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Transcript

FirstNet Board Of Directors Webcast, San Diego, CA, June 2-3, 2015

Part 3 – Technology Committee

BARRY BONIFACE: Terrific. So why don't we go ahead and get kicked off here. Good morning, everyone, and welcome to the June 2, 2015 Technology Committee meeting for FirstNet. We appreciate everybody struggling to get here to sunny San Diego. I'm going to recommend this venue on a regular basis. It's pretty nice. Anyway, but thank you for taking the time to participate, both live here in person as well as those of you who are joining us on the webcast.

As all of you know, one of the things that we'll kick the meeting off with is our usual conflicts notification, and Uzoma is going to give us a few logistics about the meeting itself, so with that I will turn it over to our Board Secretary. Uzoma.

UZOMA ONYEIJE: Good morning, everyone. In advance of this committee meeting, the Management Team has provided the Board and all the Board members with an agenda that outlined the items that were going to be discussed today. The members were also provided with a Conflicts of Interest Assessment, which was produced jointly by the Department of Commerce's Office of General Counsel as well as FirstNet's Office of Chief Counsel. Providing these documents in advance to the Board members allows them to identify potential conflicts of interest and to recuse themselves from participation if required.

TELECONFERENCE OPERATOR: (Inaudible.)

UZOMA ONYEIJE: Excuse me, operator? Okay.

We will, prior to each Committee and full Board meeting remind the members of their obligations related to conflicts of interest, and ask them to identify whether any recusals from deliberations or voting are necessary. With that said, if there's any Board members that believe that they must now recuse themselves from this committee meeting, please let us know for the record.

Hearing none, I think we're ready to proceed. As people are aware, we have an open Board format. We ask that the folks that are here in town in San Diego limit your movements, and if you haven't done so already, please silence your mobile devices so that the committee meeting can proceed accordingly.

BARRY BONIFACE: Thanks, Uzoma. So I guess we'll go to the next step, which is the calling of the roll. And we'll do it in order this time.

UZOMA ONYEIJE: Barry Boniface?

BARRY BONIFACE: Here.

UZOMA ONYEIJE: Kevin McGinnis?

KEVIN MCGINNIS: Here

UZOMA ONYEIJE: Ed Reynolds?

UZOMA ONYEIJE Suzanne Spaulding?

SUZANNE SPAULDING: Here.

UZOMA ONYEIJE: Chris Burbank?

UZOMA ONYEIJE Frank Plastina?

FRANK PLASTINA: Here.

UZOMA ONYEIJE: We have a quorum.

BARRY BONIFACE: Thanks, Uzoma. I guess the other matter of business, technical matter, is just the minutes and approving the minutes from the last meeting. Everyone has had a chance to look at those, so I would take a motion with respect to those minutes.

FRANK PLASTINA: So moved.

KEVIN MCGINNIS: Second.

BARRY BONIFACE: All in favor?

GROUP: Aye.

FRANK PLASTINA: There's Ed.

BARRY BONIFACE: Any opposed? I guess Ed has joined us. Is that you, Ed, out there?

ED REYNOLDS: Yes. That is I.

BARRY BONIFACE: Terrific. Terrific, Ed.

UZOMA ONYEIJE: We'll note you as present.

BARRY BONIFACE: Welcome. Any opposed? With that the minutes are accepted.

So our next order of business is to get an update from our Acting Chief Technical Officer Jeff Bratcher. Jeff is going to give us an update on a number of items as well as some of the general activities that the CTO organization has been conducting over the past few months since we last left the team. So with that, I will turn it over to Jeff.

JEFF BRATCHER: Great. Thank you, Mr. Chairman. Happy to be here. Happy to see we have a pretty full audience as well. A great day of meetings yesterday with the Public Safety Advisory Committee. I also want to take a second. This week is my son's eleventh birthday, and they're out of school, and they're actually, he and my daughter Jaden, eight years old, are watching the slide webcast now, so hi to

them. They didn't quite believe me that I would be live on the Internet today, so I just wanted to confirm I'm here, I'm live.

So with that I'm going to give a few updates on what's been happening within the Office of the CTO since we last met in Washington, D.C. in March. Quick agenda. One thing I'd like to start with and spend a little bit of time on is our Task Team meetings from the Public Safety Advisory Committee that we hosted in Boulder on April seventh and eighth. And this covered two of the task teams that they went into great detail yesterday during the Public Safety Advisory Committee meeting and some of the updates during the public session. It was focused on Quality of Service, Priority and Preemption Task Team and then the Public Safety Grade Task Team. So fantastic two days of meetings that really helped our LTE engineering teams focus and talk face to face with the public safety professionals that are out saving lives as part of their official duties. It was a great experience. Can't thank the Task Team volunteers enough for coming out and spending the two days with us.

On April seventh, the photo you see here is the Public Safety Grade Task Team, and that's chaired by Chris Lombard. He's a Captain in the City of Seattle Fire Department. And I have to say, you can't quite see it in this photo, but he's an excellent choice for a Public Safety Grade Hardening Chairman. That laptop that he's looking at that we affectionately call the Beast, so it is a very ruggedized laptop, and I think it's got a nuclear reactor powering it underneath as well. So, he doesn't leave home without it. If you see him around this week, have him show that to you.

