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C Statement of Objectives

The First Responder Network Authority (FirstNet) Nationwide Public Safety Broadband Network (NPSBN) Statement of Objectives (SOO) defines the objectives for the NPSBN as shown herein. FirstNet has adopted an objectives-based approach in this Request for Proposal (RFP), rather than a traditional requirements-driven model, to provide industry the maximum opportunity and flexibility in the development of innovative solutions for the NPSBN. Providing this flexibility enables Offerors to illustrate their intent in their proposals to meet or exceed the high-level objectives outlined below. These objectives establish high-level outcomes and should assist the Offerors in their establishment of the Performance Work Statement, as outlined in Section L, Instructions, Conditions, and Notices to Offerors or Respondents, Section L.3.1.1, Section One – General.

C.1 Background

In February 2012, Congress enacted the Middle Class Tax Relief and Job Creation Act of 2012 (the Act), containing provisions to create an interoperable NPSBN for Public Safety Entities (PSEs). A PSE is defined in Section 6001(26) of the Act as an “entity that provides public safety services” 47.U.S.C. § 1401(26). The Act created FirstNet, an independent authority within the National Telecommunications and Information Administration, and outlined a governing framework for the deployment and operation of the NPSBN based on a single nationwide network architecture.

C.2 Requirements Derivation

The Act required the establishment of a Board to govern the activities of FirstNet. In turn, the FirstNet Board authorized its management team, including a program office, to carry out the operations of the organization, including the development of the SOO contained herein.

In addition, the Act established within the Federal Communications Commission (FCC) an advisory board to create minimum interoperability requirements for the NPSBN. The Technical Advisory Board (TAB) for First Responder Interoperability issued these requirements in 2012 in a report entitled, *Recommended Minimum Technical Requirements to Ensure Nationwide Interoperability for the Nationwide Public Safety Broadband Network* (FCC TAB RMTR) (Section J, Attachment J-3). References to the FCC TAB RMTR throughout this document refer to the original report adopted on June 21, 2012, by the FCC and the associated clarification issued by the TAB and received by the FCC on June 6, 2012. This is also referenced in the FCC’s transmittal on June 21, 2012. Subsequently, the FirstNet Program Management Office (PMO) initiated requirements analysis and acquisition planning. Through this process, it was determined that provisions in the Act necessitated the establishment of a minimum set of requirements for the NPSBN. The PMO also adopted an enterprise architecture approach that identified the need for additional requirements to support an enterprise services capability.

This SOO lists high-level objectives with minimum requirements, allowing latitude for Offerors to define implementation details. This comprehensive, yet flexible approach allows Offerors to be highly innovative in proposing solutions that ensure nationwide interoperability.

C.3 Program Description

FirstNet is seeking a comprehensive network solution covering each of the 56 states and territories. The comprehensive network solution shall provide FirstNet services that include: the deployment and provisioning of a nationwide Core Network (“Core”), and Radio Access Network (RAN) services;

backhaul, aggregation, and the use of national transport networks and operation centers; a device ecosystem; use of network infrastructure; deployable capabilities; use of operational and business support systems; an applications ecosystem; network services; and the integration, maintenance, operational services, and ongoing evolution of these systems required to function fully as an operational wireless 3rd Generation Partnership Project (3GPP) standards-based Long Term Evolution (LTE) NPSBN.

Spectrum Act section 6202(b)(2) indicates that the NPSBN RAN comprises “cell site equipment, antennas, and backhaul ... that are required to enable wireless communications with devices.” The RAN utilizes Band 14 radio spectrum.

FirstNet intends to maximize the NPSBN’s value to public safety while meeting its financial sustainability obligations under the Act. Therefore, solutions may include, for example, but are not limited to (1) “in kind” and/or monetary value provided by the Contractor in consideration of secondary use of FirstNet’s excess network capacity and (2) various partnerships and business arrangements that monetize new public safety market offerings via devices, applications, and other value-added benefits and services that enhance the public safety user experience.

This acquisition considers the value provided for leadership, program management, public safety adoption, customer care, life-cycle management, financial sustainability, coverage, capacity, network architecture, and a product plan, among many other factors. FirstNet does not seek to dictate the deployment strategy of the Offeror or the manner in which parties may or may not seek to align themselves through partnerships, joint ventures, or other vehicles to produce an offer in response to this solicitation. Rather, FirstNet seeks to outline broad objectives that must be accomplished by the Offeror and encourages innovative solutions that will meet and exceed the needs of both FirstNet and public safety. This acquisition is not limited by any particular solution nor to any specific type or character of Offeror, but rather is open to all entities, whether traditional wireless incumbents or new entrants, provided FirstNet’s objectives and minimum requirements are satisfied.

