



# Terms of Reference

*Special Notice D15PS00295 – Nationwide Public  
Safety Broadband Network (NPSBN)*

04/27/2015

## 1 Document Overview

This document contains the Terms of Reference that FirstNet may use in the solicitation and associated documents.

## 2 Terms of Reference

Term	Definition
<b>3GPP</b>	3rd Generation Partnership Project
<b>The Act</b>	The Middle Class Tax Relief and Job Creation Act of 2012
<b>Analog</b>	An analog signal is one in which a base carrier's alternating current frequency is modified in some way, such as by amplifying the strength of the signal or varying the frequency, in order to add information to the signal. Broadcast and telephone transmission have conventionally used analog technology.
<b>API</b>	An Application Program Interface specifies a software component in terms of its operations, inputs, outputs, and underlying types. It is used to provide a basis for accessing, controlling, or utilizing the component.
<b>APN</b>	Access Point Name
<b>Application</b>	An application is a software program, or group of programs, designed to perform an activity or enterprise function. Applications can exist on mobile devices, workstations, or servers. General purpose applications include items such as database programs, word processors, Web browsers, and spreadsheets. Applications for public safety users include items such as situational awareness, incident management, and interoperable communications.
<b>Application Ecosystem</b>	An innovative set of Band 14 devices and applications along with the supporting ecosystem, such as a development and testing environment, an app store and vibrant developer community.
<b>ARP</b>	Allocation Retention Priority (low # better)
<b>AVL</b>	Automatic Vehicle Location systems typically locate and track vehicles using GPS, and the transmission mechanism is SMS, GPRS, a satellite or terrestrial radio from the vehicle to a radio receiver. This data, from one or more vehicles, may then be collected by a vehicle tracking system for a picture of vehicle travel.
<b>B/OSS</b>	Business and Operations Support Systems
<b>Backhaul</b>	In a telecommunications network the backhaul portion of the network comprises the intermediate links between the core network, or backbone network and the subnetworks at the "edge" of the network. In FirstNet's case, the backhaul should be considered a portion of the radio access network at the local level.
<b>Band 14</b>	A commercial Long Term Evolution frequency range of 20 (10 X 10) MHz of spectrum in the 700 MHz band dedicated to public safety. Specifically, 788 – 798 MHz for the uplink (handset/UE transmit) and 758 – 768 for the downlink (base station transmit).

Term	Definition
<b>CAD</b>	Computer Aided Dispatch typically consists of a suite of software packages used to initiate public safety response, dispatch, and to maintain the status of responding resources in the field. It is generally used by emergency communications dispatchers, call-takers, and 911 operators in centralized, public-safety call centers, as well as by field personnel.
<b>CALEA</b>	Communications Assistance for Law Enforcement Act
<b>CAR</b>	Corrective action report
<b>CATL</b>	CTIA Authorized Test Labs
<b>CDRL</b>	Contract Data Requirements List
<b>CET</b>	Contractual engineering task
<b>CMAS</b>	Commercial mobile alert system
<b>CO</b>	Contracting Officer
<b>COML</b>	Communications Unit Leader
<b>COR</b>	Contracting Officer Representative
<b>Core</b>	<p><i>The Middle Class Tax Relief and Job Creation Act</i> of 2012 (47 U.S.C. 1422(b)(1)) defines the core network as:</p> <ul style="list-style-type: none"> <li>(A) Consists of national and regional data centers, and other elements and functions that may be distributed geographically, all of which shall be based on commercial standards; and</li> <li>(B) Provides the connectivity between – <ul style="list-style-type: none"> <li>(i) the radio access network; and</li> <li>(ii) The public Internet or the public switched network, or both</li> </ul> </li> </ul> <p>In its Notice and Public Comment released September 17, 2014, FirstNet defines core as “including without limitation the standard Evolved Packet Core elements under the 3rd Generation Partnership Project (“3GPP”) standards (including the Serving and Packet Data Network Gateways, Mobility Management Entity, and the Policy and Charging Rules Function), device services, location services, billing functions, and all other network elements and functions other than the radio access network.”</p>
<b>COTS</b>	Commercial Off The Shelf
<b>Coverage</b>	The geographic area where a base station and mobile device can reliably communicate with each other above a minimum designed data rate.
<b>Covered Leasing Agreement or CLA</b>	<p>Under the Act, (47 U.S.C. 1428(a)(2)), a “covered leasing agreement” (CLA) means a written agreement resulting from a public-private arrangement to construct, manage, and operate the nationwide public safety broadband network between the First Responder Network Authority and secondary user to permit –</p> <ul style="list-style-type: none"> <li>(i) Access to network capacity on a secondary basis for non-public safety services; and</li> <li>(ii) The spectrum allocated to such entity to be used for commercial transmission along the dark fiber of the long-haul network of such entity.</li> </ul>