So the first day of meetings was really focused, as I mentioned, on the Public Safety Grade requirements, and that's actually developing with public safety input, the key elements we'll need as far as hardening the network for the first responders. The team selected and ranked 23 critical infrastructure categories from over 150 available categories within a Homeland Security infrastructure database.

Some of the next steps are to analyze additional layers within these different databases and where we can really focus those efforts on the hardening aspects for the Public Safety Network as we move forward.

On April eighth we hosted the PSAC Priority and Preemption Task Team, and that's chaired by Barry Fraser from the San Francisco Bay area. The Task Team, with Brian Kassa, Mark Golaszewski and Tracey McElvaney also participating from PSCR in our headquarters for a day as well. It was really focused on two things. Leading up to the meeting they developed a list of 40 basic usage scenarios that first responders would use in most incidents. The other thing, once that list was complete, the Task Team then came up with a number of incident scenarios to plan and use as we develop a framework for the priority within the FirstNet network of the public safety users.

The morning started off with a review of the basic usage scenarios and moved into reviews of the worksheets that were developed with the technical team and really getting the first responders' feedback on does this make sense for what we might use the network for. So this discussion focused on some of the different incident scenarios and also helped to update this sheet and some of the technical underpinnings that are going to be presented later this week as part of the PSCR Conference. The overall framework for priority preemption, quality of service within the FirstNet network, that will be presented in much more detail later this week at one of the PSCR sessions with Tracy, Brian, and Barry himself.

One thing I'd like to also highlight. We have Chief Harlin McEwen sitting there next to Chris Lombard as part of the two days. And for those of you that know Chief, I like to explain to the engineering team and the new hires that we've brought on board, back to the culture, environment, Chief Harlin, there's a phrase I have now coined called "Harlinized" for some of the key technical staff. And that's when he says, all right, you don't know what you're talking about, let me really explain it to you on how this works within public safety. So I'm happy to report several of the technical team were Harlinized during these two days of meetings as well, and it was fantastic to sit and watch. I was actually – received that early in my days at PSCR a couple of times with Chief, so appreciate that, Chief, and it went really well.

BARRY BONIFACE: Good to know we've established a new standard here.

JEFF BRATCHER: Absolutely.

So moving on to some of the key staffing that we've fulfilled since the last meeting, I'm now happy to announce we do have a Senior Security Architect. His name is Glenn Zimmerman. He started with us May fourth. Some of the highlights of Glenn's career, he has over 25 years of experience in Network and Information Security. He was a cyber subject matter expert for the Secretary of the Air Force's Cyber Space Task Force. He's also an Enterprise Architect for the Air National Guard Enterprise Network. He had private sector experience as well developing HIPAA compliant services and to address any compliance concerns for cyber and physical security. And he was also a Systems Administrator and Systems Manager with the U.S. District Court. So we're really happy that Glenn has joined us. He actually received his Bachelors and Masters at the University of Colorado, and he's on board now and is focused heavily in our security space. He's actually at the conference this week as well and learning all he can as we move forward with this.

Some of the key things he's going to focus on with our Architect and Security Architectural focus is acknowledging the dynamic nature of security in the public safety environment. The high response rates, critical need for availability and reliability. Security is a continuum that's constantly shifting and adjusting based on threats, and the analysis of those threats. And the best protection never lets you know it's even there is the goal of having the security as part of the network.

So Glenn and the team are focused on developing baseline security architecture considerations and also performing a gap analysis of some of the pre-assessments to establish the key drivers for our mitigation strategies.

So as I mentioned at the Industry Day, there is a direct appendix to the RFP that will focus on our cyber security hardening requirements, and I think we're uniquely leveraged with Glenn's experience to help drive those into this procurement as we move forward. He's also selected, I believe, a Senior Engineer to support him in this task as well, and again we're happy to have him on board and supporting us on the security aspects.

BARRY BONIFACE: Terrific. One quick question, Jeff.

JEFF BRATCHER: Sure.

BARRY BONIFACE: With the addition of Glenn to the team, is there – so now from a technical perspective, are there any leadership areas where we're lacking leadership, or is Glenn sort of fill the team out in its totality?

JEFF BRATCHER: Great question. So we're on track to meet our 32 federal staff by the end of fiscal year, as discussed earlier in the Governance Committee with some of those unique authorities we have within technical side with direct hire and others. The addition of Glenn almost fills out everything. We're still advertising for a Director of Core Networks. We have Brian Kassa filling that role from our Technology Planning group as well in the meantime. But we also have the 29 contractors supporting us as well. So we have a great core group of staff now that are focused on this, and we hope to fill that core position shortly, too.

BARRY BONIFACE: Great. Thanks.

JEFF BRATCHER: So earlier I described bringing the public safety professionals into the technical headquarters with the engineering team and the great experience that was. I'm also proud that our team has taken on, outside of even their duty hours, to attend as many on hands and imbedded public safety events. So this is a couple of pictures from the Boulder Citizens Fire Academy that our staff attended and received great training regarding hazardous material response. That's actually one of our engineers in

the white suit there working on a hazmat simulated spill. Not an actual hazmat spill. But it's a great experience, and they've learned a lot from this. I was fortunate to do something similar during my tenure at PSCR, and there's really no way to do justice in describing the hazards that the fire fighters, law enforcement and emergency medical services personnel face without actually experiencing it firsthand. These types of events are great opportunities that I'm pleased that our staff are actively seeking out and attending, and in most cases, as I mentioned, it is on their personal time, to really understand the environment and who the customer base is for this network and how they will be able to use it. There's nothing scarier to me when I did the fire training, fully suited up, trying to carry a fire hose into a building and you see nothing, not even the hand in front of your face, and try and think about how you're going to communicate during that type of event.

