

**Unapproved Meeting Minutes  
Friday, December 19, 2008**



Location: Eagan Fire Station

**Facilitator:** Anne Losby

**Task force members in attendance:** Steve Cawley, Brent Christensen (by telephone, Randy Young at table), Tom Garrison, John Gibbs, JoAnne Johnson, Jack Ries (for Gopal Khanna), Rick King, Tim Lovaasen, Mike O'Connor, Kim Ross (by telephone), Vijay Sethi, Richard Sjoberg, Karen Smith, John Stanoch, Chris Swanson, Craig Taylor, Joe Schindler (for Mary Ellen Wells), Peg Werner (by telephone), Robyn West

**Public Attendees:** Mike Martin, Lawrence Carroll, Todd Hill, David Diers, Tucker Carlson, Myron Lowe, Ann Treacy, Cathy Clucas, Wally Milbrandt, Dick Gacke, Trent Clausen, Doug Lund, Bill Jensen, Mike Reardon, Emmett Coleman, Justine Mishek, State Sen. Jim Carlson, Michelle Schlie, Tom Berkelman, Mike McDermott, State Rep. Sandra Masin, and one illegible signature

**Staff in attendance:** Shirley Walz, Thomson Reuters; and Diane Wells, MN Department of Commerce

**Opening comments; review meeting agenda – Rick King**

Rick King welcomed everyone to the meeting.

He noted that Jack Ries was substituting for Gopal Khanna and that Joe Schindler was substituting for Mary Ellen Wells. Brent Christensen, Peg Werner, and Kim Ross were participating by phone and Randy Young was also at the table for Brent Christensen. Barb Gervais was unable to attend.

Rick King then summarized agenda and asked if anyone had any changes.

Motion to approve agenda and seconded.

Agenda approved.

Minutes from November 14, 2008.

Modifications: Tom Garrison asked if there was any plan to work with Jack Geller's data by region as discussed at the last meeting. Rick King indicated that this would be noted as an action item to follow up on. Rick also noted to put page numbers on minutes.

Motion to approve November 14, 2008 minutes and seconded.

Approved.

Rick King asked if anyone wanted to address the task force.

Mike Reardon, City of St. Paul, wanted to bring to the task force's attention on behalf of Jim Miller and Ann Higgins, a letter submitted by the League of Minnesota Cities that it be able to make a presentation to the task force similar to the presentations that the providers were making today. A copy of the letter was distributed.

Rick King indicated that the assumption is that it would be a good idea and we will talk about scheduling at the end of the session. He noted that he had also talked to the Minnesota Association of Townships who had the same request.

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Rick King asked if there were other comments. There were none.

**10:00 to 12:15 Provider Panels**

John Gibbs, who headed up the subgroup that organized today's presentations indicated that they decided to organize the panel presentations by provider type. The first panel is the local telephone companies.

**10:00 to 10:40 Teleco Panel (Brent Christensen, Christensen Communications; Mike Flynn, Frontier MN; John Stanoch, Qwest)**

Brent Christensen, Christensen Communications

He indicated that this was the hardest presentation to do because he has to cover everything in 10 minutes. His presentation will be on small telephone companies provision of broadband. Brent indicated that small telecos are defined by law as under 50,000 subscribers. Most are much smaller. His company is the 12<sup>th</sup> smallest. There are four different categories of small telephone companies: family owned (30 such companies in Minnesota) cooperatives (29), independently owned companies (12) and municipally owned (2—Cross Lake and Barnesville). Small telephone companies serve 50% of the geographic area of the state but only 10 percent of the access lines. Brent indicated that he would talk about Christensen Communications specifically because he knows it the best but they are pretty typical. Came from traditional telephone company history—have been around 105 years. Monopoly for many of those years. When his grandfather was president, in 1972, they buried all of the outside plant. Thought it was the latest and greatest. Even just 12 years ago, had 3 lines of business: local, long distance, and equipment.

Today, most companies are migrating their switches from TDM to IP. Christensen Communications is in the process of migrating its switching, a significant step. In doing this, there are a couple of different choices. Some decided to pull out old switch and put in IP. Christensen has decided to migrate switches. Another big decision is to migrate the IP backbone from T1s to Ethernet, which Christensen did this summer. With a company as small as they are, they have to have a good vision so purchases now are scalable for the future. When Christensen got into the internet business in 1997, it was totally separate; today it is somewhat connected; in the future it will be totally connected. Another improvement is the outside plant buried in 1972; they are now putting cabinets out in rural parts and are linking with a fiber ring for redundancy and service quality. This gives the company the flexibility to get more services in higher speeds out to customers.

Christensen Communications is also working on IPTV. They are a DirecTV distributor now but working toward IPTV.

Another thing that Christensen is doing is that they have been selling telephone systems in St. James for 20 years and have now buried fiber from Madelia to St. James and have 20-30 customers in St. James.

Where are they going tomorrow? Obviously continuing to migrate IP backbone. Cabinets being put out, fiber to cabinet and copper to customer but as copper needs to be replaced are doing so with fiber. Plan to deploy fiber to residential customers in St. James.

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Prognosis for the future is that the pipe to the premise will deliver Internet and applications (broadcast TV, voice) with a wireless overlay to give customer seamless connectivity to all of the services they have at home and work. The home is going to be the hub and everything is going to work from that.

### Mike Flynn, VP and General Manager, Frontier

Mike indicated that he is representing the mid size companies, which also includes Embarq. Frontier serves 163 exchanges in Minnesota. Mike showed a slide of the exchange boundary map for Minnesota. He noted that there is a huge diversity of telcos in Minnesota. Minnesota prides itself on the tremendous number of telcos in the state. Because of the way the state was built out and the exchange boundaries Mike noted that if you remember the east coast black out, we wouldn't see that from a telco perspective in Minnesota. At a minimum, we would have 911 access. The state has diversity built into its network.

Frontier is a national company. Frontier provides service in 23 states in the U.S. It was named by Forbes as one of 400 best big companies in America. Frontier has approximately 2.5 million customers. It provides high speed internet to nearly 500,000 customers. It is the 5<sup>th</sup> largest local exchange company in the nation. Number one provider of wireless data (WiFi). Two WiFi systems in MN—Rosemount and parts of Burnsville.

