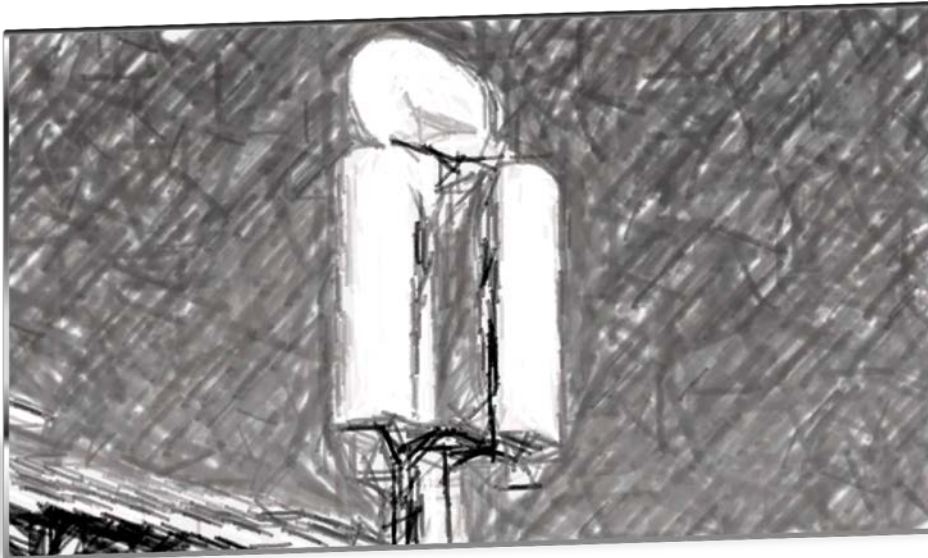


BAYRICS AUTHORITY TECHNICAL ADVISORY COMMITTEE ITEM 6 - REPORT: FIRSTNET DRAFT RFP



Barry Fraser
General Manager
BayRICS Authority
May 14, 2015

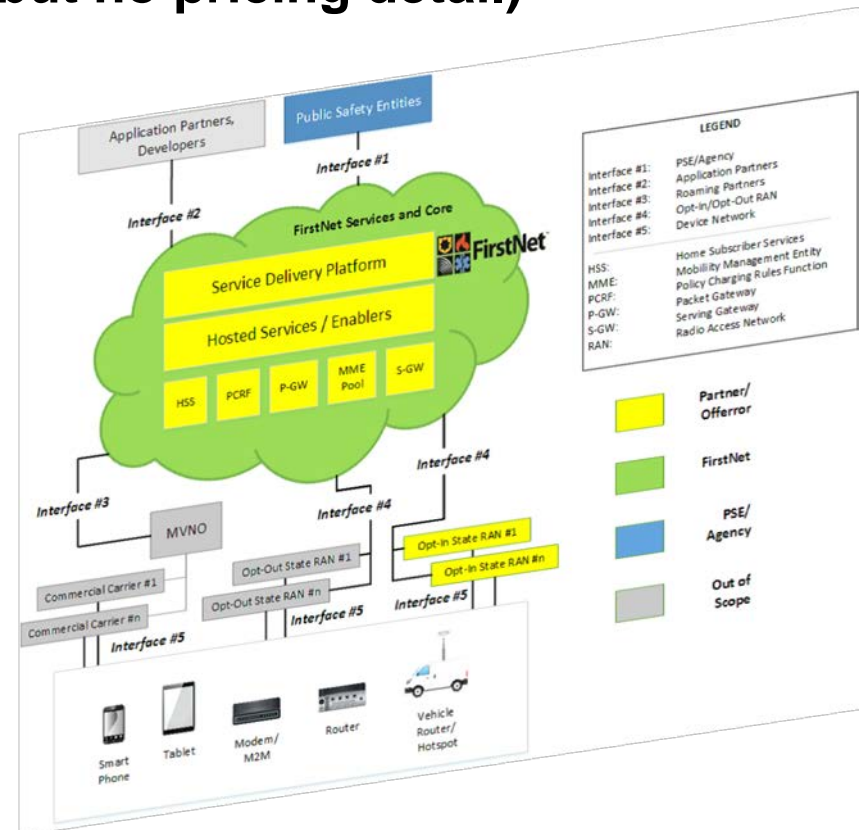
bfraser@acgov.org
925-803-7882

FIRSTNET *SPECIAL NOTICE & DRAFT “RFP”*

- The Special Notice includes “draft sections that may be included in a subsequent RFP used to competitively procure a comprehensive technical and business solution.”
- The Notice provides the opportunity for “interested parties, including states, tribes, territories, public safety stakeholders, and market participants . . . to understand and provide input regarding FirstNet’s proposed acquisition strategy/approaches.”
- BayRICS TAC to review the Special Notice Documents (300+ pages) and provide feedback to FirstNet as appropriate. Comments accepted online at: <http://www.bayrics.net/comments.html>
- Comments due: July 27