Chief Johnson, I should also mention, was also able to give us a slot at his Tualitin Valley Fire and Rescue Academy that I think several of the Board members attended as well. And Barry Leitch of our staff attended that.

This is Dave Komegay. He's our IT support technician in the office, and he actually went out as well. So it's great to see all levels across FirstNet out in Boulder participating in these events.

And this is Mark Golaszewski actually using the Jaws of Life performing a simulated rescue on a crashed car. And you see the bottom right picture there, he was pretty proud of himself once he got the roof cut off of that car. Mark's our Director of Applications. So I know his brain was spinning on, all right, how are they going to look down at a smartphone while they're trying to operate the Jaws of Life.

BARRY BONIFACE: Yeah, Frank and I were fortunate enough to have had the opportunity to do that out in Portland with Chief Johnson's support, and I will say it was an eye-opening experience. I don't welcome the opportunity to be back in a smoke-filled room where I can't see anybody around me any time soon, but it does give you a new appreciation for what folks go through on a regular basis. Frank, I don't know if you had any comments in that regard.

FRANK PLASTINA: The one thing that I want to stress, so I had the opportunity to actually spend the night with one of the teams, and we went out on an actual fire call. And I sat in the command car, and communications was horrible. And afterwards when I asked the team what were the problems, it's basic stuff. Ear pieces don't fit right. Voice receivers get knocked out of the way because of all the equipment that they're wearing. So get the basics right. And if you don't do that, all the fancy apps and everything are going to be meaningless. It's a moot point. So I would urge you to do that. And I was actually quite surprised because a lot of the things that they were describing have already been solved for the consumer market. And it's just a matter of what we – nobody hardens them for public safety. So if FirstNet can influence that with the vendors that we're working, I think we're going to go a long way to actually making some of the basic day-to-day things a lot easier for the teams out there.

JEFF BRATCHER: Fully agree. And Barry Leitch, that I mentioned earlier, actually sits on the National Fire Protection Administration that helps develop some of these hardening standards. So him participating at the Tualitin Valley is a great experience, and as I mentioned earlier, unless you've experienced it, it's hard to understand that and what they're actually faced with.

So one thing I put in the slide update for today is really a timeline showing, since inception of FirstNet what has gone on from a technical input side of the equation to get to the April 27 Special Notice and draft RFP documents. So key things I'd like to highlight here are some of the 13 RFIs that we released. And also the draft technical documents that were released were based upon the excellent in-depth feedback we received from all of the RFIs and not just the industry side. For those that don't recall, it started in April of 2013 with the first devices Request for Information and continued on up until our applications Request for Information in November. Followed after that by the culmination of these 14 RFIs resulted in thousands of pages of technical information that the FirstNet teams, and not just Technical Team, also across the organization have thoroughly analyzed and leveraged to create the draft documents that were released.

We also held approximately 100 direct vendor conference calls and/or face-to-face meetings over the last 18 to 24 months that provided valuable insight to the state of the industry. And we've also leveraged some critical information from our Public Safety Advisory Committee. They provided us the launch Statement of Requirements, the Human Factors report, as well as the upcoming task team information that I described earlier. We look forward to receiving that later this year.

And all of that is being rolled into our development of the RFP and the acquisition as we move forward to meet the end-of-the-year deadline.

The technical teams this week are really focused on analyzing the significant amount of responses that we did receive to the draft RFP documents and the Special Notice. So those are being divvied up now and we're working on the answers to all of those questions that came in.

Changing gears slightly, I'd like to give another update on our standards development process within 3GPP. So this I like to bring up every quarter since it is more of a quarterly tracked within 3GPP on what is happening. You can see Release 12 is all green now, so all of Release 12 is frozen. There's no more critical development within Release 12.

And then Release 13 is starting, and the Stage 2 freeze is targeted for this month in the light green that you see there.

And a reminder that the critical features that were driving (audio break) into 3GPP – did I lose my mic? There we go. Are really focused on the getting to that mission critical push-to-talk feature within Release 13. So there's two key features, the proximity services and the group communications that we're focused on in initial Release 12 development rolling into Release 13. So these are critical features that aren't only public safety unique, but are also some interesting industry drivers for these technologies as well. The proximity services you can think of examples of social networking within small, personal area network environments. There's a big push for that. Advertising-type revenue as well. And then the group communications, online gaming - my son loves to do gaming online - so leveraging some of those group communication capabilities is also an industry driver that public safety is riding that wave of industry and standards development for this.

Leading up to the key feature, which is this mission critical push-to-talk feature in Release 13, and again, that's just focused on getting those features into the standards. There's also development time and testing and evaluation time. Again, this is a world-wide effort, and we have strong support from international partners including the United Kingdom and South Korea that are helping drive these standards as well for some of their unique networks that they're putting in place soon for public safety focused broadband.

And following that I've got a timeline slide here that kind of shows some parallel paths with the United Kingdom broadband rollout at the top and then the South Korea broadband right under them. And South Korea is actually looking to get a launch of a pilot-type system later this year and is in relation to a large ferry disaster, if you recall, really galvanized them to focus on a broadband network for public safety.