FirstNet must create the NPSBN within the financial parameters outlined in the Act and ensure its financial sustainability through federal funding, user fees, and agreements with the Contractor that will leverage the value of excess network capacity. In addition, FirstNet must provide services at competitive prices given constrained local, state, and federal budgets. In undertaking this task, FirstNet must leverage—to the extent economically desirable—existing infrastructure, obtain optimal value for excess network capacity, and optimize its pricing structure so that FirstNet can deliver a high-quality, affordable broadband network and services to the nation’s PSEs.

Section 6201 of the Act required the FCC to reallocate and grant a license to FirstNet for the use of the 700 MHz D block spectrum and existing public safety broadband spectrum. FirstNet will make available to the Contractor all 20 MHz of the Band 14 spectrum to be used for NSPBN purposes and enter into Band 14 Covered Leasing Agreements (CLAs). The Public Land Mobile Network (PLMN) ID for the NPSBN will be provided by FirstNet. Under a CLA, as contemplated by Section 6208(a)(2) of the Act, the Contractor can monetize all 20 MHz of the spectrum both for primary use by PSEs and secondary use. FirstNet’s 20 MHz of the 700 MHz spectrum offers several unique characteristics including 1) unencumbered nationwide access and use that is not limited to a defined geographical area; 2) Part 90 service rules governing the spectrum, which enables the use of higher powered devices that can improve coverage; and 3) spectrum that does not count against the sub 1 GHz spectrum screen restrictions for wireless carriers, enabling Offerors to bid on other spectrum. These unique characteristics provide the Contractor a valuable finite resource that is not available in any other highly coveted low-band spectrum.

FirstNet will bring to PSEs an interoperable NPSBN with quality of service, priority usage, and preemption. In addition, the NPSBN will be hardened, as needed, from the physical perspective and will be resilient, secure, and highly reliable from the network perspective. Furthermore, the NPSBN will provide to public safety agencies both national and local control over prioritization, preemption, provisioning, and reporting.

The NPSBN and associated devices will be branded as FirstNet, consistent with applicable laws and regulations. While FirstNet will maintain oversight responsibilities for all functions, as outlined in Section J, Attachment J-7, Operational Architecture, it is expected that the Contractor will be responsible for executing marketing, product management; sales; distribution; customer care; communications; strategic partnering; and network deployment, operation, and evolution.

C.4 Scope

Public safety requires a nationwide interoperable broadband network that covers urban, suburban, and rural areas and meets the information and communications technology needs associated with public safety's mission. This acquisition of services includes business, technical, financial, operational, logistical, and program management components. FirstNet requires continuous upgrade and innovation of the NPSBN throughout the life of the contract as LTE and wireless broadband technologies (e.g., 5G, 6G) evolve, as public safety needs expand, and as new capabilities and technologies become accepted and available.

The NPSBN service, and therefore the Contractor's operational management of the NPSBN, shall support the operational needs of public safety, ranging from routine law enforcement, fire, rescue, emergency response, and similar operations through major natural and man-made disasters and homeland security and homeland defense missions.

C.5 Objectives

It should be noted that the objectives for the NPSBN are from the government's perspective and, as such, are nationwide in scope. These objectives ensure that the NPSBN operates as a nationwide interoperable network, guaranteeing seamless interoperability for each of the 56 states and territories.

The FirstNet objectives for NPSBN services follow:

- 1) **BUILDING, DEPLOYMENT, OPERATION, AND MAINTENANCE OF THE NPSBN:** Provide nationwide interoperable public safety broadband network service that ensures network coverage 24 hours a day, 7 days a week, 365 days a year and complies with the technical requirements referenced herein, throughout the RFP and its attachments.
- 2) **FINANCIAL SUSTAINABILITY:** Maximize the impact of government funding and leverage all 20 MHz of Band 14 to build, deploy, operate, and maintain the NPSBN to serve public safety and for secondary use while ensuring a self-sustaining business model including making payments to FirstNet as identified in Section B, Supplies or Services and Prices/Costs.
- 3) **FIRST RESPONDER USER ADOPTION:** Establish (i) compelling, differentiated, and competitively priced service packages and (ii) sales, distribution, and marketing capabilities to ensure adoption of FirstNet products and services by a majority of eligible PSEs within four years of award (refer to Initial Operational Capability [IOC]-5 in Section J, Attachment J-8, IOC/FOC Target Timeline). NPSBN

services, at a minimum, shall include data, voice services, messaging, machine-to-machine, virtual private network (VPN), video, unique public safety mission-critical services, and location services.

