FirstNet in California

FirstNet State Plan Review Meeting – Rancho Cucamonga, CA

July 12, 2017

The California Governor’s Office of Emergency Services (Cal OES) held a FirstNet State Plan Review Meeting at the Victoria Gardens Cultural Center in Rancho Cucamonga, CA on July 12, 2017. Approximately 140 public safety stakeholders attended.

Welcome and Introductions

Patrick Mallon, California FirstNet Single Point of Contact (SPOC), Cal OES PSC Assistant Director

- Welcome & introductions.
- Review of agenda.
- Purpose
  - Present the FirstNet draft state plan for California.
  - Gather comments via Q & A session.
  - Ensure the state plan meets your needs.
  - Important to capture areas needing service.
  - Session being recorded for future use.

FirstNet Update

Kevin Nida – FirstNet CA Region Lead

- **FirstNet Overview.** FirstNet is more than just a broadband network. It’s the first broadband network by public safety for public safety. It is a public-private partnership with AT&T.
- **FirstNet public safety professionals.** FirstNet has experienced public safety professionals working to bring public safety users what they need.
- AT&T brings FirstNet a large broadband network immediately, then adds sites, adds Band 14, and makes that network public safety grade.
  - AT&T’s years of telecommunications and wireless expertise is required to make FirstNet successful.
  - Adding 20 MHz spectrum to AT&T’s existing network, adding priority and preemption.
  - Program management is key to meeting milestones and five-year deadline.
  - AT&T’s $180B network, telecommunications / site experience, secured network, technology and innovation experience are critical to FirstNet success.
- FirstNet learned through its previous outreach process that it must listen to public safety.
- FirstNet is committed to listening to public safety to get the network and services suite built right.
• Learned many lessons through early builder programs, such as the Los Angeles Regional Interoperable Communications System (LA-RICS).
• Important to get state’s input on coverage for correct input to state plan. Listening will continue through life of the project.
• Discussed core design principles.
• FirstNet will leverage AT&T’s economy of scale with procurements.
• Device interoperability is important.
• AT&T has ability to leverage users’ current devices.
• First responder access to the network is the key priority.
• Success of FirstNet to be measured by agency adoption switching to FirstNet.
  o Coverage, capacity, and priority is the key to adoption.
  o Adoption is totally voluntary.
  o Each county is unique, and there will be many discussions on building out the network right over the next five years and beyond.
• **Design.** First step to success is getting an opt-in.
  o **Solutions Overview.** Mandated to reach to 97% of US population for coverage.
  o Committed to using 40,000 existing AT&T hotspots.
  o Designing for 99.99% uptime.
  o Explained use of deployable site assets to fill temporary coverage holes.
  o Will leverage existing AT&T distributed antenna systems (DAS), Wi-Fi, deployables, and Inmarsat.
  o Agencies may deploy own temporary site, with AT&T/FirstNet approval.
  o Rate plans to be negotiated and competitive, and be easy for agency procurement shops to convert into.
  o **Bring Your Own Device (BYOD).**
    ▪ Any AT&T Long Term Evolution (LTE) device can be a FirstNet device now.
    ▪ Personal LTE devices are allowed at discretion of home agency; priority determined by home agency.
    ▪ Volunteer phones and employee allowance-funded devices are treated with same priority.
  o **Priority and Preemption.** Available now for data and Voice over LTE (VoLTE) on all AT&T bands. Mission critical voice preemption planned to be added into the Third Generation Partnership Project (3GPP) standard within a year.
  o **Cyber Security.** Utilizes AT&T’s global security assets.
• **Identity, Credential and Authentication Management (ICAM).** System to allow single sign-on across all applications and local control. Includes dual authentication with single sign-on controlled by home agency.
• **Local Control.** One-stop web tool to manage devices, public safety home page, display network status (outages), priority levels, push-to-talk (PTT) groups, ICAM authorizations, and other related functions.
• **FirstNet is not designed to replace Land Mobile Radio (LMR) networks.** FirstNet is designed to make LMR better, stronger, and bigger. Applications are being developed for PTT integration of FirstNet into LMR. However, blending the broadband device / smartphone features into LMR radios is coming.
• **App development program.**
  - FirstNet will steer developers for relevancy based upon public safety input in the initial phases.
  - FirstNet does not want to tell users what apps they can have, but instead to help develop what they request. Will accommodate user-procured apps.