Frontier offers citywide wireless, high-speed Internet, and Digital TV (through a partnership with DISH Network). It offers IP Centrex for business. Its broadband offer is up to 20Mbps. In 1993, Mike remembers being challenged to bring 23Kbps to homes. Amazing how quickly change has come. Last 5 years, constant race to deliver higher speeds.

In the south metro, Frontier's broadband build was mostly complete in 2007. The 6 Mbps upgrade was done at an investment \$10.5m.

Fiber will be the connectivity of choice. Have FTTH builds now in Apple Valley, Farmington, Mound, Belle Plaine, McGregor, Gateway (by McGregor near MN National Golf Course), Milaca, Lakeville, Lindstrom, Mayer, New Germany, Watertown. Any new greenfield development is fiber.

Recent network capabilities: 18 new fiber nodes deployed in 2008, 38,600 fiber feet placed in 2008. 95% of high speed customers have 6Mbps with facility build to support 20Mbps. 100% of exchanges have high speed capability. Pushing to 27,000 feet from the central office.

### John Stanoch, Qwest

John Stanoch introduced Qwest personnel that were also in attendance at today's meeting: Andy Schriener, Wally Millbrandt—strategic planning director for MN; Dick

Gacke and Trent Swanson—responsible for expanded fiber to the node build. Trent's organization did the RNC.

A little bit of background. Qwest is the successor to the baby Bell in Minnesota. It is the baby of the baby Bells. Merger of US West (the baby Bell) and Qwest. Currently, Qwest has 4000 employees in Minnesota. Qwest's national footprint is every state west of Minnesota except

California and Nevada. Its employees are represented by CWA. Qwest has a full product portfolio: phone, data, high speed internet, partner with DirecTV for DBS, partner with Verizon

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for wireless. Focus on residential and small business and large business. Also one of the approved and certified providers for the federal government.

In terms of recent deployments in Minnesota, for high speed Internet, have invested \$200 million since 2001. In 2004-2006, Qwest expanded DSL into a number of central offices in Minnesota and deployed remote terminals. (Remote terminals extend reach of central offices). In last couple of years, Qwest has focused on FTTN. John mentioned what Verizon is doing with FIOS where they build FTTH and indicated that Qwest's situation is a little different. Qwest's outside plant is in pretty good shape so when they looked at the business model, it made sense to run FTTN and use existing copper from the node to the home. FTTN will bring speed to the node up to 20MB. Working on pair bonding in the lab to bring speeds up to 40MB, would be able to have 3 TVs in home and Internet hook up with that.

As mentioned earlier, see the same things as other companies that the landline business, through wireless substitution and competition, is declining. See growth in DSL.

Through common sense you can see the decline. When he went to college, John said the first thing you did when you got to the dorm was turn on the phone. Dorms don't even have landline service anymore—kids have cell phones. In this tight economy, people ask if they need their landline but keep their cellular phone. Last year his son got a new iPod and was watching a downloaded television program on it. The data line will be the connection to download programming. So Qwest is building out infrastructure so people can get the programming.

Task force should focus on supply side, not just the demand side. See more customers in Minnesota then in other states on dial-up and the embedded base is extremely difficult to move.

Also about Qwest, at the national level Qwest has asked for changes to federal USF. Federal USF was initiated to get everyone access to a telephone. That system has grown over the years to include computers for schools, etc. Qwest's position is that federal USF should be used for affordable access to broadband and that formulas be established to use USF for areas that currently don't have broadband.

**QUESTIONS:**

Mike O'Connor: Indicated he has lots of questions but he will ask one at a time. Mike noted that he is the at-large representative on the task force for the urban user community. Went out on his blog yesterday for tough questions and got a bunch of good ones. Ann Treacy gave him a question for all 3 providers: If you could write the play

book for your arch enemy company, what would you write so they would fail in terms of broadband use?

Brent Christensen (by phone) indicated that he could hear the silence. Brent said that if he was going to write the playbook so his company would fail, biggest thing he would do would focus on only one side of the equation. Have to deal with demand and supply side. Focus on one and not the other for failure.

John Stanoch: if you can focus on simple things. The government asks what are the needs? We don't have a grant program or a loan program. We don't have an economic system to help a community that may be losing out on a job situation. He goes out and asks if they contacted the provider. They say no. If you have a school that can't get Internet service. For failure, put people in silos and don't talk. John also noted that duplicate services waste money.

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Mike Flynn: Struggle with 3 or 4 very good networks out there. The whole investment and ability to obtain a return is based on your customer base. Go head to head every day. Don't over reach in your investment. Always get pushed to deploy more fiber and we want to do that, leading slightly in front of the need. Get a lot of requests, maybe in pockets. In Frontier's whole northern territory they have 2 McDonald's in the 63 communities they serve but they want to deliver the service that is needed but sustain the business.

Tom Garrison had a follow-up for Mr. Stanoch. If you want people to talk, why all the closed networks. Why don't you want to put money in services not facilities?

John Stanoch indicated that Qwest has some requirements to make parts of network accessible that other providers don't have. When Qwest makes capital decisions, it doesn't have unlimited access to funding so has to do the very best job of going to denser areas to get a return so it can recover costs and keep expanding. You will destroy the business model with open networks because you have to get a return and continue to invest.

John Gibbs: Mike Flynn stated in his presentation that if some potential customer wants something else, he can do it. What does that mean for mid size and small companies?

Mike Flynn: The question is twofold—is it readily available. If not, we can build. We will build an OC level service to you. We have also heard from developers that if you build fiber, they can sell the lots.

### **10:40 to 11:20 Cable Panel (Dick Sjoberg, Sjoberg's Cable; David Diers, Comcast; Tucker Carlson, Charter; Bill Jensen, MediaCom)**

#### Dick Sjoberg, Sjoberg Cable:

Dick indicated that he will discuss where cable has been and where it is going. The entire panel also includes David Diers from Comcast, Tucker Carlson from Charter, and Bill Jensen from MediaCom.

