman's comments -- the previous gentleman, great comments.

I believe have you to map it all, the final mile plus the middle, and the backbone.

I think that anybody coming for funds from this stimulus bill or any agency under any other program should be required to give their data.

There is lots of ways to secure census data, the bureau knows great about those.

It should be time.

If you want funds, if you want tax concessions, you want this, you have to provide the data.

One other comment, I think that the use of Boy Scouts, girl scouts creates uncertainty and doubt that we could have a group of people going out and making a good survey.

College students, high school students are very capable today, and also tech groups.

They could even go out with testing this to test the connections.

And finally I have one question.

There is a great deal of dark fiber that is unlit.

It would be a real waste to only consider lit services.

We should be inventorying unlit.

And I would like to know from Ms.

Gillette, that whether you had anybody tell you about their dark fiber in their service?

MS. GILLETT: This particular effort we were focused on the -- I guess you would say constituent level maps.

The efforts was really driven by the governor and legislature who were getting a lot of constituent complaints so in this particular effort we didn't attempt to look at fiber maps.

Separately, the department and Commissioner have been putting together our first annual -- first ever competition status report and have been attempting to put into that as many infrastructure maps as we could lay out and that is not quite out yet, but when it is we can take a look and see how much of what you were asking for we managed to get into that.

Essentially we can put into it whatever we have gotten from the public domain.

MODERATOR: Similar to the previous comment about mapk the spectrum, dark fibers and other assets that perhaps you don't have much visibility into.

Microphone number 2-please.

>> Thank you.

Good afternoon I am Phillip brown national policy Director for connected nation.

I wanted to make a comment to speak

to two points.

The first is that it's important to remember that broadband maps should not be the end goal.

They are really a tool.

They should do one thing primarily which is identify coverage gaps so you can close them.

Doing that by one, effectively targeting resources and working in concert with a more comprehensive approach that includes demand stimulation at the local level as well as local research to various broadband adoption and reasons for broadband adoption because those things differ from place to place. If you are going to craft an effective strategy on how to cover broadband gaps to ensure more people use broadband you have to have research to account for those differences and the two goals should be helping to provide quality of life for many citizens and Americans

as possible and please remember as you implement the ARRA that the broadband improvement act is a significant piece of legislation in its own right and part of the 350 million dollars that includes the national broadband inventory map.

MODERATOR: Thank you very much.

Microphone number 3.

>> Barry rush of the Appalachian regional commission.

We have funded literally millions of dollars worth of strategic planning which has included mapping aspects. I mention this in the last section. I strongly support the idea of private, public, and industry partnerships, when you involve the industry itself into the whole process they understand what the community is trying to get at in serving underserved areas, unserved areas, minority populations, whatever it may be.

While it's information that you may

gain from the process of gleaning information from the private sector, as the gentleman spoke a second ago it's a tool, a thing to put in the community's toolbox for how to use it for economic development.

There was a comment earlier about how often you have to think about revising your planning efforts.

I have seen a number of our states go at it every five years, updating it because information changes considerably on a very fast basis.

I would also point out that mapping of demand and mapping of use activity on high speed broadband is a critical component and needs to be done along with the process of just strategically doing mapping or planning for the purposes of figuring out where broadband is really deployed.

You need to know who is using it, why they were using it and what purpose they are using it.

Thank you.

MODERATOR: Thank you microphone number 4.

>> My name is eMir and I am for the graduate student at George Mason University.

My question is for the complete panel but especially to Sharon, we all know that if we are ready to provide in fine night costs to have broadband everywhere but that is not the case and access to information is a right to everyone so is everyone here supporting sharing of resources, for example, like in community wireless networks you share your internet or WI1110-FI1110 but currently the internet service providers do not allow it, it's against their policies to share their wi fi .

Are you proposing a sharing of resources?

MODERATOR: As a quick question does that apply to map?

>> It applies to economic factor as Sharon said, if you have pricing, or balance between bandwidth and speed and costing.

MODERATOR: Are you suggest that part of the mapping should include as a factual input whether or not they are sharing?

>> You can use mapping sharing of resources if you have an intimate connection on one side you can extend it and you can get matching there as well.

MODERATOR: Let's put that in the context of mapping, and say is that a factor that could be or should be gathered in the mapping process along with pricing and speed and other things, is sharing or restrictions of service providers something that should be included in the mix?

DR. HORRIGAN: Okay.

MODERATOR: Finally got a taker.

MS. LEE: I think it speaks more to

the planning side of it when you go out and collect this mapping data, the data tells a story about where the connections are and working with those providers in terms of what makes sense.

I don't think you would say definitively yes or no but it would be part of your uncovering what is behind the data and how you might be able to be partner to use those resources more effectively.

