Government of India
Ministry of Home Affairs
Police Modernization Division
(PM-II Section)
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Subject: Extension of timeline for comments/feedback to the Concept Note on Design of Network Architecture for Broad Band-Public Protection and Disaster Relief (BB-PPDR) System - reg.

Please refer to this Ministry's I.D. Note of even Number dated 21.10.2026 (copy enclosed) circulating the Concept Note on **Design of Network Architecture for Broad Band-Public Protection and Disaster Relief (BB-PPDR) System** for the comments/inputs of stakeholders by 05.11.2026. It is stated that the matter has been reviewed keeping in view the facts on record and the timeline for submitting comments/inputs by stakeholders on the said Concept Note has been **extended by this Ministry further i.e. upto 20.11.2026**.

2. The DCPW is requested to circulate the same to all relevant stakeholder through email/dak and uploading the same on the DCPW website. The comments/inputs of the stakeholders on the Concept Note may be accepted upto **20.11.2026.**

3. This issues with the approval of the competent authority.

(Rajesh Kumar)
Under Secretary to the Govt. of India
Tel No. 011-23072568
e-mail: rajesh.kumar96@nic.in

Director, DCPW, MHA, CGO Complex, New Delhi

MHA I.D. Note No. 25018/01/2023-PM-II(Part-1) dated 05.11.2026

Copy to :

Under Secretary (IT Cell & DRR), MHA - with the request to upload on the MHA Website (Home/Documents/Orders and Circulars) for inviting comments from all concerned stakeholders by 20.11.2026.

Government of India
Ministry of Home Affairs
Police Modernization Division
(**PM-II Section**)
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Subject: Circulation of Concept Note on Design of Network Architecture for Broad Band-Public Protection and Disaster Relief (BB-PPDR) System - reg.

The Competent Authority has approved a Concept Note on the above subject for seeking comments of the stakeholders.

2. The DCPW is requested to circulate the same to all relevant stakeholders through email/dak and uploading the same on the DCPW website. The comments/inputs of the stakeholders on the Concept Note may be accepted **upto 05.11.2026**.

3. This issues with the approval of the competent authority.

(Rajesh Kumar)
Under Secretary to the Govt. of India
Tel No. 011-23072568
e-mail: rajesh.kumar96@nic.in

Director, DCPW, MHA, CGO Complex, New Delhi

MHA I.D. Note No. 25018/01/2023-PM-II(Part-1) dated 21.10.2026

Copy to :

Under Secretary (IT Cell & DRR), MHA - with the request to upload on the MHA Website (Home/Documents/Orders and Circulars) for inviting comments from all concerned stakeholders.

CONCEPT NOTE FOR STAKEHOLDER CONSULTATION

Design of Network Architecture for the
Broadband Public Protection and Disaster Relief (BB-PPDR) System

1. Background

The Ministry of Home Affairs purposes to implement Pan India dedicated Broadband Public Protection and Disaster Relief (BB-PPDR) Network to provide Mission Critical Push-to-Talk (MCPTT), Mission Critical Data and Mission Critical Video capabilities to State/UTPolice, Central Armed Police Forces (CAPFs) and other public safety users across the country such as disaster management, fire services, medical services etc. The network is envisaged to leverage existing mobile operator infrastructure (Radio Access Network) while having a dedicated Mission Critical application server, ruggedised handsets and Dispatchers.

MHA has selected 10 pilot locations at presentfor field implementationviz. Andaman & Nicobar Islands, Amritsar, Bastar, Bengaluru, Guwahati, Ladakh, Lakshwadeep, Mumbai, Rudraprayag& Vishakhapatnam, which will be funded by MHA. A number of architectural choices — spanning core network topology, core-to-RAN connectivity, spectrum strategy, choice of 4G/5G and MCX deployment — remain open and are being finalised in consultation with technical experts and international best practices.

Before MHA finalises the reference architecture for the BB-PPDR, it intends to seek structured feedback from the industry and technical community on the available design options, their comparative merits, cost efficiency and their suitability to Indian conditions.

2. Purpose of this Consultation

This concept note is issued to solicit informed, technical feedback from:

- Core network (EPC/5GC) OEMs and system vendors
- MCX server / Mission Critical Communications (MCPTT/MCData/MCVideo) and Dispatcher application OEMs / Vendors
- OEMs / Vendors of MCX Handsets and Mobile Device Management (MDM)
- Cybersecurity and encryption experts (network, device and communication security)
- Telecom Service Providers (TSPs) /Mobile Network Operators
- System integrators with experience in public-safety or critical-communication network deployments

Respondents are requested to assess the architectural options set out in Section 6, and provide a reasoned view — with pros, cons and cost/operational implications — on which option(s) are best suited for deployment in India, taking into account India's scale vast geography , population density, weather conditions,coverage etc., existing telecom infrastructure, security requirements and cost economics.

3. Broad Requirements

The Pan India BB-PPDR Communication Network solution must satisfy the

following broad essential requirements:

3.1 Simple

The solution shall be user-friendly, to enable a non-technical field officer tooperate the Dispatcher / Handset, MC-PTT/Video/Data application, and body-worn camera with minimal training, under field and stress conditions.

3.2 Robust and Rugged Devices

Handsets and associated field devices shall function reliably under adverse weather and field conditions, including extreme temperatures, rain, humidity, dust, immersion, and shall meet appropriate Ingress Protection (IP) and military-grade ruggedness standards.