Sjoberg Cable provides cable in the northwestern portion of Minnesota from Thief River Falls north and west to Canadian border. They serve 33 different towns. The smallest has 21 customers. His father started the company in 1945, started cable in 1962 and Internet in 1998. State of the art then with 500Kbps download. Today generally speeds up to 11Mbps. If customers desire higher speeds, they can accommodate that. They have many customers connected by fiber with speed up to 40Gbps. Moving to a post-fiber plant as capital allows. Have done two FTTH projects. Where they have done FTTH have gotten 80% penetration where elsewhere 45% penetration. Have connected businesses, offices, hospitals, schools. In schools in Dist. 564, have fiber ring. School district doesn't have the money to run the system to its potential but is only running it at 100Mbps.

Important point to take away is that connectivity isn't the biggest problem: need money for the equipment, for example. There is an awful lot of fiber already out there.

#### Bill Jensen, MediaCom

Bill indicated his appreciation for the opportunity to speak. MediaCom is the 3<sup>rd</sup> largest cable provider in Minnesota (behind Comcast and Charter). It is a national provider and serves in 23 states. The company trades on NASDAQ. MediaCom entered Minnesota in 1998. It wanted to go outside the metropolitan areas so focus is rural Minnesota. Went on a disciplined acquisition

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plan and upgraded small cable systems. These had been the “moms and pops” operations. Sjobergs is one of those “moms and pops” still around. Just recently, MediaCom was asked to take over 3 municipally operated systems in northern Minnesota (Calumet, Marble and Taconite). Rebuilt and now have broadband customers in those three cities. In total there are 17,000 cable franchise communities in the nation and 85% have 2000 or fewer subscribers. Nearly 200 of those communities are in Minnesota.

MediaCom operates an HFC (hybrid fiber/coax) network. Able to offer all of the broadband services: cable, data, telephone for residence and business. Built markets with private and public capital, no government subsidies, no municipality had to levy any fees. MediaCom has spent over \$1 billion in capital expenditures since 1995. In Minnesota, MediaCom has 81,500 fiber optic miles (interconnected and local networks). (Map showing Minnesota footprint.) MediaCom serves on the North Shore, Iron Range, St. Peter, St. James, St. Bonifacius. Biggest metro operation in Minnesota is Lake Minnetonka, Prior Lake, Savage and then down highway 169 to Iowa border.

Under their current service offerings MediaCom has 3 residential speeds: 3Mbps, 8Mbps and 20 Mbps. They do not deploy fiber to the premise. Do fiber and coax network. Competing against a couple of FTTH companies and it is working well. For the tiers they offer, the 3Mbps service has 3500 customers, 8Mbps has 2500 customers, and Commercial customers are at 3800. The 20Mbps has 500 customers, so not a lot of long lines to get 20Mbps service but that will hopefully increase as applications are developed.

Cable is a green industry in that it doesn't have smokestacks. Also, through their deployment of broadband, cable enables employees to work out of their homes which takes pressure off the transit system.

MediaCom designs, delivers and manages large LAN/MAN networks, has large customers.

Bill also said that cable gets along with telcos. Good competition. There is a lot of broadband already out in Minnesota. They have been competing with telcos, whether HickoryTech, Hutchinson (now New Ulm) and have been for 10 years. Makes us all try harder and be smarter.

### Tucker Carlson-Charter

Charter is a little bigger than MediaCom but much smaller than Comcast. Charter is the third largest cable provider in the country. Nationally it has 5.6M customers in 28 states. Most customers subscribe to triple play. Fiber ring of over 250,000 miles in the Midwest so ability to provide redundancy. In Minnesota, the backbone has completed some ring closures. Charter connects 275,000 customers in over 200 Minnesota cities. Charter has 650 employees in Minnesota and 50,000 fiber miles. Speeds offered: residential is 5, 10 and 16Mbps. 99.5% triple play provider. For pricing, 5Mbps is \$44.99/month, 10Mbps is \$54.99/month and 16M is

\$69.99/month but 90% of customers take the lowest speeds. The average consumer consumes 7-8 Gbps a month. 1.2% of customers consume 25% of bandwidth. 1.2% consume over 3,300 terabytes a month. Have residential and business customers. Charter got into business service fairly early. Offer between 10M to 10Gbps. Offer Ethernet options so customers don't need an IP Department. Provider to the Minnesota Office of Enterprise Technology, MNSCU, Rochester hospitals, St. Cloud Hospital, Verizon Wireless, Schwans, Cabela's. Making investment to DOCSIS3.0.

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### David Diers, Comcast

David Diers told the task force a little about Comcast. It is the largest video provider in the U.S. and in Minnesota. It is the fourth largest phone company nationally. Comcast has invested \$400m in a fiber network in Minnesota. The Twin Cities was Comcast's first market to roll out DOCSIS 3.0 type of service of 50Mbps download, 5 Mbps upload. In October, as more electronics were certified DOCSIS 3.0 compliant, moved to wideband 10Mbps upload. Industry as a whole is moving towards this. Doubled speed of all existing services. Flagship is 12Mbps down and 2 Mbps up. This is the 8<sup>th</sup> or 9<sup>th</sup> speed increase in 9 years.

Comcast has a hybrid fiber-coax network. They will also take fiber out to businesses where there is demand. (Slides showing network.) Metro area has 35 hubs connected by fiber. This is connected into national network. Content providers connect to national network. Have half million miles of fiber. Within Twin Cities, pass 1.1m homes and 120,000 businesses. When Comcast rolls out higher speed, 1.1m homes could get it. DOCSIS 3.0 works in the access part of the network. There is a piece of equipment they put in headend hubs and in homes. Those two pieces of equipment speak to each other which allows higher speeds to happen.

When we look at average households, deliver over 418 terabytes each month. The part that makes this work, the specifications from head end to customer, breaks the signal into 6 MHz chunks. What 3.0 does is to take chunks and bond together. So could deliver 160Mbps. We see DOCSIS 4.0 coming.

Some of the experience we are seeing with customers setting up for 50Mbps is that their PCs can't handle it and they have to get a new computer. Some of the gaming servers are capped at 20Mbps. (Slide showing download speeds.) MRI Scan or hi-resolution image used to take 1min. 7 sec. at 12Mbps and now 16 sec. at 50Mbps.

### QUESTIONS

Mike O'Connor: What would it take for you to sell unfettered transport into a market? In other words, let other ISPs ride your network?

Tucker Carlson indicated that they allow other ISPs ride their network today.