The United Kingdom has a little different environment. They are actually moving to a broadband-focused system and all of their voice comms as well very early on.

So I laid onto this the Release 13 different stages and how mission critical push-to-talk aligns with this. We're looking forward to learning from these respective networks as they launch with pre-standardized and in some cases proprietary-based solutions that they've indicated will move to a standards-based solution once the standards are done. So we look forward to watching these networks, and we're actually scheduled to meet with some of their key representatives later this week at PSCR. They're attending the conference to get updates on what's been going on within public safety.

FRANK PLASTINA: Jeff, just a question on that. Their ability to put it all together, is it because their regulatory environment is easier, harder? Who needs to come together? Because I'm guessing FirstNet alone is not going to be able to do this. Do we need to have a more proactive relationship with the FCC, with other people that control the piece of the puzzle, and can we look to the UK and South Korea as models for getting it done quicker?

TJ KENNEDY: Actually, I'm happy to answer some of that. I'll hop in for Jeff.

JEFF BRATCHER: That's getting a little technical.

TJ KENNEDY: So, I mean, part of this is political. One of the things I think is important though now is every country has a different set of circumstances, both from a spectrum perspective they're dealing with. In South Korea, as an example, they've set aside Band 28, which is also 700 megahertz but a different band plan, to have dedicated public safety spectrum. In the UK they've used more of a regulatory approach. They have different carriers that are all on similar spectrum, and they have a large portion of their population covered today with cellular. I think it's about 89% by geography. So they're only dealing with a small portion of geography that is uncovered by three cellular carriers.

Also we have to take into account their size. So the size of the UK is somewhere around the size of Oregon. And in South Korea, it's somewhere around the size of Indiana. And so when we look at the size and scope, too, it's also a different element. But I think one of the great things that Jeff and the team have done over the past few weeks as we've really dug into some of the voice standards issues and just tried to really firm up what kind of timelines are coming forward, is we continue to put our focus on 3GPP. We have folks from our team and the PSCR team, Andy Thiessen in particular, who is a very regular player in the international bodies making sure that what is done in South Korea, what's done in the UK, is going to benefit us from actually testing and utilizing these key features in a live environment. And that's going to really help us be able to roll out with more certainty. And I think that's what's great about having this international collaboration. And as Jeff said, we have six of these countries that are currently either on the path or looking forward to go with Public Safety Broadband in the future that we're all meeting together with this week at PSCR. There's a lot of open sharing, you know, of our open documentation and the kinds of key lessons learned that we've had to date, and so it's really been a productive discussion.

JEFF BRATCHER: Yeah, and I would add Canada has been a strong partner as well. And most recently we had some discussions with Sweden, who is actually now looking for a dedicated public safety broadband network.

TJ KENNEDY: And on a very positive note, since our last meeting, Canada has set aside the other ten megahertz of Band 14 so that now the same 20 megahertz is set aside in Canada for public safety broadband, and I think that that will really help us when it comes to border issues on the northern border and what we need to do for communications interoperability. And they're actually working with us to make sure that we share some things, lessons learned and really communicate well in the cross-border environment.

BARRY BONIFACE: Jeff, obviously push-to-talk is a critical component to what we ultimately expect to deliver. You know, it might be worthwhile to make a comment about voice in general in terms of sort of how we're thinking about voice, and what people might expect in that regard broadly.

JEFF BRATCHER: Absolutely. And we had a very good discussion yesterday with the Public Safety Advisory Committee on this topic. And there's a lot of nuances to voice and what we're talking about. Initially we want to be able to offer the same type services that they have today for their broadband with the voice component, depending on the offerors to the RFP. And that is just plain old dialing a cell phone number or another phone number to use a voice system. When we start moving – and broadband network will support many over-the-top voice-based applications: Skype, Google Hangouts, all these different various voice communication technologies that are out there as applications over the top.

When we start moving into more of the push-to-talk and direct mode and the key seven features that public safety actually identified as needed for mission critical voice, which was a document published by the National Public Safety Telecommunications Council back in 2011. And that really outlines what public safety's perspective of if they were to ever move their life safety critical LMR communications onto a broadband network; this is what it would have to support. And some of the key features I described earlier within 3GPP are those that are focused on now within the LTE ecosystem to ensure they support them properly. But at the end of the day, there's no push to move them until they can trust it and verify that that is going to meet their needs as going into house fires or responding to calls and they can trust that voice capability.

We are a broadband data network initially, and the voice will be worked on as we're watching these other networks and also doing the research and development that will be happening going forward.

Another key note on that is PSCR will be announcing later this week some of their key efforts that will be driving to help in this whole space for public safety as part of our Act in the legislation, they have some critical areas that they are now able to fund and start doing some great research and development in these topic areas.

BARRY BONIFACE: Great. Thanks.

JEFF BRATCHER: So I'd like to wrap up with our Early Builder Band 14 LTE projects update. I'm excited that we now have the Early Builders Working Group that presented yesterday during the public session as part of the Public Safety Advisory Committee. So they presented an in-depth update from the Chairman, which is Darryl Ackley from the State of New Mexico, and the Vice Chairman is Todd Early from the State of Texas. And glad to see that group is within the PSAC now, and we're supporting them on our technical side as well.