Term	Definition
<b>COWs</b>	A Cell On Wheels is a mobile cell site that consists of a cellular antenna tower and electronic radio transceiver equipment on a truck or trailer, designed to be part of a cellular network. COWs are used to provide expanded cellular network coverage and/or capacity at special events such as major sporting events, or in disaster areas where cellular coverage either was never present (e.g., in a wilderness area) or was compromised by the disaster (e.g., in the Gulf Coast after Hurricane Katrina).
<b>CPARS</b>	Contractor performance assessment reporting system
<b>CRM</b>	Customer Relationship Management
<b>CTIA</b>	The Wireless Association, originally known as the Cellular Telephone Industries Association, is an international industry trade group representing all wireless communication sectors including cellular, personal communication services, and enhanced specialized mobile radio.
<b>Customer lifecycle management</b>	The functions associated with providing the full suite of customer lifecycle activities required to service Public Safety customers effectively including, but not limited to, product and services sales and distribution, marketing, customer care, billing, product management, product development, end-user device logistics, churn mitigation, and special pricing support.
<b>Deployable</b>	Transportable equipment principally in a vehicle to provide network services to users when augmenting network capacity or coverage is required for planned or unplanned events. Intended primarily for remote and wilderness areas where little infrastructure exists or areas where existing infrastructure has been compromised.
<b>Device(s)</b>	A device is an access point to the network, and may be as simple as a modem on a water meter or as complex as a tablet computer. Devices can provide direct interfaces for first responders, such as a smartphone would, or they can be a gateway to the network for another device, such as the modems in vehicles that let mobile data terminals access the network.
<b>DHS</b>	Department of Homeland Security
<b>DM</b>	Device Management
<b>DOC</b>	Department of Commerce
<b>DoS</b>	Denial of Service
<b>DSCP</b>	Differentiated services code point
<b>eMBMS</b>	evolved Multimedia Broadcast Multicast Service
<b>EMS</b>	Element management system
<b>EMS</b>	Emergency Medical Services
<b>eNB</b>	Enhanced Node Base station or eNodeB is base station hardware connected to the mobile network that communicates directly with mobile devices; this is similar to a Base Transceiver Station (BTS) in GSM networks. Traditionally, a Node B has minimum functionality, and is controlled by an RNC (Radio Network Controller). However, with an eNB, there is no separate controller element. This simplifies the architecture and allows faster response times.
<b>EPC</b>	Enhanced Packet Core
<b>Excess network capacity</b>	Unused capacity in the network. Under the Act, FirstNet may receive payment for its use
<b>FAR</b>	Federal Acquisition Regulation
<b>FCAPS</b>	Fault, Configuration, Accounting, Performance and Security