Mike O'Connor: Can an ISP offer bidirectional high speed up and down.

Tucker Carlson: It depends on what the ISP purchases.

Bill Jensen: It's not just an ISP service. Allow competing VoIP phone providers to use network.

Mike O'Connor: Can Jaguar ride your infrastructure in southern Minnesota to provide service?

Bill Jensen: We work with HickoryTech's group and lease fiber from them or vice versa. We are working with those companies.

Mike O'Connor said that his questions went to getting to the customer.

Steve Cawley asked Mike if he meant residential or business.

Tucker Carlson: Do we allow to sell to customers? We don't give them a list of our customers but they can market to them. The issue is a residential customer is assumed to use less capacity. The high users he showed on his slides are offering services to others to consume

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those speeds. If a customer is offering businesses services, they should take a business service.

Tom Garrison: Tom stated that he liked the chart in the Comcast presentation. He would like to see what the speeds are for DOCSIS 4.

David Diers: Indicated that it is undefined now.

Tom Garrison: Would like telcos to provide similar chart for what they provide today.

Dick Sjoberg: DOCSIS 4.0 looking at 900Mbps bidirectional. It is in the design phase. Cisco behind this push. Next step. No conversation yet on a DOCSIS 5. Less than 8 months from Comcast president demonstrating DOCSIS 3.0 to it being a commercial product.

Rick King: Tom's request is to have telcos to do chart. We'll ask all three provider groups to put their numbers into that type of chart.

Tucker Carlson: Indicated that the chart reflects a clean world. The servers have to be able to handle the speeds. That is why many of his business customers use an Ethernet connection.

Rick King: the idea is to have the same benchmark.

John Gibbs-these things are cycles.

John Gibbs-He had the same question for cable that he asked the telcos: Are cable companies in business to customize service for special business requests?

All four cable presenters nodded their heads. David Diers said that Comcast will deploy fiber for a customer. What DOCSIS 3.0 changed is that it is bleeding together—speeds you used to be only able to get with fiber you can get over hybrid fiber coax.

Rick King noted that all of you have emphasized the point of having the ability to customize for a customer.

**11:20 to 11:35 BREAK**

**11:35 to 12:15 Wireless Panel (Don Brittingham, Verizon Wireless; Anthony Will, Broadband Corp.)**

Don Brittingham—Verizon Wireless

For the wireless side, it is nationwide. This year marks the 25<sup>th</sup> anniversary of the cellular telephone call. A lot has happened over those 25 years in the industry. It started out as analog cellular technology. The chart (see slide) is busy, but shows how technology has evolved. Early to mid 1990's, had 14.4Kbps which is now archaic but back then useful. Took a few years to get to next generation. Over last 6 or 8 years have seen a tremendous evolution of these technologies. Broadband access first deployed in 2004. Expecting 10s of Mbps in the future. Capability is there to go to 100Mbps.

The wireless industry invested \$173b in the U.S. from 2000-2006. Verizon Wireless investment in the U.S. of \$48b and in Minnesota it was \$491m.

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Basis for 4G strategy is to connect “things”. Integrating devices in your home or car.

What is Verizon is doing? Verizon acquired RCC and is in the process of acquiring Alltel Corporation. This is significant in that it really allows Verizon to extend its reach. (See slide showing Verizon coverage area. Red is Verizon prior to RCC and Alltel; Green is RCC and Blue is Alltel.) Acquisitions provide access to rural parts of the nation. Substantial additional coverage in Minnesota.

In addition to acquisitions, the second element is spectrum. The 700MHz auction was held and Verizon paid \$9.4B for licenses. Compared to other bands, it is prime spectrum. Can reach out using fewer base stations. LTE is expected to be a worldwide standard. In 2008, finalize LTE and field trials. In 2009 upgrade RCC and Alltel to EV-DO Rev A.

### Anthony Will—Broadband Corp.

Local company based out of Victoria. He is representing fixed wireless. More like a DSL solution for people that don't live in Minneapolis. Map represents about 50 other providers in the state. Most companies use “junk bands” that were opened by the FCC. FCC just ruled that the part that wasn't auctioned off will be opened up on a “no fee” basis. His company provides up to 2Mbps. Anthony estimated that there are 3000 to 5000 companies like his in the nation. Minnesota has about 70 such companies. Competing standard to LTE is WiMax. He will likely be deploying that next year. It can do mobile and fixed offering up to 15Mbps compared to what is available today. Expect technology to answer some of those questions.

The spectrum only goes so far and has limited capacity. Currently in a point-to-point, it is possible to do more than 1Gbps. Currently get back haul link from Charter and basically redistribute that network between towers. Distribute that out to customer base. It is possible, maybe not cost effective, to do gigabit speeds if the customer can pay for it. Anthony's company services 100 snowbirds that come up for the summer. There are companies out there trying to meet the needs that have been expressed. The one thing that would hamper them is regulation. They are making it happen as the need is there and without government support.

### QUESTIONS

JoAnne Johnson: Her company (Frontier) has a lot of territory in northern Minnesota and there are a lot of holes in the wireless map up there. The regional wireless providers were those peoples' only hope for wireless. Is Verizon going to move into those areas and fill in the holes?

Don Brittingham: The map is the current footprint. It doesn't include 700MHz. One of the benefits is that it is more efficient at covering less populated areas because you need fewer base stations. Now, will there be white spaces after 700MHz implemented? Yes, because of the investment required, you still need a customer base and some of those areas are sparsely populated.

Chris Swanson: You do have to deal with local regulation. Lake County just allowed towers up to 450 feet from 200 feet.

Don Brittingham: Wireless has been able to grow and be effective because of lack of regulation.

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Vijay Sethi: Last month we heard from a gentleman with a business in Browerville, (and Vijay noted that he represents non-metro counties on the task force). There are many communities that do not have fiber optics and many many rural residents that still want access to do business. His question is what would it take to wire all those areas to get service to those rural residents.

Don Brittingham: Verizon has interests aside from broadband. We recognize wireless isn't the only answer but there are some areas where wireless may be the only cost effective solution. First thing you would want to do is not predict what the market is going

to do or plan for an outcome because you are likely to get it wrong. Let the market place work and let people compete with each other.