I'm not answering the question one way or the other but I think it comes out more in planning aspect of the mapping.

MODERATOR: Microphone number one.

>> Mark Hiller, New York state chief information officer, office of technology.

A comment, one of the mapping issues that is being undertaken by one of the larger metropolitan areas in New York state found that they had a large underserve -- pockets of

underserved population that gets to the digital divide issues, and digital literacy issues but they found that amongst the unserved areas were the industrial park pockets so the economic development issue is that this broadband really one of the utilities that has been before the out.

I think this is something they are going to look at and we should look at as we go forward for the urban areas, they have some of the same issues as in the urban areas as some of the more rural areas in our states.

>> The good afternoon Joyce Lynn James minority telecom council.

As Aimee Baldillo and Diana Bob mentioned in an earlier panel underserved communities are often left behind and especially when there is a push for infrastructure or technology and Sharon had mentioned maps with multiple layers.

Do any of the panelists anticipate these maps that NTIA would create including social data showing economic status, employment, race, or language use?

MODERATOR: John?

DR. HERRIGAN: Well, certainly if you are going to do surveys, you will be collecting most likely that kind of demographic data about the user so in addition to whether respondents uses the internet you would get data on race, income, and the like.

So that is the practice for most of the surveys we do at the Pew internet project.

I imagine the American communities survey census would also take the lead on this so that would create a rich data base for a variety of purposes.

MS. BALDILLO: I would also like to add that our organization and many organizations advocate for this type

of information to be mixed in with all the technical factors that mapping is trying to take into account and speaking just kind of going back a little bit to the Boy Scouts or do you make this a forced thing.

One of the things that would be beneficial is going down to the community level because accuracy of information, finding out who even knows about broadband and who doesn't, a lot of times have you to penetrate language and cultural barriers so to utilize people who are more familiar with their communities and their specific needs is also very important in order to get that accurate information.

MODERATOR: We have one more person microphone number 2, have you the last question.

>> Jeff Daly again.

Just a quick question referenced earlier about the amount of money

set aside for mapping is a big number.

Most people I have talked to say it's almost an absurd idea.

So I wonder if anybody would consider the idea of shifting 1 hundred million dollars from broadband mapping to broadband demand.

We need sustainable but the money is supposed to be spent in the next two years couldn't that money be spent increasing demand than many developing this mapping process?

MODERATOR: I guess Alan's got it.

DR. ROTH: I will take a crack at it.

You know, the bill has up -- as I said before up to 350 million dollars for mapping.

And that includes carrying out DBIA which also has in it some demand stimulation activities.

There is not less than 450 million dollars in two different pots

allocated to demand side stimulation.

I will put on my former congressional staff hat on for a moment and say ultimately it's going to be NTIA's decision what the right amount is for that first pot.

Whether it's 350 million or something less.

If I were NBI A or any government agency and the appropriations committee said you could spend not less than 450 million on another project my reaction would be, well, maybe that means I can spend a half billion maybe it means I can spend 550 but I don't think the appropriations committee intended for me to double or triple that number.

So there is a balancing act that the agency has to look at in consultation with the appropriators on Capitol Hill to ascertain what they think the right numbers are

relative to what Congress intended.

MODERATOR: Art?

MR. BRODSKY: There is a lot of demand but it's hard to find.

Anecdotal evidence when you talk to people in rural Virginia, rural North Carolina, about the demand. Look, we had people move away because they can't support their businesses.

They wanted to start ground level projects.

It's not necessarily a thing that would show up on surveys but videos that were requested, some of the people that I have talked to indicate that substantially anecdotally there is a lot of demand out there. People do know what they were mission.

MS. GILLETT: They certainly do.

I can tell you that.

I can tell you based on the letters we get at the commission.

Complaint letters, please, please

get me broadband.

But broadband is common in education and we made a mistake -- we have an educated rural population in Massachusetts and we were wrong.

MODERATOR: Do you put a pin on the map?

MS. GILLETT: We do try to record and we ask the people who sent them, okay if we could provide their addresses and it will go to the point, triangulation is important. When you take it from two different angles, no methodology is perfect, each one has it's -- it's good to combine them, so one of the ways we have done that is to take that information and throw it into the pot.

MODERATOR: Unless anyone has any comments for the panel I think that is the last word.

So I would like to thank the panel for a very interesting discussion on broadband mapping.

Tomorrow is the last day for our panel topics are monitoring and evaluation, selection criteria which is going to be a little longer because that seems to be a big topic and many comments we heard over the last few days have often been about selection criteria.

We start at 10:00 tomorrow morning.

Thank you very much.