• **Solutions.** Will be developed in a collaborative process to benefit all users.

• **Training.** User training programs 24x7 for app training. This is a large component of the FirstNet mission.

• **Support.** 24x7x365 staffed by public safety specialists.

• **Quality of Service, Priority and Preemption (QPP).** Establishes metrics for defining minimum and maximum performance of the FirstNet network.
  - **Quality of Service (QoS).** Metrics and options to determine quality of service.
  - **Priority.** Public safety makes up 2% of wireless carrier network traffic.
  - **Preemption.** Explained.

• **Review of state plan elements.**

• **Takeaways**
  - State plan is designed to provide comprehensive information, but is not able to answer every question. This is the eighth engagement and meetings have been well attended.
  - This outreach process is designed to give most answers and collect all feedback necessary to make a final plan leading to the state’s decision.
  - The timeframe for feedback is short due to the legislation and is challenging, but the consultation process will continue after opt-in.
  - State Single Point of Contact (SPOC) has a critical role in consolidating and prioritizing feedback.
  - Consultation to continue through state plan, delivery, and beyond.
  - This is a 25-year mission to ensure public safety users get the coverage, priority, preemption, and services they deserve.

**The Role of Cal OES**

*Patrick Mallon*

• Governance, conduct state plan review, and develop California’s priorities.
• List of 25 priorities was developed in initial California FirstNet outreach consultations.
• Presented FirstNet timelines, California FirstNet governance structure, and road to a decision.
• CalFRN mission and actions were explained. A broad base of public safety representation to include state, local, and tribal input is needed to best to determine California’s needs.
• Described how California FirstNet priorities were developed through prior outreach process, how those priorities will get fed back into the state plan, and how Cal OES does not want just a few entities dominating the process or the plan.
• After August 4th, AT&T and FirstNet will work to integrate stakeholder input to finalize the California FirstNet state plan. When final state plan is returned, Cal OES will determine how the final plan meets those needs.
• Coverage is a huge concern to Cal OES.
• In process of finalizing a request for proposal (RFP) template for Opt-out as not to lose time if needed.
• State plan to be delivered back to Governor in last part of September, which triggers the 90-day clock for the Governor to decide on opt-in or opt-out.
• Important for Cal OES to gather stakeholder input to address holes in draft plan, then ensure those issues are addressed in the final plan.
• www.firstnetincalifornia.org has portal for feedback on plan.
• CalFRN obtained though outreach a list of priorities to develop California’s top priorities:
  o Coverage
    ▪ Noted the diverse area makeup of California with many rural coverage holes.
    ▪ Coverage is a major concern for Cal OES.
    ▪ Need stakeholder input on coverage holes, including indoor coverage.
    ▪ Coverage of tribal land is lacking and is a large concern.
  o Network
    ▪ Concern for how public safety will get data to the public safety answering point (PSAP) network - particularly to serve video.
    ▪ Cyber security is a large concern.
  o Cost & Services
    ▪ Cost, quality, applications, computer aided dispatch (CAD) interface, and security requirements must be met.
• Stakeholder input is extremely important. Please provide feedback either on the form or via the online tool.

AT&T Public Safety Broadband Network Service

Scott Andrews, AT&T product and offering overview.