Term	Definition
<b>FCC</b>	Federal Communications Commission. The U.S. government agency with regulatory authority over the communications industry.
<b>FEMA</b>	Federal Emergency Management Agency. An agency of the Department of Homeland Security whose mission is to support citizens and first responders to build, sustain, and improve the capability to prepare for, protect against, respond to, recover from, and mitigate all hazards. FEMA's National Incident Management System (NIMS) defines the concept of interoperability.
<b>FN or FirstNet</b>	First Responder Network Authority
<b>FOC</b>	Final Operating Capability. The activity has reached full maturity with all users able to exercise all intended capabilities as defined in the statement of work.
<b>GBR</b>	Guaranteed Bit Rate
<b>GPS</b>	Global Positioning System
<b>GSMA</b>	Groupe Speciale Mobile Association
<b>GWCN</b>	Gateway core network
<b>HSS</b>	Home Subscriber Server
<b>ICS</b>	Incident Command System
<b>IaaS</b>	Infrastructure as a service
<b>IdaaS</b>	Identity-as-a-Service
<b>IMS</b>	IP Multimedia Subsystems - is an architectural framework for delivering internet protocol (IP) multimedia to mobile users. It was originally designed by the wireless standards body 3rd Generation Partnership Project (3GPP), and is part of the vision for evolving mobile networks beyond GSM.
<b>Interoperability Board Report</b>	Recommendations of a panel created by the FCC concerning specifications and technical requirements for the NPSBN.
<b>IOC</b>	Initial Operational Capability. The state achieved when a capability is available in its minimum usefully deployable form as defined in the statement of work.
<b>IPAWS</b>	Integrated public alert and warning system
<b>IP</b>	Internet Protocol. The Internet Protocol is the principal communications protocol in the Internet protocol suite for relaying datagrams across network boundaries. Its routing function enables internetworking, and essentially establishes the Internet
<b>IVR</b>	In-Vehicle Router
<b>KPI</b>	Key Performance Indicators
<b>LMR</b>	Land Mobile Radio. A wireless communications system intended for use by users in vehicles (mobiles) or on foot (portables). Such systems are used by emergency/first responder organizations, public works organizations, or companies with large vehicle fleets or numerous field staff.
<b>LTE</b>	Long Term Evolution. Commonly marketed as 4G LTE, it is a standard for wireless communication of high-speed data for mobile phones and data terminals. The standard is developed by the 3GPP (3rd Generation Partnership Project) and is specified in its Release 8 document series, with enhancements described in later releases.
<b>M2M</b>	Machine-To-Machine
<b>MBMS</b>	Multimedia Broadcast Multicast Service
<b>MCPTT</b>	Mission Critical Push To Talk
<b>MCU</b>	Mobile Communication Unit

Term	Definition
<b>MDM</b>	Mobile Device Management
<b>Middle Class Tax Relief and Job Creation Act of 2012</b>	Pub.L. 112–96, H.R. 3630, 126 Stat. 156, enacted February 22, 2012, with the portions of Title VI related to FirstNet codified at 47 U.S.C. §§ 1401-1457. This Act is FirstNet’s enabling legislation.
<b>MIL-STD and MIL-STD 810</b>	A United States Military Standard that emphasizes tailoring equipment’s environmental design and test limits to the conditions that it will experience throughout its service life. Public safety user devices today nearly always require compliance with MIL-STD durability and environmental guidelines found in MIL-STD-810.
<b>MIS</b>	Management information systems
<b>Mission Critical</b>	Any factor of a system (equipment, process, procedure, software, etc.) whose failure will result in the failure of mission operations.
<b>MME</b>	Mobility Management Entity
<b>MOCN</b>	Multi-Operator Core Network
<b>MRC</b>	Monthly Recurring Charge
<b>MRD</b>	Marketing Requirements Document
<b>MVNO</b>	Mobile Virtual Network Operator. An MVNO is a wireless communications services provider that does not own the wireless network infrastructure over which it provides services to its customers. An MVNO enters into a business agreement with a mobile network operator to obtain bulk access to network services at wholesale rates, then sets retail prices independently. An MVNO may use its own customer service, billing support systems, marketing and sales personnel.
<b>NIMS</b>	National Incident Management System. The National Incident Management System is a proactive approach to guide government departments and agencies, nongovernmental organizations, and the private sector to manage incidents involving all threats and hazards—regardless of cause, size, location, or complexity—in order to reduce loss of life, property and harm to the environment
<b>NIST</b>	National Institute of Standards and Technology
<b>NLETS</b>	National Law Enforcement Telecommunications System is a network for the exchange of law enforcement, criminal justice, and public safety-related information.
<b>NOC</b>	Network Operations Centers are implemented by communications companies, business organizations, public utilities, universities, and government agencies that oversee complex networking environments requiring high availability. NOC personnel are responsible for monitoring one or many networks for certain conditions that may require special attention to avoid degraded service. Organizations may operate more than one NOC, either to manage different networks or to provide geographic redundancy in the event of one site becoming unavailable.
<b>NPSBN</b>	Nationwide Public Safety Broadband Network. FirstNet’s mandate, as legislated in the Act, is to establish a nationwide public safety broadband network (NPSBN) based on a single, national network architecture
<b>NPSTC</b>	National Public Safety Telecommunications Council
<b>NTIA</b>	National Telecommunications and Information Administration