The Technical Team within the CTO office works closely with all five projects. We have staff embedded there. Lynn Bashaw is our Director of Network Operations that's helping align all this and roll these key learning conditions into our RFP development.

We now have our Evaluation Plan circulating for internal review and clearance. And the document outlines our standard operating procedures on how we will be documenting and internalizing within FirstNet both the formal and informal lessons learned out of these projects. The key change highlighted in green from last meeting is the reduction in number of sites for LA-RICS with some of their very public issues that they were having, and that's now been resized to an 82 cell site system. I believe it's 67 permanent site and then some cell-on-wheel, 15 to 16 cell-on-wheel sites.

So that's the update from the Office of the Chief Technology Officer, and happy to take any more questions or I can turn it over to Jason Karp on my left.

BARRY BONIFACE: One quick question. Last time we met back in March, we had an update on the PSCR's sort of testing activities.

JEFF BRATCHER: Right.

BARRY BONIFACE: And one of the areas that they were – ran into some challenges was in establishing priority in certain situations. You want to give the group an update on any of those activities –

JEFF BRATCHER: Sure.

BARRY BONIFACE: If there's been any further development there.

JEFF BRATCHER: Absolutely. Absolutely. And I didn't want to steal a lot of thunder from the next two days of the PSCR conference, or three days. They have some great sessions that I highly recommend if

everyone is here to attend. And some of the key testing updates for us. But, yes, that was in the radio resource allocation and the use of establishment cause for getting onto those radio resources. And in coordination with the testing team and our efforts within Boulder, happy to announce one of the vendors, they can't tell us which one, we're firewalled from which specific vendor, now supports that and the others are working on that as well. So happy to report that's helping drive those industry partners and ensuring some of these critical features that we need for our Priority, Preemption and Quality of Service are being driven into the products.

BARRY BONIFACE: Terrific. Anybody else have – Suzanne?

SUZANNE SPAULDING: Yep. I just want to say how pleased we are to have Glenn on board and really bringing a laser-like focus on the security issue. That's terrific and he's got the right background. So that's great. You know, clearly we'll want to make sure that we continue to emphasize the relationship between security and resilience, and that those are viewed in really a holistic way. And that we're looking at security similarly across the whole risk management spectrum at threats, vulnerabilities and mitigating consequences as well. That it's not just about the security of the network or the devices, for example, but that we're also looking at all the ways we can mitigate consequences of inevitable disruptions to that. So, again, our team is looking forward to working closely with Glenn as well, and I'm glad to have him on board.

JEFF BRATCHER: Absolutely. And as I mentioned at the last meeting. Thanks, again, too. We had some of your key staff actually help interview and select for this position, so that was a great teaming effort to do that.

TJ KENNEDY: We want to continue that ongoing close relationship with DHS and make sure that we're leveraging all the resources that the U.S. government can bear for this important project.

One other note and I think it's important, I just want to jump in and thank Jeff and the entire Technical Team. Yesterday, you know, we had a Public Safety Advisory Committee meeting and Chief McEwen and the team have been working very closely on priority and preemption and public safety grade and on public safety devices, and I have to say that the conversation yesterday was one of the best that we've had at a Public Safety Advisory Committee meeting. And I think it's a huge part to the great work being done by the volunteers from the PSAC, but also working very closely with the Technical Team. And they've been engaged in really important work that has brought great value to our planning and our operations at FirstNet. And the engagements that have happened out at the Boulder facility and sitting down with the Technical Team, and working through all day on key issues like this has brought tremendous value and insight to the FirstNet team, not just the Technical Team, but the entire team. It's added value to the team working on the RFP. And really it's been months' worth of work but great work by the Chief and the entire team, and really want to thank the Technical Team for engaging in such a meaningful way.

BARRY BONIFACE: Terrific. Well, it's great to see that kind of collaboration. That's how this is going to work. And if we don't have that kind of collaboration, this is clearly not going to work. So appreciate that, and thanks for the great comments.

So I guess we're – anybody else have anything for Jeff? All right. We're moving on to Jason. It's the day of the Js here. Jason's going to give us an update on the Second Notice and comment process.

JASON KARP: Thanks, Chairman.

And thank you, everybody. As everybody knows, we have had at least a series of public notices over the last several months relating to interpretations of the Act. Just logistically I'd like to kind of set up how we're going to go about doing this. It's very similar to how we went about when we reviewed the responses to the first public notice. So we are going to address some of the readouts of the responses we received in each committee. And we're going to limit the discussion in each committee to those topics

that are germane to that particular committee. And the concept then is we'll do a fuller readout at the full Board meeting tomorrow. So you will, unfortunately, have to bear with us for the rest of the day and then tomorrow as well. We are definitely going to try to eliminate where we can any repetitiveness or redundancy and where we are going over similar questions because they impact multiple committees. We'll push forward very quickly on that.

So as I noted, we initiated our second public notice back on March thirteenth, and it, like the first public notice, was meant to elucidate and receive comment on very complex portions of the Act. And while the Act in many instances is very clear and lays out a very prescriptive process for things that we need to follow, there are several areas where it's silent or we need to make interpretations to help us fulfill our mission to make sure that we're meeting our goals. I think Chief Johnson said it the best yesterday, really the best I've heard of anyone's saying this yet, and for anyone who has spent any time with this Act, and I know we all have to a certain degree, it is a complex kind of puzzle of requirements that we have to follow. But he said it's an Act for all of us to love, or we have to learn to love it, because it is the roadmap that we really need to pursue in order to meet our mission. And it really guides almost everything that we do. We have to kind of relate back to the Act. So getting key input from our stakeholders, the states, the territories, the tribes, is really critical for us in moving forward and making decisions that we need to make.