• AT&T has many ex-public safety professionals employed on the FirstNet project to ensure public safety needs are understood and met.
• FirstNet is an addition and not a replacement for land mobile radio (LMR) systems. Intent is mission critical data today as a companion tool. The primary mission is mobile data traffic. Nobody is forecasting LMR to go away.
• AT&T sees FirstNet as a partnership between Cal OES, FirstNet, and AT&T. The best plan we can deliver is the one that stakeholders provide.
• Upon opt-in, FirstNet access in California via the AT&T network begins immediately. Up to 150 MHz existing AT&T network, plus 20 MHz by Band 14 (i.e., not just Band 14).
• AT&T’s 64,000 cell sites, 40,000 hotspots, and 6,000 DAS are available nationwide to responders upon opt-in.
• Pledging 99.99% up-time reliability.
• Coverage is redundant high concentration of overlapping site coverage. Compared to percentage of site density in LMR being much lower.
• Priority for primary users will be available upon opt-in. Preemption availability estimated 4Q17.
• High reliability at primary sites with fixed generators. All sites have battery backup of four-hour standard, moving to eight hours to meet FirstNet mission. Many sites already have an eight-hour battery backup.
• Over 300 trailer mounted generators for sites without generator. Model will be that AT&T has 8 hours to get generator to sites and in service.
• Discussed how commercial sites generally exceeded construction standards above typically public safe LMR sites.
• **QPP explained**
  o **QoS.** Minimum and maximum service quality parameters.
  o **Priority.** Users preferred access. Priority user is next in queue for available data resource when a contention exists.
  o **Preemption.** Terminates and relocates lower priority users to give priority users access.
  o With LTE, voice priority via VoLTE with QoS capability comes via the LTE standards.
• **Described three user types (priority levels – all available 2018)**
  o 1 – Primary (Law Enforcement (LE), Fire, Emergency Medical Services (EMS), and Emergency Management Agencies EMA) is automatic feature and without charge.
  o 2 – Extended Primary (Hospital, Utility, Transportation, Public Works) December 2017. Can be uplifted to Priority user.
  o 3 – Volunteer. If serving in LE/Fire role, then treated like a Primary user. If not, will mirror the priority of the agency they work for.
• Priority access will be available in all AT&T spectrum.
  o Priority access – available now.
  o QPP Phase 2. Preemption. 4Q17.
  o QPP Phase 3. 1Q18.
• Reviewed high-level of migration of cellular technology to LTE standard.
• LTE devices that don’t support Band 14 are viable in FirstNet upon opt-in. Lowers user price-point to migrate to FirstNet by extending life cycle.
• Primary users get priority and preemption at no additional charge.
• QPP is available on AT&T-managed networks. AT&T is working with their 35 roaming partners to implement the same QPP.
• Network saturation for public safety user becomes thing of the past.
• **Local Control.** Ability to monitor network geographically (similar to access given to Radio Access Network (RAN) engineers), gives real-time situational awareness. Ability to generate trouble tickets. Enable / disable devices (agency-owned) directly. Agency can set priority directly for device and user. In unified command scenario, local agency can manage incident’s roamers directly for priority on the incident – no need to work with those users’ home agency. Can be set by COML, COMC, dispatch center, etc. Uplifted priority access setting can be set to automatically time out.
• **Software Application Program Interface (API) for CAD connections.** Public safety Internet Protocol (IP) network access API is available from AT&T as currently offered. Agency CAD interface to FirstNet will be the same as the current cellular network interface today. AT&T offers Private Mobile Connection – utilizes static or dynamic IP addresses, and provides secure network to mobile clients. If currently using another cellular carrier, AT&T will work with the agency to configure CAD API for AT&T/FirstNet.
• **Security.** Understood that security is a key concern, and this is top priority.
• **California Law Enforcement Telecommunications System (CLETS) requirements.** This is a CLETS-approved solution. Very similar to any CLETS cellular connections currently used.
• Deployable solutions and satellite overlay to address difficult areas to meet build-out requirements.

• **Public coverage maps.** Showed AT&T coverage maps at opt-in, and in five years. Maps are available on FirstNet portal.
  o Coverage plot is based upon -98 dBm RSL downlink (indoor) / -110 dBm RSL (outdoor).
  o Noted AT&T has invested $7.2B in California’s network in the past four years alone.
  o AT&T user experience has improved in last four years. Encouraged those who have not used it in a few years to test it now.