Term	Definition
<b>O&amp;M</b>	Operations and Maintenance. These activities are related to the performance of routine, preventive, predictive, scheduled, and unscheduled actions aimed at preventing equipment failure or decline with the goal of increasing efficiency, reliability, and safety.
<b>OMA</b>	Open Mobile Alliance Management
<b>OMA-DM</b>	Open Mobile Alliance-Device Management – the specification is designed for management of mobile devices. Device management is intended to support provisioning, device configuration, software upgrades, fault management
<b>Opt-in State</b>	A state that does not elect to conduct its own deployment of a RAN in such state in accordance with 47 U.S.C. 1442(e)(2)(A).
<b>Opt-out State</b>	A state that elects to conduct its own deployment of a RAN in such state in accordance with 47 U.S.C. 1442(e)(2)(B).
<b>PaaS</b>	Platform as a service
<b>PAN</b>	Personal Area Network
<b>PAR</b>	Performance assessment report
<b>PDN</b>	Packet Data Network
<b>PDP</b>	Policy decision point
<b>PEP</b>	Policy enforcement point
<b>P-GW</b>	Packet Gateway
<b>PIP</b>	Potentially Interested Parties
<b>PIV-I</b>	Personal Identity Verification-Interoperable
<b>PLMN</b>	Public Land Mobile Network
<b>PM</b>	Program manager
<b>POC</b>	Point of contact
<b>PRD</b>	Product Requirements Document
<b>Preemption</b>	A network capability that during an emergency permits authorized high priority traffic, e.g., coming from public safety or first responders, to take over network resources assigned to lower priority traffic, e.g., private traffic.
<b>Prime Contractor</b>	A contract award winner that may perform the work alone or with subcontractors.
<b>ProSe</b>	Proximity Services
<b>PS</b>	Public Safety
<b>PSAC</b>	Public Safety Advisory Committee
<b>PSAP</b>	Public Safety Answering Points
<b>PSE</b>	Public Safety Entity An entity that provides public safety services
<b>PSEN</b>	Public Safety Enterprise Network. A network dedicated to public safety users and their specific requirements and applications
<b>PTT</b>	Push To Talk
<b>Public Safety User</b>	User of the NPSBN that provides public safety services.
<b>QAPC</b>	Quality assurance program coordinator
<b>QASP</b>	Quality assurance surveillance plan
<b>QCI</b>	QoS Class Identifier
<b>QoS</b>	Quality of Service is the overall performance of a telephony or data network, particularly as seen by the users of the network. To measure quality of service quantitatively, several related aspects of the network service are often considered, such as error rates, bandwidth, throughput, transmission delay, availability, and jitter.
<b>QPP</b>	Quality of Service, Priority and Preemption

Term	Definition
<b>RAN</b>	<p>Under the provision in the Act,(47 U.S.C. 1422(b)(2)) a radio access network:</p> <p>“(A )Consists of all cell site equipment, antennas, and backhaul equipment, based on commercial standards, that are required to enable wireless communications with devices using the public safety broadband spectrum; and</p> <p>(B) Shall be developed, constructed, managed, maintained, and operated taking into account the plans developed in the State, local, and tribal planning and implementation grant program under section 6302(a).”</p> <p>In the Public Notice and Comment released September 17, 2014, FirstNet “proposes to define the radio access network in accordance with this provision, commercial standards, and the relevant sections of the Interoperability Board Report, as consisting of the standard E-UTRAN elements (including the eNodeB).”</p>
<b>Redundancy</b>	Redundancy is the duplication of critical components or functions of a system with the intention of increasing reliability of the system usually in the form of a backup or fail-safe.
<b>Resiliency</b>	Resiliency is the ability to provide and maintain an acceptable level of service in case of infrastructure breakdown or faults to normal operations
<b>Retainability</b>	Also known as the dropped-call rate, retainability is one of the key performance indicators (KPI) used by the network operators to assess the performance of their networks. It has direct influence on customer satisfaction with the service provided by the network and its operator.
<b>RFI</b>	Requests For Information. A Request For Information (RFI) is a standard business process whose purpose is to collect written information about the capabilities of various suppliers.
<b>RFP</b>	Request For Proposal is a solicitation made by an agency or company interested in procurement of a commodity, service, or equipment
<b>Roaming</b>	Roaming is a technology to ensure a traveling wireless device (typically a cell phone) is kept connected to a network without breaking the connection. When a wireless user travels outside the geographical coverage area of its home network, he or she can still make and receive voice calls, send and receive data, or access other services.
<b>RRC</b>	Radio Resource Control
<b>SaaS</b>	Software as a Service
<b>SAE</b>	System Architecture Evolution
<b>SAFECOM</b>	SAFECOM (DHS) was started after the terrorist attacks of September 11, 2001 to improve public safety interoperability, allowing emergency responders to communicate effectively before, during, and after emergencies and disasters. SAFECOM’s mission is to improve designated emergency response providers’ inter-jurisdictional and inter-disciplinary emergency communications interoperability through collaboration with emergency responders across federal State, local, tribal, and territorial governments, and international borders.
<b>Satellite</b>	A satellite is an orbiting platform used for communications
<b>SDK</b>	Software Development Kit. A set of software development tools that allows for the creation of applications for a certain software package, software framework, hardware platform, computer system, operating system, or similar development platform. Typically an SDK includes one or more APIs, programming tools, and documentation.