John Gibbs: I would give the same answer but reverse. We don't see wireline as the only solution. It is a bit of a patchwork. We've made substantial investment. There aren't lots of big spaces where there isn't cable service. To the extent we have some areas not served by wireline, they may never be. If we are seeing WiMax in rural Minnesota at 15Mbps that is impressive.

Anthony Will: There is a right tool for the problem. You can't get fiber to every house in Minnesota because you can't get a return on it. There is a way that companies are making investments, there is the tool to make it happen.

Vijay Sethi: Is there enough potential or incentive there to go out into rural Minnesota. There are all of these smaller communities. Why hasn't it happened?

Anthony Will: It is all about cost effectiveness and return on investment. Radio prices have gone down from \$400 to \$150 to \$80 today. So costs are coming down and there are also new technologies being put out there. As prices come down, I can take my equipment and move it out. Eventually it will cover everyone as it will become cost effective to do so.

Randy Young: From a small company perspective, and if you look at the exchange map much of the state is covered by small companies, 95% of their customers have access to broadband. The premise that there are big holes in Minnesota is just not true. We have islands in Lake of the Woods where the cabins have broadband.

John Stanoch: This discussion gets to the issue of high cost areas to serve. Minnesota is behind other states in having ways to incent companies to get broadband out to these areas that are costly to serve. You can argue that it is a failure of the free market system. But if you have those limited situations, you have to discuss how to address them.

John Gibbs: If you look at it from the perspective of services, and not how they are delivered, then focus on solutions. You will realize that some infrastructure won't exist in some areas.

JoAnne Johnson: Even though we have specific pockets, we need to step back as a task force and take a wider view. We need to look at the entire environment. There may be a differing technology that works. There is a town up north that Frontier provided DSL, but they can't recruit a business because there is still no cell service so a company won't locate there. Free Press just came out with a new figure of \$44B for a national broadband solution.

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Dick Sjoberg: As to facility availability, Connected Nation has been contacting providers and once we have that information, we will have hard facts on services, speeds, cost. It is interesting to note that when you talk to people that say they don't have broadband, many do in fact have it.

**LUNCH 12:25 to 12:45**

12:45 to 1:45 Expert Presentation – [Scott Wallsten](#), Senior Fellow, Georgetown Center for Business and Public Policy; Lecturer in Public Policy at Stanford University; VP for Research and a Senior Fellow, Technology Policy Institute

Rick King explained that Scott would speak for approximately a half hour and then we would have Q&A time for all the panelists today.

**Scott Wallsten:**

Scott indicated that while his name was suggested by Comcast, his work is not sponsored by Comcast.

Scott started with OECD numbers that everyone has seen a million times. The U.S. is number 15. However, that is not the right way to look at those numbers. When you look at wired numbers, you should look at it by household, not by person. Rankings are also based on counts per measurable lines. There are different amounts of lines that can't be compared. You can't simply take the OECD counts and divide by households because the OECD numbers take both residential and business and all are based on the same countable lines.

If you were to do household penetration numbers, the U.S. is ranked about 9<sup>th</sup>. From Pew Internet and American Life figure with 57% having Internet. All other countries ahead of the U.S. are quite small in population.

Mr. Wallsten also noted that business lines can't be counted, largely because they have special access lines. Usually people who work in office buildings, the computers on their desk isn't counted.

As to the FCC numbers, that is a count of wired high speed lines and we are at 66m lines. FCC lines based on 200Kbps in at least one direction. OECD numbers based on 256Kbps in one direction, so that problem is the same.

The FCC does ask what lines are residential. The response is that it is almost all of them except for 5m business lines.

We find that 77m have broadband at work but only 5m are counted, so they are missing 72m. That means that 66m plus 72m is 138 million U.S. wired broadband connections.

From OECD numbers we can back out the share that are residential.

Still a reasonable question as to why the U.S. numbers are falling. The answer is that it has to do with household size. Countries with larger household sizes are going to have fewer connections. Example of country with one person per household and another fictional country with five people per household. Each house has one line. Lines per capita will be much lower where the household size is larger.

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What about wireless broadband? Huge increase in FCC numbers. These are not included in OECD numbers. How substitutable are wireless and wireline? We don't know so we can't factor in to equation.

Another measure: number of unique IP addresses per capita. This includes all devices connected to the Internet. The U.S. ranks 6<sup>th</sup>.

We also see numbers that indicate U.S. is so slow. Those numbers are based on advertized speeds, not actual speeds. There are companies that measure speed, like speedtest.net. What they find is that Japan is the fastest, Sweden next. U.S. is 8<sup>th</sup>. (Noted that Korea's numbers should be much higher.)

For speeds observed by Akamai, U.S. is 8<sup>th</sup>.

The speed measured is what people pay for. It turns out that people all over the world are not willing to pay for very much. If you were to mandate a cap on the price, Korea Telecom puts the number of subscribers per speed on their website. 85% took the lowest speed (4Mbps).

Slide showing U.S. Broadband speeds. In 2007 about 5Mbps. Steady increase. U.S. Census included a question on whether people buy broadband. New Hampshire had the highest rate, Alaska was second (rural—but more wealthy maybe). Speedtest finds much lower average speeds.

### Conclusions:

- There isn't a crisis. We can take the time to make good policy.
- Improve data: U.S. Census should continue to get household level data in their annual surveys because then you don't have to rely on providers to give it to you. Need better data on business broadband.
- Mapping—always have to be updated. Providers can collude.
- Do a cost benefit analysis.
- Study existing programs—there are a lot of them out there. (states, RUS).
  
- Remove entry barriers—make more spectrum available (federal); streamline rights-of-way (local).
- Focus more on low income people than on rural areas. Big gap is by income, not geography.
- If you want to increase investment—do not subsidize all new investment (don't want to put money where private sector is anyway). Consider innovative approaches, such as West Virginia's reverse auction.

General conclusion is to make any policies very thoughtfully.  
(Complete paper on website.)

### QUESTIONS

Chris Swanson: Is there movement to improve the data?

Scott Wallsten: There is a move. The federal bill was focused totally on mapping. He thinks that misses the mark in that we are not looking at low cost options to gather data.

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Tom Garrison: If we were to recommend to the state that we collect data in a certain way, what would you say.