- 4) **DEVICE ECOSYSTEM:** Provide and maintain a 3GPP-compliant, Band-14-capable device portfolio that evolves with the 3GPP standards and provides functionality and price points that meet the needs of the FirstNet public safety customer base and drive substantial subscribership. FirstNet anticipates NPSBN public safety customers will expect mass market as well as ruggedized devices that are capable of gloved, one-handed, or hands-free operation as well as those capable of multimedia and high-definition data transmission both from humans and machine-based sensors. The ecosystem shall support Bring Your Own Device (BYOD) as well as, at a minimum, devices that:
 - Operate seamlessly on the NPSBN and roam onto networks, including non-Band 14 commercially available networks
 - Interoperate with FirstNet’s applications ecosystem
 - Support associated Universal Integrated Circuit Card (UICC) features and options, including the ability to home and, if applicable, roam on to multiple networks while prioritizing them appropriately
 - Support secure containers to isolate FirstNet applications
 - Operate seamlessly with a comprehensive device management system to allow remote provisioning and control
- 5) **APPLICATIONS ECOSYSTEM:** Provide an applications ecosystem that supports the NPSBN with capabilities and services relevant to public safety. The ecosystem shall include, at a minimum:
 - An evolving portfolio of mobile and enterprise applications, as well as cloud services
 - An applications development platform
 - A vibrant third-party applications developer community
 - An applications store
 - Local control of users, subscriptions, services, and applications
 - User friendly federation of identity management
 - Data, application, and resource sharing across diverse PSEs
 - Core service and application delivery platforms
 - Data and applications security and privacy compliance across local, tribal, state, regional, and federal users (additional information in objective 9 below and Section J, Attachment J-10, Cybersecurity)
- 6) **ACCELERATED SPEED TO MARKET:** Achieve operational capabilities in accordance with the schedule and feature sets denoted in Section J, Attachment J-8, IOC/FOC Target Timeline, which may include an initial provision for operating the NPSBN using existing wireless services (similar to that of a mobile virtual network operator [MVNO]), Band 14 capabilities, significant subscribership to the NPSBN, and substantial rural coverage milestones in accordance with the IOC/FOC milestones.
- 7) **USER SERVICE AVAILABILITY:** Provide a broadband service with availability of 99.99%, exclusive of planned maintenance windows, as measured in a rolling 12-month window within each reporting area. Offerors should consider areas that contain mission-critical infrastructure as needing enhanced hardening and increased availability. Service restoration activities shall be undertaken with the highest available priority but shall not exceed two hours for any impaired service. For restoration of service via temporary or secondary service capabilities, the temporary or secondary service must be transparent to the users and provide similar capability.