• **Deployable assets.** 72 deployables dedicated to FirstNet are being built by General Dynamics.

• Emphasized Natural Disaster Recovery Program (NDR) team is dedicated full-time to mission. Full-time dedicated employees and dedicated assets. $1B invested in over 700 vehicles.

• Mobile sites are also used for site maintenance.

• If an agency has deployable site where Band 14-capable site and wishes to home onto FirstNet core when needed, AT&T is willing negotiate for deploying on FirstNet network.

• **Satellite.** Partnered with Inmarsat for locations without coverage and deployable is not feasible or when delayed.

• Ultimate success is measured by user adoption.

*Shane Harper, AT&T FirstNet Sales Manager (FEMA Region 9)*

• Working on pricing to current contracts, such as National Association of State Procurement Officers (NASPO)/Western States Contracting Alliance (WSCA).

• Working with Cal OES to add to CALNET.

• Provided overview of pooled and individual plans.

• Prices presented are a first pass and will be published on www.firstnet.com soon.

• On opt-in, there is no requirement for user to migrate to FirstNet. AT&T must win user business.

• Discussed secondary users without QPP and price to add priority at $7.50/user.

• Further discounts will be available for those who join negotiated pricing contracts.

• Pricing will extend to any current LTE device.

• FirstNet device certification lab in Colorado will verify devices will perform as advertised and be public safety grade as advertised.

• There will be a full offering of accessories.

• For users writing their own application, they will submit the app to app store for certification testing and posting to app store for distribution.

*Barb Winn, AT&T California External Affairs Director*

• Summarized AT&T local deployable assets and examples from recent and current deployments. Barbara Winn is the Cal OES - AT&T link for all disaster-related issues and resource requests for AT&T deployable equipment from incidents. Some assets are located locally in LA and Riverside.

• Gave example of deployable site used for outage at Blue Cut Fire last year.

• Emphasized that public safety stakeholder comments on coverage are critical prior to opt-in. Working ahead of state plan, and welcomes stakeholder comment regarding AT&T coverage or other questions directly to her at:
  o Email  bw1513@att.com
Questions and Answers / Public Comment

• Q: Can you expand upon what makes up the $40B AT&T commitment to the FirstNet network?  
  A: (Scott Andrews (SA)) It is not completely defined yet, but will work on getting complete answer. (Barb Winn) This money will be spent on the Band 14 overlay to provide nationwide coverage in addition to our existing network. There is no way the $6B+ funding provided through FirstNet would be sufficient to provide this coverage. The infrastructure investment is different than the $18B FirstNet investment.

• Q: Is AT&T bound to spend that additional $40B by the FirstNet contract?  
  A: (Barb Winn (BW)) Not sure if AT&T is bound to spend that figure; will check.

• Q: In the rural areas, after AT&T is opted in, will AT&T still work with local municipalities to get additional coverage?  
  A: (SA) Yes.

• Q: Will the additional revenue gained by the use of the secondary spectrum be reinvested back into the network?  
  Q: (SA) Yes, by law that money must be reinvested into the FirstNet network.

• Q: With the large reliance to come on the FirstNet data network, when will the information on sites and network visibility be shared with agency users?  
  A: (SA) We can start having these discussions now. The FirstNet network will look much like your existing cellular network.

• Q: Will preemption extend to DAS and hotspots?  
  A: (SA) Distributive Antenna Systems - yes, [Wi-Fi] hotspots - no.

• Q: Will our data use and priority affect public 9-1-1 calls?  
  A: (SA) No, for two reasons. 1) Most voice calls are 2G/3G and not affected by FirstNet priority. 2) 9-1-1 calls via VoLTE are managed such that they get the higher priority regardless of FirstNet priority.

• Q: If LTE is no longer the current standard in years down the road, will you roll out the current technology of the time?  
  A: (SA) Yes, including 5G.