DRAFT “RFP” KEY ELEMENTS

- Definition of High Level Functions included in Scope of Work
- Nationwide or Regional Radio Access Network Approach
- Proposed Pricing Methodology (but no pricing detail)
- Proposed Coverage Methodology and Maps
- Proposed Quality Assurance Surveillance Plan (QASP)
- Proposed Operational Architecture (634 Elements)
- Proposed Performance Timeline (5 years)
- Vendor Capabilities Statements and Teaming List



HIGH LEVEL FUNCTIONS INCLUDED IN SCOPE OF WORK

- Contract awardee(s) would provide all necessary high-level functions needed to deploy and operate a nationwide solution in accordance with FirstNet's objectives, including:
 - Core
 - Applications ecosystem
 - RAN
 - Covered Leasing Agreement (CLA)
 - Deployables
 - Satellite
 - Devices
 - Subscriber adoption
 - Customer lifecycle management

NATIONWIDE OR REGIONAL RADIO ACCESS NETWORK (RAN)

- **Option One: Nationwide Core Radio Access Network and Subscriber Adoption for All States** - a single comprehensive proposal for all in-scope functions for all 56 states and territories.
- **Option Two: Regional Radio Access Network (RAN) and Covered Leasing Agreement (CLA)** – multiple proposals to build and operate RAN(s) limited geographically to one or more States, with authority to enter into CLA(s) for those states.
 - Proposals may aggregate states to form regions
 - Proposals will be required to provide technical details to ensure adequate and seamless integration between and among states/regions, and between the state/regions and nationwide core.
- **Partnering/Teaming List** – As a courtesy, FirstNet will compile a list of those entities that are interested in subcontracting and partnering opportunities.

PROPOSED PRICING METHODOLOGY

The FirstNet Opportunity

1. Level of Government Funding: Proposals should explain how much of the \$6.5 billion in Government funding will be needed to deploy, operate and maintain the NPSBN
2. Public Safety Subscriber Market: FirstNet estimates that the market size may range from 4 million to 13 million users, or greater.
3. Infrastructure and Operational Synergies: Proposals should explain how capital and operational expenses will be minimized by leveraging existing infrastructure (i.e., tower sites, colocation space, transport and backhaul facilities, etc.) and capabilities (distribution, marketing, customer care, back office systems, etc.).
4. Significant Value of Excess Network Capacity: FirstNet anticipates providing significant value from use of Excess Network Capacity. The value is derived from 1) access immediately upon award to largely unencumbered nationwide 700 MHz Excess Network Capacity and 2) avoidance of a large lump sum payment commonly associated with auctions or secondary market transactions.

Proposed Pricing Methodology

Public Safety Adoption Mechanisms

- Based on FirstNet's market research, competitive pricing for devices and services along with high network quality and availability are key drivers of adoption.
- FirstNet intends to advance these objectives through contractual and other mechanisms, two of which are proposed below:
 - *Most favored customer pricing provisions* - to ensure that Public Safety Entities receive the most competitive end-user service pricing (i.e., public safety subscribers pay no more than the lowest price available for any type of customer receiving broadband LTE services).
 - *Required public safety usage targets* - for each State or region, to be enforced with disincentive fees.

PROPOSED COVERAGE METHODOLOGY AND MAPS

- The maps are a starting point to identify potential public safety priority for permanent terrestrial coverage.
- The maps show color-coded, one-square mile grid blocks for each state and territory. The non-color regions represent areas identified as needing on-demand temporary or extended range coverage and capacity solutions.
- Coverage is defined as a minimum of 768 Kbps downlink and 256 Kbps uplink at the cell edge with 50% loading.
- Each individual grid will be assessed for meeting the definition of coverage in the color-coded areas (red/blue/green). Coverage requirements must meet or exceed average downlink values across the entire grid block.