- 8) **SERVICE CAPACITY:** Provide service capacity to support geographically dispersed public safety usage (in accordance with FCC TAB RMTR 4.4.6.5, Capacity) throughout the life of the contract. Section J, Attachment J-1, Coverage and Capacity Definitions, includes a map noting first responder density and current mobile data usage. This will serve as a baseline for public safety data demand, and mobile data demand is expected to increase throughout the life of the contract.
- 9) **CYBERSECURITY:** Provide cybersecurity solutions using the extensive set of industry standards and best practices contained in the International Organization for Standardization (ISO)/International Electrotechnical Commission (IEC) security guidance for networks (ISO/IEC 27033, ISO/IEC 17099, and ISO/IEC 27002), FCC TAB RMTR, and 3GPP specifications (TS23.401, TS33.102, TS33.210, TS33.310, TS33.401, and TS33.402). Provide encryption capabilities to support federal, state, and local public safety users. Protective measures will need to be applied end to end across the FirstNet enterprise environment and will include securing user equipment (UE), applications running on UE, the RAN, and the Core network. Additionally, considerations to support Identity, Credential, and Access Management in a user friendly, secure, federated fashion will be key to any successful cybersecurity solution (details can be found in Section J, Attachment J-10, Cybersecurity).
- 10) **PRIORITY SERVICES:** Provide a solution that allows the assignment of quality of service, priority, and preemption (QPP) parameters to user profiles using the standard service control parameters defined by 3GPP and the Internet Engineering Task Force, including Access Class, Quality Class Indicator (QCI), Allocation and Retention Priority (ARP), and Differentiated Service (Diff Serve). Allow control and management of static and dynamic assigned QPP parameters for public safety users and the ability to change user profiles in real time in response to incidents. User profile assignments and changes should be managed locally by PSEs.
- 11) **INTEGRATION OF STATE-DEPLOYED RANS:** Integrate the NPSBN across state and territory deployed RANs so that users operate without service interruptions, including when crossing RAN service area boundaries. Additional details are provided in Section J, Attachment J-4, System and Standards Views.
- 12) **INTEGRATION OF EXISTING COMMERCIAL/FEDERAL/STATE/TRIBAL/LOCAL INFRASTRUCTURE TO SUPPORT NPSBN SERVICES:** Integrate existing assets— where economically desirable in accordance with Section 6206 of the Act and as further interpreted in FirstNet's request for public comments — with an emphasis on assets owned and operated by rural telecommunications providers.
- 13) **LIFE-CYCLE INNOVATION:** Evolve the NPSBN solution—including products and services—and incorporate 3GPP LTE standards as they evolve and mature throughout the life of the contract, in accordance with the FCC TAB RMTR, the Act, including in particular Section 6206(c)(4), and the attachments in Section J.
- 14) **PROGRAM AND BUSINESS MANAGEMENT:** Provide program management for the NPSBN in accordance with the Project Management Institute or other applicable industry standards, Information Technology Infrastructure Library (ITIL®) or equivalent, and Government Accountability Office cost guidelines.
- 15) **CUSTOMER CARE AND MARKETING:** Market NPSBN products and services to public safety users in all states, territories, and tribal lands. Provide highly responsive and quality customer acquisition, service, and customer care. Support development and refinement of state plans, in consultation with FirstNet, and an online tool for their delivery. Provide life-cycle service and support to all users.

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- 16) **FACILITATION OF FIRSTNET'S COMPLIANCE WITH THE ACT AND OTHER LAWS:** Perform all objectives and provide information and services in a manner that facilitates FirstNet's compliance with its statutory requirements under the Act and all other applicable laws.

C.6 State Coverage Objectives

The Act (Section 6206(b)(3)) requires a phased deployment of the NPSBN with substantial rural coverage milestones as part of each phase. Deployment phases and substantial rural coverage milestones are outlined in Section J, Attachment J-8, IOC/FOC Target Timeline. The state NPSBN coverage objectives are contained in image file (.png) format (Section J, Attachment J-1, Coverage and Capacity Definitions).

FirstNet is required to submit a state plan to each of the 56 states and territories. The Contractor will not be required to meet coverage objectives for state-deployed RANs. States deploying their own RANs will be required to comply with Section J, Attachment J-4, System and Standards Views, and applicable Spectrum Manager Lease Agreement(s).

C.7 Minimum Technical Requirements

The Act (Section 6203(c)) required the FCC TAB to develop the minimum technical requirements for the NPSBN. On June 21, 2012, the FCC approved by Order (FCC 12-68) the FCC TAB RMTR report. The Offeror's solution shall comply with these minimum requirements (Section J, Attachment J-3, FCC TAB RMTR), including the clarification issued by the TAB on June 6, 2012 (also referenced in the FCC's 12-68 order).

The Act requires FirstNet to comply with 3GPP LTE standards and open, non-proprietary, commercially available standards. Contractor-provided NPSBN services shall comply with Section J, Attachment J-4, System and Standards Views.

C.8 Performance Standards

The Offeror shall propose service functions consistent with FirstNet's objectives, and propose necessary performance standards, metrics, and deliverables as defined in Section J, Attachment J-6, Quality Assurance Surveillance Plan, and Section F, Deliverables and Performance.

C.9 Delivery Schedule

The Contractor shall consider the target milestone delivery schedule as outlined in Section J, Attachment J-8, IOC/FOC Target Timeline. This milestone delivery schedule is consistent with the current 3GPP release schedule. Beyond FOC, the Contractor and FirstNet require an ongoing roadmap and product management process that allows for joint agreement on features, timing, and pricing.