Term	Definition
<b>SDP</b>	Service Delivery Platform
<b>Security Operation Center</b>	A Security Operations Center (SOC) is a centralized unit that deals with security issues, on an organizational and technical level. An SOC within a building or facility is a central location from where staff supervises the site, using data processing technology. Typically, it is equipped for access monitoring, and controlling of lighting, alarms, and vehicle barriers.
<b>SIM</b>	Subscriber Identity Module
<b>SIP</b>	Session Initiation Protocol - is a telecommunications protocol for signaling and controlling multimedia communication sessions.
<b>SLA</b>	Service Level Agreement is an agreement between FirstNet and opt-out states that defines each parties' responsibilities, and procedures, needed to ensure that FirstNet's service requirements are met.
<b>Smartphone</b>	A mobile device with more advanced computing capability and connectivity than basic feature phones. The features can typically include personal digital assistant, a media player, a digital camera, GPS navigation touchscreen, web browsing Wi-Fi, 3rd-party apps, and others.
<b>Software Container</b>	Software containers are a method of separating an application from the operating system and the physical infrastructure it uses to connect to the network. The container virtualizes the instance of the application.
<b>SOO</b>	Statement Of Objectives
<b>SoR</b>	Statement of Requirements
<b>SOW</b>	Statement Of Work
<b>Spectrum</b>	Electromagnetic spectrum refers to the full range of frequencies of electromagnetic radiation. The radio spectrum is the part of the electromagnetic spectrum corresponding to frequencies lower below 300 GHz. The microwave spectrum corresponds to frequencies between 300 MHz (0.3 GHz) and 300 GHz. Band 14, the frequency dedicated to public safety lies in this spectrum.
<b>SS</b>	Services summary
<b>Subscriber Adoption</b>	The rate at which new users purchase an appropriate device, subscribe to the network services, and/or begin using network services or capabilities.
<b>SyncE</b>	Synchronous Ethernet is an ITU-T standard for computer networking that facilitates the transference of clock signals over the Ethernet physical layer.
<b>Systems Integrator</b>	A person or company that specializes in bringing together component subsystems into a whole and ensuring that those subsystems function together. Systems integrators may work in many fields but the term is generally used in the IT field, the defense industry, or in media.
<b>Territories (U.S.)</b>	These include Puerto Rico, Guam, American Samoa, Northern Mariana Islands, and the Marshall Islands
<b>Tribal</b>	Of or pertaining to the 566 U.S. federally recognized tribes.
<b>Trustmarks</b>	Trustmarks are the common subset of FirstNet's and a PSE's security policies to allow them to share identity-related information. A common way to describe these security policies has yet to be defined and is an initiative being under taken at a national level within the National Strategy for Trusted Identities in Cyberspace (NSTIC) presidential initiative.
<b>TSP</b>	Telecommunications Service Priority
<b>UICC</b>	Universal Integrated Circuit Card

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Term	Definition
<b>VoLTE</b>	Voice over LTE