In terms of logistics of the second notice, it was open for comment for literally anybody. So although we got responses back from many of the stakeholders, we also got responses back, as you will see, from many private individuals. We received comments on April twenty-eighth. And all of the comments are still available and can be publicly viewed at the www.regulations.gov.

So the second notice in particular focused really on four key areas for us. And for this particular committee, we're going to focus on the first two, and that is certain technical requirements related to use of devices and equipment on the network as well as the establishment of network policies.

The second notice also addressed kind of the state plan process and some of the questions related to the procedures employed if a state elects to deploy and operate the radio access network, and we're going to talk a little bit more about that in the Outreach Committee and tomorrow.

We also addressed certain kind of operational and funding requirements related to the scenario where states undertake the operation and deployment of the radio access network and how that impacts FirstNet from a business model perspective and in terms of informing our RFP.

We received about 70 comments overall, so I think we felt very, very good about the response. What we're going to do is kind of take you through a high-level summary. It is not an exhaustive list of everything that was asked. I think we asked somewhere in the neighborhood of 50 questions and preliminary interpretations, so we're not going to drag everybody through all of that. But we are going to focus, you know, very much at a high level. And some of the key topics that are really necessary from a consultation perspective. As I alluded to earlier, these are really important for us as we prepare for our RFP, and as you've heard at the last Board meeting and the schedule that we provided, as we move forward toward the end of the year, it's going to be critical that we finalize some of these interpretations and inform that process.

In terms of who responded, this gives you a little bit of a cross section, which I think is really interesting and from our perspective we're very, very happy with who responded. As you can see, by far the vendor community and the state community provided the highest number volume of responses, and that makes sense, right, because really, as I said, the four areas are broken up into kind of technology-focused discussion, and the vendor community was very active in responding to that. And the other areas really focused on a lot of the state processes and how that impacts states and their desire either to participate in FirstNet's deployment of the RAN or if they want to take on that responsibility. So that makes a lot of sense.

But there are other items to note, right. So we got a number of comments from public safety specifically, themselves, public safety organizations, which was very helpful. The telecommunications sector in itself was also very active, both the associations as well as a number of large carriers. And I'd like to point out, you know, I thought we had very strong participation from the tribal community. And I think, you know, like really don't want to underemphasize that. I mean, I think that's really important as we engage tribal communities along with the states and the territories as it's so important for us to find effective ways to ensure that we're meeting all of the stakeholders' needs in a cost-effective way as we move forward. So that was very encouraging.

With that I'm going to turn it over to Eli Veenendaal from our staff, who is the attorney who has been primarily responsible for doing the analysis of the responses as well as overseeing the release of these public notices, and he'll take you through some of the specific survey results.

ELI VEENENDAAL: Thanks, Jason. It's nice to be here again, especially to discuss these notices, which, as Jason mentioned, are so important to providing feedback, not only on the legal interpretations, which is what these notices have been really key on doing over the last year or so, but also really helping us from a consultation standpoint and really getting feedback from the different stakeholders.

So one of the key provisions of the Act, and one of the things the Act tries to do, is make sure, obviously, that FirstNet establishes an interoperable public safety network. I mean, that's kind of pre-eminent above all things. But there are also provisions in the Act that try to balance that with ensuring that there's innovation and the ability for public safety to have devices that continue to meet their needs but also innovate with technology.

With that in mind, there's a specific provision of the Act that requires that FirstNet promote competition in the equipment marketplace by requiring, among other things, devices used on the network be built to open, nonproprietary and commercially-available standards. So this is one of the provisions that we found it was necessary to really put some parameters around in relation to how this would apply specifically to the network. So our interpretation was that this provision applies to equipment including end-user devices that will be used on the network and not the actual network itself, which is, under the Act, comprised of the core and the radio access network. So we thought it would be important to draw that delineation, to really pull that out. And as you can see from the responses that we received, the majority of comments agreed with our interpretation. Those that didn't or had a different perspective really thought that this interpretation should be broader and include the core and radio access network. And so as we evaluated those, even in that, one of the key focuses was there was a concern from some commenters that the core and radio access network wouldn't have the same level of competition and there wouldn't be the same opportunity for vendors to participate in those. But I think a lot of those issues are resolved through the processes that we're following currently, the procurement processes that we're going through.

One of the comments in response to this just tried to delineate how satellites would be viewed and provide some feedback for us on how they thought those should be characterized.

One of the critical elements is how these apply and when these technical requirements would apply. So the interpretation that we went out with in this regard is that this provision applies whether or not the equipment is used to access the network via the network that FirstNet would deploy including any radio access network or any radio access network that would be deployed by the state. As you can see from the diagram, no commenters disagreed with this interpretation. Again they emphasized the importance of ensuring interoperability but really wanted to make sure that innovation continued.

One of the comments suggested expanding, again, the application to broaden the scope to the core and radio access network, and that seemed to be kind of a theme throughout some of the technical requirements and trying to balance and making sure both the network itself and the equipment that will be used on the network would be able to promote competition in that regard.