Scott Wallsten: Almost try to piggyback on types of data collection already being done. Is there some data already collected that you could add on to? You might find it in an area you might not expect. Example: there were public health surveys being done, maybe add some questions there. Would want to know who does not have broadband and why they don't.

Dick Sjoberg: Focus on low income?

Scott Wallsten: There are a lot more people that don't have broadband because they can't afford it than there are people who don't have broadband because they can't get it.

Tim Lovaasen: One thing that was missing from your data, what about all these other countries. What are they looking at for cost? What are the customers paying for high speed compared to what we pay here? And how does that affect what is going on here.

Scott Wallsten: Comparing prices is really hard. The way it is done now is to try to normalize price by speed. Couple of problems: one, price divided by advertized speed. People care about lots of things like speed, but other things as well. Not clear how to normalize. To complicate matters further, you have lumps.

Joe Schindler: You said don't worry. But do you think the market will take care of adoption or do you see a role for government?

Scott Wallsten: That's why I ended with the point that there is no crisis. Overall, the market is taking care of it but that does not mean that there are not people that are left out. There are externalities that the government could address. You might want some government intervention to target people on the margin.

Mike O'Connor: I'm listening to this and if it were 1952, the same arguments would be applicable to the interstate highway system and Eisenhower built it anyway. Now the Obama administration is taking up broadband.

Scott Wallsten: I wouldn't make that comparison because for the interstate highway system, no one else was doing it. Here, the private sector is investing in broadband. We also have other things the government needs to do that the private sector cannot: healthcare, rebuilding our highways and bridges.

Karen Smith: Do you have a view on the topic of high end users being a drain on everyone's network. It seems that there are a small number of users that use the network more. Do you have an opinion?

Scott Wallsten: One of the interesting things about the Internet is that it is a multi-sided market whereas broadband is a platform that connects users with content. You need users and providers. Never easy or clear on how to price this. May need to price in a way that makes people take into account the congestion they impose on the market. Not sure anyone has figured it out. People don't want to be watching the clock on their use. I

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guess my answer is that congestion can clearly be a problem. Some applications are to suck as much broadband out as possible. When price is set to all you can eat, people will eat too much.

Chris Swanson: Have you looked at different pricing models. Seems like the way it is priced at one monthly fee, whereas long distance was priced more pay as you use.

John Stanoch: What we find is that when we contact a heavy user on a residential package and say it looks like business use, they have been able to work out a solution for a package that works for the customer.

Randy Young: To your point and going a step further, I think the whole pricing structure will have to change because it isn't financially sustainable the way it is now.

1:45 to 2:30

Revised Report Framework – [Tom Garrison](#)

Rick King called on Tom Garrison to present the revised report framework.

Tom Garrison presented but invited Brent Christensen and Mike O'Connor who also worked on the revised framework to feel free to interject. The direction from the last meeting was to take the first draft and figure out what would be a reasonable flow. The subgroup had discussions about what fit and where. Tom referred the task force to the second page of the handout, title page. Most state reports had a transmittal letter. Want to get to the charge and then the chapters. Would recommend footnotes are with the chapters. We talked a lot about, and heard today, a lot of acronyms. If you aren't conversant in those, it's important to give people some definitions. Anytime you use a phrase, you should give a brief explanation and then also roll all of those terms into a glossary. Also, a list of task force members. Then the index.

We talked about the statement of values, still need to have that discussion. What are they, what are important? We've talked about where we've been. Context of how we got to where we are today. Key piece will come from mapping project, but not everything. Some discussion of unserved areas but also defining underserved. Where our competitors are today? Who the leaders are in the states and who worldwide and where we want to be on that. Certainly the rural and metro. The where we want to be discussion, everything is still there but rearranged. The original 8 points of the legislation are where we want to be. If you go from where we want to be to the how, practically, are we going to get there, what are the action steps necessary? With any roadmap, unexpected things happen.

That's mostly it. I want to return to what a lot of people have found useful. It's not a one size fits all. We need to define the broadband need by functionality. From all that we read, what should the state reasonably be prepared for? Then at the end we want to come and sweep back through and tally up our policy recommendations and refer back to the legislation.

Will close on one point. We did not come to a clear resolution as a subcommittee on how to handle minority reports. We thought we may want to see whether there are a few or a lot and then decide.

Rick King was interested in people's feedback. If it is ok, we can start working with it. It's not something we can't change down the road. For a seasonal analogy: it's the tree we start hanging the ornaments on.

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Craig Taylor: Is there a way to distinguish between residential and business in the report.

Mike O'Connor: In section F, one of the tier things we could do is talk about residential/medical and business (hospital)/ medical.

Tom Garrison: We could reference back on the where we want to be section.

JoAnne Johnson: We may find something in best practices from the review we are doing of other states.

Robyn West: It sounds like availability is not a huge issue but there are issues about focus for the rural areas. It sounds like there is so much that is going to be taken care of in the marketplace. The other piece is what we've learned about our economy since last time we met. We all know there isn't going to be much money. A lot of cuts across the board. A lot of programs will be cut. There won't be money for this. We need to look for programs that already exist. Try to get money transferred from the federal government.

Rick King: I think there is a mixed view and we haven't heard from the business and residents on the demand side. We heard from the supply side today. So it's probably somewhere in the middle. All I'm suggesting is that when you hear from one side we should maybe wait til we hear from the other side. With regard to the economics, it was clear from the onset of this task force; the state was not going to be in the position of having this broadband as a high financial priority and as the months have gone on the priority has gone lower. Post election, it has lit up a little more on the national agenda. We need to be opportunistic about those things that might open up and be new. We need to pay close attention to any federal funding.

John Stanoch: Agree we haven't heard from business yet. Think we need to be ready to distinguish business and residential. Some of the things that come up with business, same issues will come up for all providers. Qwest is ready to provide any model to the business if they are willing to pay the cost. A lot of people complaining about business are people operating a business but wanting to pay a residential rate.

Vijay Sethi: Public education or public information. Maybe people hint that they don't have broadband but maybe when you talk to them they say they don't but they do. How does one go about addressing that in the report?

Craig Taylor: Indicated he wrote down the same thing. How do you do public education so people can get an understanding of what is actually going on in the marketplace.