PROPOSED COVERAGE METHODOLOGY AND MAPS

Grid Assessment Legend

Color	Title	Description
RED	High concentration	This would indicate areas in which number of users, areas of interest, U.S. population, developed areas and roadways translate to a high likelihood for public safety responses.
BLUE	Moderate concentration	This would indicate areas in which number of users, areas of interest, U.S. population, developed areas and roadways translate to a moderate likelihood for public safety responses.
GREEN	Low concentration	This would indicate areas in which number of users, areas of interest, U.S. population, developed areas and roadways translate to a low likelihood for public safety responses.

PROPOSED COVERAGE

METHODOLOGY AND MAPS

Datasets - The five datasets used to create FirstNet baseline maps are shown in this Table. Each of the five datasets was combined into a single map and then assessed in a 1x1 mile grid block.

#	DATASET LABEL	DESCRIPTION
1	Law Enforcement, Fire and Emergency Medical Service Users	This dataset identifies the foundational user base for the network, with users distributed over their jurisdictional areas (city users distributed throughout their respective cities, county users distributed throughout their respective counties and state users distributed throughout their respective states).
2	Public Safety High Risk / Areas of Interest	This dataset identifies key facilities, infrastructure and locations that may be of particular interest to public safety such as public safety agencies, correctional facilities, airports, Emergency Operations Centers, hospitals, schools, manufacturing facilities, energy plants and large public venues.
3	U.S. Population	This dataset includes 2012 U.S. Census data based on census blocks to identify where people live.
4	Developed Areas	This dataset includes areas throughout the country classified as dense, medium, light or open developed areas to identify where people work and other businesses and structures that may determine response areas.
5	Roadways	This dataset includes the National Highway system as well as significant secondary roadways based on annual average daily traffic (AADT) counts to identify commonly navigated roadways.

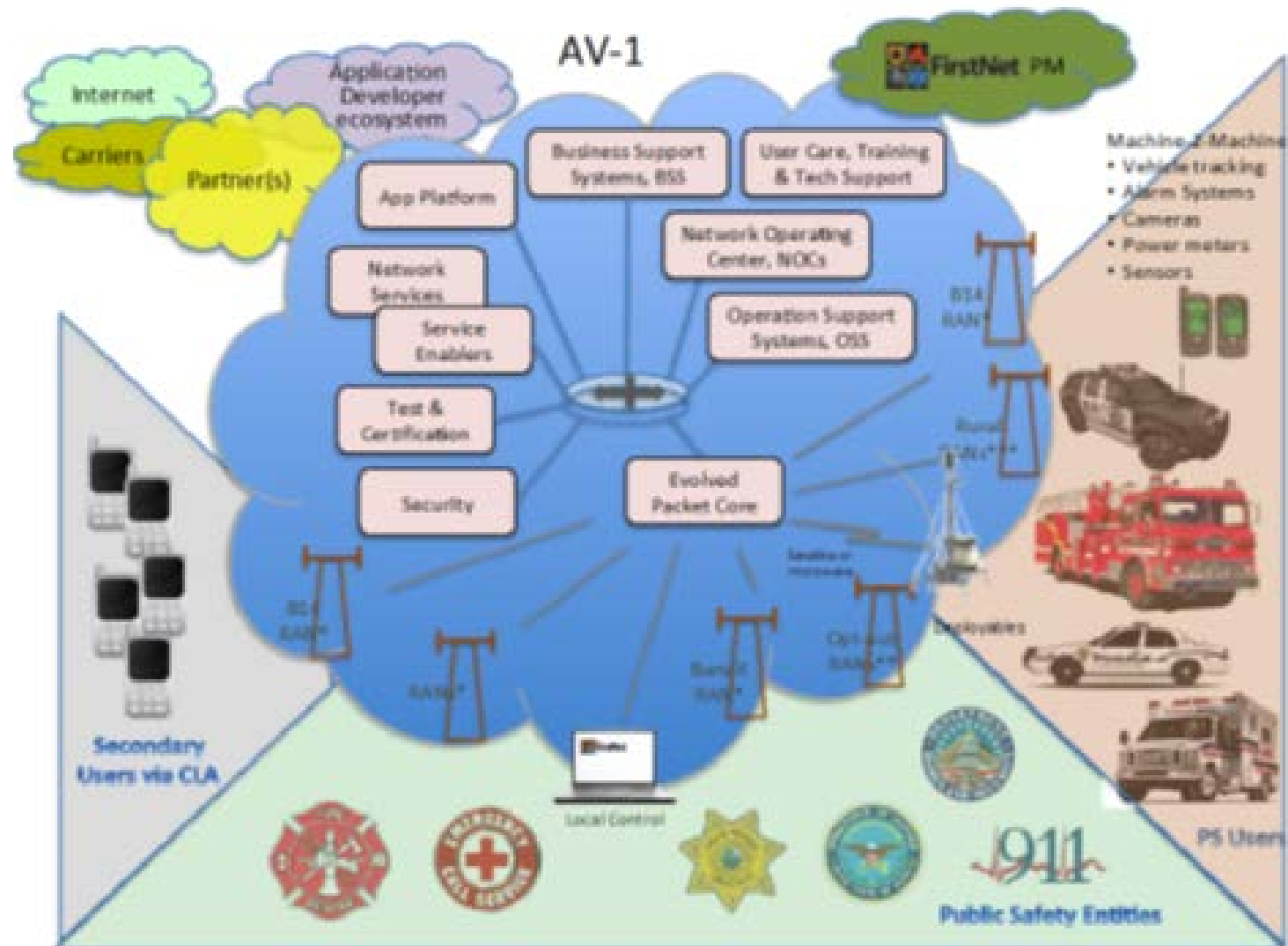
PROPOSED QUALITY ASSURANCE SURVEILLANCE PLAN (QASP)