One thing we'll note, through the technical requirements, the elements of the network, kind of have already be subjected, as Jeff mentioned, to the 3GPP Operational Standards as laid out in the Technical Operability Report that came out a few years ago.

So one of the preliminary conclusions that we try to balance as well as where will we put the baseline for actually having this equipment apply and have connectivity to the network without stifling any kind of innovation or the marketplace from being able to provide new solutions for public safety. So the goal of this interpretation that we went out with is that kind of the minimum baseline is that any equipment must maintain interoperability to the network, and that's simply connectivity with the NPSBN as a baseline. And so the goal of this interpretation was to strike the correct balance between ensuring interoperability as required by the Act while not stifling, as I said before, any competition or eliminating any existing operating system. It's really with a goal of getting public safety one device that they can use no matter who the vendor might be. All right, so when they arrive at a scene, they're not fumbling through multiple things or using a personal device, but rather they'll have one device they can use and rely on regardless of their preferred vendor.

JASON KARP: And, and just kind of to emphasize this point because I think it's an important one from a technology perspective, right, and I know we got I think a question at Industry Day about this, and it was a question about what are going to be the requirements for the FirstNet devices and having to use those in addition to other devices. And, you know, I think the concept is here, and we talked about this at the PSAC yesterday, really is, you know, we don't want to create hardship in multiple devices for public safety to have to use our network. The concept is potentially, even, a BYOD perspective, or being able to use the equipment that they essentially use today, possibly hardened, possibly with new applications, but to be able to have that one phone, whether it's an Apple phone, or, you know, an Android, a Windows-based system that will be able to interconnect with our network. And so what we have really focused on here, the interpretation that we have preliminarily taken, is that what we're concerned about is openness in standards in that connectivity. And so that all of those devices can connect to our network. We're not, and we do not want to stifle the competition that exists among those devices even though those operating systems may be proprietary to those particular companies.

ELI VEENENDAAL: Moving on kind of out of the technical requirements to a different subject, which is the establishment of network policies. So FirstNet, under the Act, is required to establish network policies in carrying out its duties and responsibilities. Now our Act expressly lists five categories that we're supposed to develop these policies in, and these vary from technical and operational standards to terms and conditions and ongoing compliance. This list, though, that we interpreted in our notice isn't an exhaustive list. There's actually another provision that we didn't discuss in depth in the notice that requires FirstNet to ensure nationwide standards for use and access to the network across all of the network and not just in these specific categories.

So, again, the primary purpose of these policies is to help ensure interoperability and provide a uniform set of qualities and standards to ensure consistency across the network no matter where you go. And so these interpretations help us to do that.

So we didn't really dive into specific network policies. We didn't put forth any policy that this is how the network will operate. Rather we really tried to define the nature and application of these policies in relation to those who will be participants with us on the network. And so, specifically we wanted to make sure that everyone understood that these policies apply regardless, again, of whether the network is, especially a RAN, is deployed by a state or by FirstNet. And the majority of comments agreed and thought this was relevant, again, understanding the importance of making sure that no matter whether you're a first responder in New York or you're a first responder in Oregon, wherever they go they will be able to interoperate and be able to move back and forth regardless and have familiarity with the different systems that we operate on.

Along these same lines we made an interpretation that we could, as part of our spectrum leasing agreements, use this as a condition and make following these network policies one of the conditions of entering into a spectrum leasing agreement with us, which is one of the requirements of the Act that

states that choose to deploy their own radio access network will have. Again we had the majority of comments which agreed with us for the same reasons as with the previous slide in the sense that they understand there needs to be interoperability and consistency across the network.

There are a few commenters that disagreed, some from a philosophical standpoint, but some from a standpoint that they thought these policies didn't apply to them directly, or apply to states directly, but rather only apply to FirstNet. And so we reviewed those policies as well. I reemphasize with that point, though, that, again, this list wasn't exhaustive and there are subsequent parts of the Act that require us to have nationwide policies that we develop, so that's another thing that helps reinforce our interpretation and we think we're on the right track with that.

JASON KARP: And I would just add, to kind of give a real-life example, right. So as – to the extent that states pursue the process and ultimately deploy their own radio access network, it's going to be critical that public safety in those jurisdictions have the same experience, same standards of quality, same service as they do in the rest of the nation. And so, for example, if we've got a software upgrade that we've got to employ on a national basis, it's going to be critical that at that same point in time these radio access networks that may not be operated by FirstNet equally employ those updates so you have a consistency of capability, experience, and quality. And so that's really what this interpretation was aimed at driving at and ensuring that interoperability with those network policies.

FRANK PLASTINA: Jason, just to comment on that. And the point seems rather moot unless each state has their own device strategy in addition to building the RAN. They can build the RAN, but if they don't have the devices that are upgraded specifically to the FirstNet standard, it won't work. So I – I mean, it's an interesting legal argument, but the practical end reality is you can't really have one without the other.

JASON KARP: Agree 100%.

TJ KENNEDY: And I think that raises an important point, and maybe, Jason, it's a good time to just touch on this, is, you know, one of our goals in doing the public notices is a legal goal of certainly describing this in a detailed way and getting feedback. But the other part is also just, you know, walking through and making sure everybody understands some of the key understandings of implementing the Act that we have to do, and we do want the dissenting views, and we want the agreeing views, and there's some neutral views, but talk about how you analyze those and how that affects how we move forward in some areas.