Maybe the state has a role in aggregating the information so that people don't have to contact a bunch of providers.

Rick King indicated that we take that one and have a discussion after February.

Karen Smith: The issue that came up for me today or maybe I'm not getting something, is what is access? Does that mean it is available in your home or at your business or somewhere in your community? The second question is what is the speed?

Rick King: He noted that three people have written in their values. The idea of the values would be for each of us to say what is an important statement or I want the group to come to a

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conclusion about what this means. So an example would be what does “everyone having access” mean? What are the values the task force is going to have. So the three that sent value statements in, kudos to you. Everybody else get them to Diane just after the first of the year.

Rick King then turned to framework. Should we go with it the way it is? Rick did mention a report that Mike O’Connor found from the Blandin Foundation. What it basically is about is forest products, not germane to what we are talking about, but if you look at the report, it is really short. But it is pretty much recommendations, period. The report feedback is that it is easy to read. Simply bringing up another method that is not the direction we are going.

Mike O’Connor indicated that he brought the forest products report up in the subgroup. If you look at the outline we put together, this report is going to be pretty big. It is going to be way too big to hand out to decision makers. So we are going to have to summarize once, maybe twice. The timber report could be a way to do a summary.

Rick King: He wanted to make sure the group is comfortable with the approach, it can be more powerful as long as you can get a condensed version.

Tom Garrison: The key insight for us is that this timber report is one that was received well by this Governor and Legislature and most of the recommendations were adopted.

**Update on History Chapter – [Mike O’Connor](#)**

Mike O’Connor: Brent, JoAnne, Diane and he have been working on the history chapter. He wanted to introduce the task force to a site, [www.urbanusers.com](http://www.urbanusers.com) and go to a Wiki. What they’ve been doing on the Wiki is drafting. They have been trying to track some of the drivers towards broadband deployment. What they’ve been discovering lately are a bunch of examples and so have been accumulating them and they will try to pull some lessons out of them. The reason to put this in front of the task force now is as a course correction. When you think of the “How We Got To Where We Are” section, was there something you thought should actually be included in this section? What they’ve been finding is that there has been a bunch of research done and a bunch of projects done so at least the task force should learn from history rather than repeat it.

JoAnne Johnson indicated that when Mike did his presentation, it included a timeline that had a lot of Minnesota milestones. Maybe we should do in a very visual manner. That could be picked out and used as the history in the executive summary.

Mike O’Connor: Have we got the right bands for the history section? That is the key question for today. Do we have the right number, too many, too few, the right ones, the wrong ones? What we are planning to do as a group is to write paragraphs under these headings.

Tom Garrison: What about current regulatory environment. He doesn’t want to lose the piece presented by Steve Kelley. He also thinks the legislators will want to know what we have done before.

Karen Smith: In looking at the outline, she suggested making it more concise. Where we have been is the timeline. What is important is where we are today.

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Mike O'Connor: We need to make sure that as we get to an issue that doesn't fit in one place, we need to jot it down. One of the things we want to have, from a regulatory standpoint, is how did we get here.

JoAnne Johnson: Suggested that we make sure to insert some visual references. MTA has some info on telephone companies and how regulated. JoAnne has some information on how the Baby Bells were created. So we should start collecting things like that for an appendix or the body of the report.

Mike O'Connor: At a minimum we should take all the resources that we've found, compile, and create an online repository. Then others do not have to do the same searching that we are having to do.

Tom Garrison: He suggested that if you see a chart that jumps out at you or something that is creative, include it.

Dick Sjoberg would like to see a list of things providers have done, a section on initiatives.

Mike O'Connor suggested a listing of technical initiatives.

JoAnne Johnson mentioned that one of the milestones was MEANS. That helped to create a very robust network.

Craig Taylor: We would also like to understand the speeds. Maybe include that in the historical timelines.

Karen Smith asked if this was all going to be available online and just have as printable the executive summary and a short summary. Then you can have hyperlinks to other resources. Her suggestion went to saving money and going green by using technology and using it to present our report.

Rick King suggested a robust linked version and an unlinked hard copy version. One hesitation with only an online version is that the target audience needs to run around with the report.

Mike O'Connor: Mike had one last comment. We will send a link to this Wiki. Task force members can't edit but the four in the subgroup can. Mike said to send him any thoughts as soon as possible.

Rick King indicated that we'll have 3 or 4 things that come out as action items.

### 2:30 to 3:00 Task Force Action Items and Plans for Upcoming Meetings

Rick King: With the request from the League of Minnesota Cities to present to the task force, can we have Tom Garrison, Chris Swanson, Vijay Sethi and Robyn West (the task force's city and county representatives) look at setting up a panel. This would be an hour to an hour and 20 minutes at our February meeting. It should include some metro and rural people to talk about municipal and county government issues. Mike O'Connor also said he has been getting a lot of emails today from the high tech people about a panel. Mike O'Connor, Steve Cawley and John Stanoch will look at that for March.

Karen Smith suggested that we also need to hear from local and global companies.

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Mike O'Connor indicated that we could roll those businesses into the tech group.

Tom Garrison agreed it would be good to look at the high tech and business communities at the same time.

JoAnne Johnson said that we need to pay attention to small business too. They may have a harder time getting what they need.

Rick King also suggested, in addition to small business, we need to cover home needs.

Mike O'Connor said we could roll all three into the panel.

Dick Sjoberg indicated that he had just heard a presentation by One Economy which helps to bring broadband into the homes of those with low income. He believes they could do a telephone presentation to the task force. He will check on availability.

Rick King asked if Peg was still on line to discuss outstate meeting locations for this summer.

Peg Werner said that Mankato, Fergus Falls and Grand Rapids were the top three recommendations from the subgroup for meetings in greater Minnesota.

Rick King stated that our simple goal was to say for June, July and August we are going to three different spots. We would have a volunteer work out the arrangements. We would talk to legislators and cable in those areas. How do we feel about those three locations?

Tom Garrison indicated that the League letter offered to help for outstate meetings.

Mike O'Connor said that the Blandin Foundation was also interested in helping with the outstate locations.

Rick King said he would want to transmit the League letter to the outstate planning group. We will let Blandin and Bill Coleman know we've picked the outstate sites. We will ask Peg to work with the team to do the set up and determine which location for which month and the details.