“The contractor shall provide a Quality Assurance Surveillance Plan which defines what FirstNet must do to ensure that the contractor has performed in accordance with the performance metrics/standards. Additionally, the QASP is intended to provide a tool to assess the performance of the contractor(s) in meeting the program’s Statements of Objectives (SOOs).”

DRAFT SERVICE LEVELS

Metric Name	Acceptable Performance Level	Measures / Metrics	Calculation Formulas
Severe Issue Response Time	All major and above apps related alarms/events are acknowledged and action taken within 5 minutes	95% of events are responded to within 5 minutes	Number of acknowledged events with 5 minutes divided by total number of events received
Tier One Trouble Ticket Support	Tier One support personnel are sufficiently trained and able to work and successfully resolve majority of trouble tickets	>85% of trouble tickets are handled by first level tier support	To be proposed by offeror
Trouble Ticket Accuracy	95% of trouble tickets record a problem resolution description that is consistent with the actual cause of service degradation or outage	To be proposed by offeror	To be proposed by offeror
User Rating	Minimum of 4	Rating of 1-5 (5 being the highest)	Average of all user rating scores
Availability	99.99% availability	Number of minutes the system is unavailable ("down")	Total number of minutes the system is unavailable over a calendar year
Latency	Average Latency: less than 100ms response time for pings/requests to cloud services/systems.	# of milliseconds for a response to be received for cloud service/system pings	Average Ping Latency per hour per quarter
App Certification Average Time	10 days	Number of days it takes for a certification response to be sent to a developer after submission	Average number of calendar days a certification takes

PROPOSED OPERATIONAL ARCHITECTURE (634 ELEMENTS)



PROPOSED OPERATIONAL ARCHITECTURE

- *Appendix C-7, Operation Architecture Functional Descriptions*, describes the operational architecture for the NPSBN. This document identifies over 640 required detailed functions and architectural relationships and identifies primary responsibilities for each.
- FirstNet has categorized each function in the operational architecture into one of the categories noted on the next slide in *Table 1, Operational Architecture Ownership*.

PROPOSED OPERATIONAL ARCHITECTURE

Table 1 Operational Architecture Ownership

FirstNet ownership and responsibility	Green
Public safety ownership and responsibility	Blue
Functions not categorized for which comments are solicited herein	White

- FirstNet seeks feedback on the ownership of the functions. Interested parties should identify which functions should be contractor owned (label as yellow), FirstNet owned (label as green), shared functions (label as orange), as well as those that are to be the responsibility of a public safety entity (label as blue) and out of scope functions (label as gray.)

PROPOSED PERFORMANCE TIMELINE

- **Initial Operating Capability (IOC)-1** - This phase is targeted to begin six (6) months after contract award. The initial launch of FirstNet may use existing commercial grade and available services. These are the same services that are also available to commercial customers but may be branded as FirstNet products.
- **IOC-2** - This phase is targeted to begin one (1) year after award.
- **IOC-3** - This phase is targeted to begin two (2) years after award.
- **IOC-4** - This phase is targeted to begin three (3) years after award.
- **IOC-5** - This phase is targeted to begin four (4) years after award
- **Final Operating Capability (FOC)** - Five (5) years post contract award the FirstNet contractor(s) delivers on all milestones, services, systems and hardening, including all Band 14 coverage objectives met and all rural milestones met.