JASON KARP: Yeah, I mean, it's a great point, TJ. So, as I noted earlier, this provides a - these public notices provide a tremendous amount of information for us. And it's really, I mean, a number of different things. I mean, to Eli's point, we're undertaking legal interpretations. But this is really a part of consultation, right, all of it. And just as when we go out and meet with the states and the territories and the tribes, and we're getting feedback and understanding their priorities, this isn't a majority rules kind of situation. We literally analyze and review every single comment that comes in. We allocate it out based on the issues. We have and are developing standard operating procedures within the organization to share that information with our technical team, with our RFP teams. And heavily with our Outreach Team, right, because this is a window into kind of, you know where some of these constituencies, these stakeholders, are coming from. It's really important for us, not only from a learning perspective, but this helps us to help educate our stakeholders on the challenges that we face. And in some cases, you know, we talked about this yesterday, there are some things in the Act we just can't change, right. There are just certain prescriptive elements that are required, and we do not have the discretion to change those, and that gets to Chief Johnson's point yesterday which was, you know, we can love it and we can hate it, but ultimately we have to embrace it, it's going to be the roadmap for moving forward.

TJ KENNEDY: And that raises a good point. I mean, I've read through a lot of the comments, and there were a couple in there about, you know, changing the 90-day timeframe in the Act for opting in or choosing to take responsibility for your own RAN. And there are certain things that are pretty black and white and clear in the Act, and the comments are helpful, but we're not necessarily able to just interpret

that differently. And so I think there are some things you can act on and there's some things you really can't.

JASON KARP: That's right. That's absolutely right. But all of it is informing to us, right, because as I said, even if it's something that we don't believe we can change, or we don't think is the right way to go forward, it does educate us and provides us the ability to be more informed and have a greater and more informed discussion with our stakeholders as part of the consultation process.

BARRY BONIFACE: Well that kind of gets back to the point about collaboration, right. At the end of the day this is one big collaboration, and we're making certain interpretations here, and it's good to see the level of response that we got, frankly, to the notice itself. I hope we see the same kind of level, if not greater, response to the draft RFP that we've put out. You know, this stuff is not often straightforward and it's not easy, so we're kind of all in this together. So I think the collaboration that's taking place is critical to getting a successful outcome here. So thank you to the folks that participated.

SUZANNE SPAULDING: Yeah, the only other point I would make, I'll go back to the mitigation concept again, is that the other value, of course, in getting this feedback from a wide range of stakeholders and experts is that many of the decisions that will ultimately be made will come with some cost. There is a cost benefit analysis. And there will be some risks inherent in certain decisions that we will make. And the more we are informed about the potential costs or risks of that decision, the more we are in a position to think about ways in which we can mitigate that risk. Even as we are going down a certain path, the more we understand the tradeoffs we're making, the more we can think about the ways in which we mitigate them. So it is a hugely helpful process. And, again, we just want to emphasize how grateful we are for all the folks who took the time to provide comment, and really thoughtful comments. Thanks.

JASON KARP: Yeah. That is an excellent, excellent point, and I'm going to throw out some kudos to our good friend Rich Reed, who I think puts a fine tooth on this better than just about anybody, and that is, you know, there can be lots of requests to do lots of different things, and we can make lots of decisions, but there's always a cost, right. And there's a cost associated with it. It might be a financial cost, or it might be costs related to mitigating liability or other things that we need to do, and we have to consider that. And the feedback that we've gotten through this process, and we continue to get through this process, as well as with the pending third notice, which I'll talk a little bit more about tomorrow, is really critical. So that's an excellent point you made.

ELI VEENENDAAL: So just to summarize, and we've hit on most of these points anyways, but as Jason said, we went out with approximately 50 interpretations, which was quite a lot. So, again, as everybody has mentioned, we're always thankful for people taking the time reading and providing real comments. I know from having reviewed the comments myself, that the comments have provided great substance and really helped us rethink, maybe, how we're approaching things but also reinforced some of our approaches as well, and you'll see that in the presentations throughout the next couple of days as we have kind of a broader scope of what we're doing. But, again, I always make the pitch as we continue to come out with notices and other things, we always encourage a lot of response because it really is helpful to us. : Okay. Are there any additional questions?

BARRY BONIFACE: Anybody else? Terrific. Well, thank you guys. Thank you for your efforts, and thank you to the community for your feedback on these issues.

So with that, I hope that Jeff's children have enjoyed the webcast, and for the – Yeah, exactly. Happy birthday.

JEFF BRATCHER: On that note, Mr. Chairman, my daughter already texted me. She's like, do you get a grade? What was your grade for that?

BARRY BONIFACE: We're not going to touch that one. At any rate. I like that. Measurement of results, exactly.

So with that I think we are ready to head to lunch, so we will adjourn. I look for a motion to adjourn the meeting?

FRANK PLASTINA: I so move.

KEVIN MCGINNIS: Second.

BARRY BONIFACE All in favor?

Group: Aye.

BARRY BONIFACE: Any opposed? We are adjourned. We will see you back here at 1:00 for the – some committee meeting, Consultation and Outreach. All right. Thanks.

TJ KENNEDY: Picking on Jeff again. One o'clock.