• Q: Are your (AT&T) sites built to National Public Safety Telecommunications Council (NPSTC) and Public Safety Advisory Committee (PSAC) standards (Rev G)?  
  A: (BW) All sites are built to local and state codes. We are looking at the Rev G requirements. NPSTC requirements were developed for early adopters. We are looking at Rev G requirement hardening for class 2 / class 3 migration in certain seismic areas.

• Q: Who will manage PTT talk groups?  
  A: AT&T, with needs defined by the agency.

• Q: Who will manage priority?  
  A: Local agencies, directly via local control portal.

• Q: How will you cover rural areas where our agency has a private mobile data network because we have no commercial service?  
  A: (SA) We will work with you, particularly if you have sites to share as co-locations. (BW) Where it may not have made business sense in the past, FirstNet changes that equation for us. You can send me information on sites and RF holes ahead of the plan and my RAN team will review that. I have received feedback already and our local engineers are working on those questions.

• Q: Does your network need high-level or low-level sites?  
  A: (BW) It depends. Please send me information on sites you can contribute to the network.
Q: What interface does the local agency use to manage priority and talk groups for interoperability at incidents?  
A: (SA) We don’t have that interface built yet, but it must be easy and functional.

Q: How is video at incidents managed to not take down all other users (via RF or network saturation)?  
A: We are still working on it. We will learn a lot from early adopters, such as LA-RICS.

Q: In rural San Bernardino County where we have no 3G/4G coverage, or no coverage at all, who can we work with at AT&T to fix this?  
A: (BW) Barb explained her role in providing incident coverage and interface to local agencies, and requested that information. (Pat Mallon) Requested stakeholders send this information to the Cal OES portal so this interface can be tracked. (BW) Asked this information be copied to her as well, along with any information on possible co-location sites that can be used to address these holes.

Q: Are there federal exemptions that come into play from bringing FirstNet into a site that can be used to expedite permitting RF site construction and modifications?  
A: (Kevin Nida (KN)) Yes, we are looking at that. Please send us information on the sites experiencing the hold-up.

Q: Are there areas which have been pre-determined to be covered only with satellite, versus building terrestrial sites?  
A: (SA) No. Those areas will be determined later as needed to fill holes.

Q: As an agency deciding if they should subscribe to FirstNet, where can we get coverage information?  

Q: In relation to the California bill (SB 649) in process now to facilitate small cell infill, will that help FirstNet rollout?  
A: (BW) Yes, it will help accelerate infill sites in communities.

Q: Can priority be geographically assigned by radius around an incident versus by user, user type, etc.?  
A: (SA) Need to check on this.

Q: Is there a plan to have automated telemetry to monitor off-air quality of the FirstNet network automatically in areas with few subscribers so that network outages normally reported by subscribers will get reported (automatically and in a timely fashion)?  
A: (SA) Need to check for this capability.

Q: What agency determines local control when multiple agencies are in contention?  
A: It must be determined by the local agencies involved. Cal OES is looking to provide some models for governance, but these decisions will not be made by AT&T or FirstNet.

Q: What is the timeline to provide the local control portal?  
A: (SA) Likely early next year. Need to check on the date.

Q: Is there a point down the road where California FirstNet and NextGen 911 come together?  
A: (PM) Yes, Budge Currier is work on both projects to coordinate better.

Q: Are agencies required to put in an upgrade application for Criminal Justice Information System (CJIS) to move to FirstNet data?  
A: (SA) Not sure, need to check on this requirement.

Q: Have you had discussions with the Department of Justice (DOJ) on CLETS requirements?  
A: (KN) Yes. We are fully aware and intend to comply. The current AT&T network complies.

Q: Where are the RF signal levels used for the maps defined?  
A: (SA) On street.
Q: Are there new sites proposed on the five-year FirstNet build map for the LA area? A: (SA) Yes, there are some but not sure how many. There are at least 190 sites proposed through the Connect America Fund (CAF) program.