Peg Werner said they will make sure the locations are ready.

Steve Cawley discussed videoconferencing arrangements. MNSCU and the University of Minnesota have agreed to make their video infrastructure and interactive links available so we can have a virtual meeting across the state. If we chose to do that for January, Steve has reserved 6 videoconference sites (one in each region). The biggest site would need to be in the cities and that is Metro State. The other sites are Rochester, Crookston, Lake Superior College in Duluth, Southwest State in Marshall, and St. Cloud State.

Rick King asked the task force if we want to do the video conferencing for next meeting. If we are going to do this, might as well try to do in January.

Steve Cawley also indicated that we could also stream out over the Internet and anyone can log in and watch and we could record for future viewing.

Tom Garrison said that when we get to the point of actually doing this, streaming is important.

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Mike O'Connor stated that he is a big fan of this as you know.

Steve Cawley stated that Peg did offer 6 library locations across the state. Not part of the higher Ed network but should work fine.

Rick King indicated that the next meeting would be good to do this as three of the four things on the agenda are being put together internally: the history; values; and the state summaries. So we would be experimenting with ourselves. We do have a K-12 panel in the afternoon. It's the start of bad weather. I think this is the perfect time. We may want to stick to Steve's list of locations initially. What we will have to do is move the meeting to Metro State. If we do this, Steve will submit the specific locations and everyone can pick the location that is closest to them. The more we can get all materials ahead of time, the better. We won't be able to hand out.

Mike O'Connor indicated that he has also been peppered with people that wanted today's presentations available online so he suggested that we get the presentations in early and posted on the web prior to the meeting.

Steve Cawley said we would have to arrange to have powerpoints ahead of time.

Rick King said if we are recruiting the presenter, we've been asking for powerpoints ahead of time for each meeting already.

Anne Losby said that as Rick has already pointed out, most of the presentations are internal for the January meeting.

Peg Werner asked how we are going to get the word out that the public can attend via videoconferencing.

JoAnne Johnson agreed that this is an excellent opportunity to get public attendance and we can contact the League, counties, telephone companies and others.

Rick King said he will work with Diane to have the meeting locations posted and to go back to the people we have gotten the letters from if everyone is in favor of videoconferencing.

Vijay Sethi said when we have meetings with board members present via telephone, you can not vote.

Rick King said that we have been advised that you can vote on a videoconferenced meeting because it is two way. We will also still have a dial in.

Rick King went through the topics for the January meeting: history (Mike O'Connor), values (Diane Wells); K12 (Peg Werner). JoAnne Johnson has the group that is doing the state best practices summary.

Anne Losby asked whether, for history report and state summary, do we want to distribute ahead of time or we will hand out first time and walk through.

Mike O'Connor indicated that his subgroup would not be ready to hand out ahead of time.

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JoAnne Johnson said the state summaries subgroup (John Gibbs, Jack Reis, Mike O'Connor and herself) is proceeding with 26 states, and including the date of the report, key recommendations, programs initiated, funding. Also pulling out statement of values, where we've been, how we are going to get there, broadband functionality, etc. Looking at each report and summaries and pulling out 0 to 3 best practices.

Anne Losby asked what will be discussed at the January 16 meeting, all three of those things?

JoAnne Johnson said that it will be a summary of the summaries.

Craig Taylor asked if there have been any follow up reports for any of the states to evaluate.

Tom Garrison mentioned that he had talked to a California city staff person. They haven't had any follow-up.

JoAnne Johnson said that Frontier did get grants to build out to two unserved areas in the mountains in California.

John Stanoch mentioned that there have been a number of grants and loans in California.

Mike O'Connor said that if we had a staff, digging out the follow-up would be nice. But we're doing what we can.

JoAnne Johnson stated that if there was a follow up report, we've also got that. We've done the best we can there. If you talk about measurements and what worked and what didn't, we need that discussion.

Rick King noted that the state summaries are saving everybody a lot of reading. You'll be reading the cliff notes.

Tom Garrison requested that the task force members get a reminder email after the first of the year on submitting their values.

Rick King indicated that on the March agenda we have healthcare. He also said that Tim Lovaasen was going to do something with CWA.

Tim Lovaasen said that it will be on one of the CWA reports.

Rick King specified no more than a 30 minute time slot. He also asked Peg whether she had any more information on the Gates conference.

Peg Werner said she hadn't heard anything since but will keep tracking.

Rick King then mentioned that Commissioner McElroy had some demographic data to align with the broadband mapping so we hope to have that for March. For the February meeting, we have mapping and a municipal/county panel. We'll work on setting up high tech/business/users panel and a home/small and medium business users panel for a month to be determined.

In discussing today's meeting, Rick King said that getting a lot of people in to present takes time. We had some interesting presenters but didn't have a lot of time for questions. We will need to move from presentation format to getting down to more working mode. We will be ready

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in January to assign other chapters. We won't do any assignments today. If you have not volunteered for an assignment, think about volunteering.

Two other items were sent out to the task force prior to the meeting. First, the advisory opinion from the Department of Administration. In short, we can meet in an accessible facility. The other things we were told pretty much stand as we expected. You also have the Eden Prairie city attorney's work product of what that city tells all commissions, boards, etc. regarding the open meeting law and data practices.

Since our last task force meeting, the Blandin conference was held and four task force members spoke, two other members were in the audience. Brent Christensen, Craig Taylor, Kim Ross and Rick King spoke. Mike O'Connor and Dick Sjogren were in the audience. We took a lot of input and that material will be compiled for this task force. We expressed that trying to get service was an important part of our task force work. Spoke of lack of availability of state and local money. Said we would try to be opportunistic if any federal money becomes available as we are hearing.

Last send off comment from Rick: He really appreciates the work the task force is doing. We've made a fair amount of progress but we have a steep climb ahead. As of January, the harder we can work and the more we can do in subgroups, the better. We may have to look at meeting more than once a month. We all want a good work product that is actionable. We are scheduled for 10 more meetings before the report is due. Inputs on topics you want covered, send to Rick and Diane. If we can get work done by subgroup with bring back to task force for full discussion, we can get it done.

Motion to adjourn.  
Adjourned 3:10.