DETAILED IOC TASK LISTS (SLIDE 1 OF 2)

Timing / Area	IOC-1 Launch 6 months from award	IOC-2 12 months	IOC-3 24 months	IOC-4 36 months	IOC-5 48 months	FOC 60 months
3GPP Release (see notes)	<ul style="list-style-type: none"> Release 12 deployed 	<ul style="list-style-type: none"> Release 13 implemented 	<ul style="list-style-type: none"> Release 13 deployed 	<ul style="list-style-type: none"> Target Release 14 in definition 	<ul style="list-style-type: none"> Target Release 14 implementation 	<ul style="list-style-type: none"> Future release targets
Radio Frequency (RF) Solutions	<ul style="list-style-type: none"> Nationwide Mobile Virtual Network Operator (MVNO) non-Band 14 Band 14 deployables available Existing satellite services as coverage extension Band 14 lab tests 	<ul style="list-style-type: none"> Band 14 coverage begins 15% Band 14 coverage objectives met 15% of the substantial rural milestones met 	<ul style="list-style-type: none"> 60% Band 14 coverage objectives met 40% of the substantial rural milestones met 	<ul style="list-style-type: none"> 80% Band 14 coverage objectives met 60% of the substantial rural milestones met 	<ul style="list-style-type: none"> 95% Band 14 coverage objectives met & all major highways covered 80% of the substantial rural milestones met 	<ul style="list-style-type: none"> Band 14 coverage objectives met Substantial rural milestones met
Services • Devices • Apps • Core	<ul style="list-style-type: none"> Commercial Off The Shelf (COTS) non-Band 14 devices Initial Band 14 devices Band 14 device portfolio development Apps store and ecosystem Phase 1 Apps available from FirstNet and commercial app stores Contractor's core Commercially available data and voice services 	<ul style="list-style-type: none"> Band 14 device portfolio available Apps store and ecosystem Phase 2 Steady stream of new public service (PS) apps FirstNet core leveraged 	<ul style="list-style-type: none"> Device to device / Proximity Services (ProSe) Direct mode service App store & ecosystem Phase 3 Access to local, tribal and state apps 	<ul style="list-style-type: none"> Mobile communications unit (MCU) Mission critical services Services evolutions 	<ul style="list-style-type: none"> Continued services evolutions 	<ul style="list-style-type: none"> Contractor(s) delivers all milestones

DETAILED IOC TASK LISTS (SLIDE 2 OF 2)

Timing / Area	IOC-1 Launch 6 months from award	IOC-2 12 months	IOC-3 24 months	IOC-4 36 months	IOC-5 48 months	FOC 60 months
Systems <ul style="list-style-type: none"> • Business/ and Operation Support Systems (B/OSS) • Quality of Service, Priority and Preemption (QPP) • Local Control 	<ul style="list-style-type: none"> • PSEN onboarding and Interconnection • Define QPP framework • Contractors systems • Local control Phase 1 • ICAM Phase 1 	<ul style="list-style-type: none"> • QPP on Band 14 • Local control Phase 2 • ICAM Phase 2 	<ul style="list-style-type: none"> • NG911 (See notes) • Multi-cast • Group communication system enablers (GCSE) • Local control Phase 3, dynamic QPP • ICAM Phase 3 	<ul style="list-style-type: none"> • Mission critical systems • Systems evolutions 	<ul style="list-style-type: none"> • Continued systems evolutions 	<ul style="list-style-type: none"> • Contractor(s) delivers all milestones
Hardening and Security	<ul style="list-style-type: none"> • Basic security services 	<ul style="list-style-type: none"> • Enhanced security services • Radio Access Network (RAN) & core hardening Phase 1 	<ul style="list-style-type: none"> • RAN and core hardening Phase 2 	<ul style="list-style-type: none"> • RAN and core hardening Phase 3 	<ul style="list-style-type: none"> • Hardening and security evolutions 	<ul style="list-style-type: none"> • Contractor(s) delivers all milestones

Notes:

- 1) The timing of the features and functions within this timeline could be adjusted per the release and availability of 3GPP releases and its associated features and functionalities.
- 2) IOC-3 reference to Next Generation 9-1-1 (NG911) should consider Section 4.4.6.3, NG911 Services, from the FCC Technical Advisory Board (TAB) report.
- 3) IOC-FOC milestones are applicable to the NPSBN and do not apply to opt-out states. However, when opt-out states become operational, all aspects of their network shall be commensurate with those stated here in the IOC-FOC timeline.