Q: Can we find out where new sites are proposed? A: (SA) Yes. We are working toward giving that level of detail, and how to share it. There are non-disclosure agreement (NDA) issues. Cal OES is being kept in the loop on this. (PM) It's important to provide poor coverage areas though the California FirstNet portal. (BW) Our engineering teams can discuss these issues with you for your specific areas. Much of this is proprietary information that is not released to the public, but we can share it directly with your agencies as appropriate. We are working to get new-build information into the final plan so Cal OES has the proper information to share with the Governor.

Barb Winn noted AT&T had 25-35 LTE new-build sites planned in the LA area prior to the FirstNet contract award.

Q: What steps are you taking to ensure that FirstNet 700 MHz will not interfere with existing 700 MHz LMR systems? A: (BW) Our RAN team is looking aggressively at which sites where we can and cannot place Band 14. (SA) AT&T will work under the existing Federal Communications Commission (FCC) rules to avoid interference.

Q: Are you willing to allow agencies to test your network for free to determine if switching makes sense for us? A: (SA) That is unknown currently.

Q: Does the FirstNet contract require certain numbers of sites to be built in a state? A: (SA) No, we are held to meet certain coverage requirements. (Site density and locations decisions are left to the carrier).

Q: Will Cal OES make the Operational Area Satellite Information System (OASIS) available to support AT&T deployable sites for backhaul? A: (SA) Need to look into this with Cal OES.

Q: How would an agency get its own eNodeB onto the FirstNet network? A: They would need to coordinate in advance with AT&T. The starting point will be Barb Winn.

Q: What Inmarsat service offering will be available? A: (BW) That answer is not yet available from AT&T because of NDA requirements.

Q: For the Unlimited Plan, is the footnote regarding a 10 GB data cap with move to a pooled plan in three months correct? A: (Shane Harper) We are looking into this. Several other states have questioned this.

Q: What does it mean that plans include a two-year price on devices? A: (SH) This means the price of the device is included in the pricing plan over two years.

Q: Have you given any thought to offering a shift-based pricing? A: No, we will give this input to marketing.

Q: When Band 14 is implemented, will this pricing change? A: No, this is just incremental capacity and coverage, not for additional pricing.

Q: Will there be guidance on mobile apparatus antenna selection? It is very hard to change antennas in mobile apparatus. A: (SA) Yes. We learned a lot from LA-RICS regarding band availability, intermodulation, etc. We will be proving that data.
• Q: Will you provide fixed devices on the network, like cameras (opinion that this is not a good use of the spectrum)? A: (SA) This also has positive aspects, but is a mixed bag. We will look at the specific applications to define permissibility.

• Q: What is the timeframe between FirstNet core implementation to when agencies can connect to that core? A: That is coming. Also, LTE backhaul will be considered.

• Q: If the state opts out, will subscription be compelled via requiring use of FirstNet to continue access to grant funding and other mechanisms, or via equipment compatibility requirements for grant purchases? A: (PM) No. There are also no pre-existing requirements known in any grant programs compelling FirstNet subscriptions. Noted that if the state opts out, it still must connect to the FirstNet core. State could build and fund its own RAN, or enter into another public-private partnership. If there was a state-deployed RAN, it would be Band 14 only.

Next Steps

Patrick Mellon – Cal OES

• Comments are critical to recommendation on opt-in / opt-out process. Would like to receive comment form from each attendee, and from all agency personnel who need to have a voice.
• Please submit within two weeks.
• Listen for announcements on CalFRN board meeting to consider plan.
• Updates to state plan will be compared to California opt-out analysis. Request for proposal (RFP) template being developed for opt-out plan.
• Explained planning for opt-out plan.
• Opt-in / opt-out is Governor’s decision. Expected mid-to-late December.
• Discussed plan for opt-in / opt-out presentation meetings to come.
• Presented web resources for stakeholders to review.
• Access to secure portal was delivered to those in state in the review process.
• www.firstnetincalifornia.org is point for entry of feedback to Budge and Cal OES.
• Call to give other stakeholders future meeting information schedule.

Meeting adjourned.