3.3 Resilient Solution

The network shall be restorable and re-deployable within an Mean Time to Restore (MTTR) of one (1) hour fromany catastrophic event, through rapidly deployablesolutionssuch asDrone BTS, Balloon BTS, tethered/untethered droneswith BTS, Cell on Wheel (CoW) supported via satellite links, so as to ensure continuity of Mission Critical communications to PPDR agencies in the affected area.

3.4 Broad Coverage & Congestion Management

The solution must provide broad geographic coverage acrossPan India, be immune to network congestion, and ensure overall network availability inter-alia, considering the following parameters.

• **Coverage:** All four TSPs together cover majority of the country's geographical area, with adequate coverage in most areas of operational significance. For disaster situations where existing towers may be rendered non-functional or in uncovered or greenfield areas, rapid-deployable secondary solutions such as CoW(Cell on Wheels) BTS, Drone BTS with satellite backhaul, and Direct-to-Mobile (D2M) services shall be explored and proposed.

•**Congestion management:**To be addressed through provisioning of an appropriateQPP (Quality of Service, Priority and Pre-emption)through QCI / 5QI(QoS Class Identifier / 5G QoS Identifier), ARP(Allocation and Retention Priority) andACB / UAC (Access Class Barring / Unified Access Class), Slicing mechanism in the network, ensuring PPDR traffic is prioritised over, and can pre-empt non-PPDR commercialtraffic wherever necessary.

• **Resiliency and SLA enforcement:** The Primary TSP(s) shall be mandated to restore the network within prescribedMTTRof One (01) Hour, enforced through strict Service Level Agreements (SLAs) applicable to the finalised deployment approach.

4. Overview of BB-PPDR Components

The BB-PPDR system comprises the following major components. Ownership/deployment responsibility for each is indicated as currently envisaged; feedback on the underlying design choices is invited in Section 6.

Component	Ownership/ Deployment Responsibility	Remarks
Core Network	Government (dedicated)	Dedicated vs Shared commercial core under evaluation
RAN	Shared with existing TSPs / selected TSPs	Towers of selected TSPs to be leveraged
MCX Server	Government	Co-located with PPDRCore; not used for TSP commercial traffic
Handsets	Government	Say approx.30 lakhs ruggedised 4G/5G handsets envisaged
Core-to-core connectivity	To be decided	Responsibility for inter-core linkage to be finalised
Core security & monitoring	Government	Encryption, network monitoring and audit
Dispatcher	Government	Responsible for supervision of users' Group, location-based services, etc.; may be deployed ateach Hqrs. of State/UTPolice/CAPFs/Disaster Relief agencies.
Spectrum	Government	Dedicated spectrum owned by Government vs Spectrum available with TSP.

5. Key Architectural Choices — Feedback Sought

5.1 Core Network: Dedicated vs. Commercial; Single vs. Multiple

A dedicated core can offer greater operational security compared to a sharingcommercial TSP core. Multiple, regionally distributed dedicatedcore — failure of one core affects only that region — a distributednetwork architecture and scalabilitycan improve resilience.

Points on which feedback is specifically invited:

- Should the Core be dedicated (physically separate), Sharedor logically separated within a commercial TSP's infrastructure?
- Should India adopt a single national Core, or multiple regionally distributed Cores?
- How should Core sizing (number of servers) be determined relative to projected user load (of the order of 30 lakh users)?
- If BB-PPDR interfaces with a single TSP, the Core can in-principle be located independently; if it interfaces with multiple TSPs, proximity to each TSP's core becomes a design consideration. What is the recommended approach?
- What scalability provisions should be built in for future user/traffic growth?
- What are the indigenous Core Equipment and Make in India options available?

5.2 Radio Access Network (RAN)

The base design assumes leveraging of existing mobile-operator towers with ACB (Access Class Barring) /UAC (Unified Access Class), Quality of Service, Priority and Pre-emption (QPP) provided by the TSP and dedicated / shared spectrum configured on existing tower equipment.

- What technical/commercial arrangements are needed with TSPs to guarantee QPP for PPDR traffic without degrading commercial service?
- How should coverage gaps across country —geographical coverage/populationcoveragebe addressed by any TSP?
- What are the equipment and configuration requirements for introducing ACB/UAC, PPDR spectrum/QPP on existing tower infrastructure?
- What are the indigenous RAN Equipment and Make in India options available?

5.3 MCX (Mission Critical) Server

- The MCX server integrated with dedicated PPDR Core that implements and enforces mission-critical communication services – MCPTT, MCVideo, MCData with call control, floor control, group management and authentication.What are the leading MCX/MCPTT,MCData,MCVideo platform architectures, and how do they compare in terms of scalability, interoperability (3GPP MCX standards compliance), and integration with PPDR Core and dispatcher consoles?
- Should MCX servers be centralised, or deployed organisation-wise /location-wise? What are the trade-offs?
- What redundancy/disaster-recovery design is recommended for the MCX layer?
- What are the indigenous MCX Server and Make in India options available?

5.4 Dispatcher

Integrated Dispatcher Consoles with MCX Server may be placed at each State capitals, districts and CAPF Force Headquarters, Disaster Relief agencies and other such Command-and-Control centres at local leveltohandle & manage users, group and location-based services.

What are the indigenous Dispatcher and Make in India options available?

5.5 Handsets

Handsets shall beruggedized 4G/5G devices with Push-to-Talk button, Dispatcher console, Emergency SOS button, high-volume speakers andnecessary accessories, Approximately 30 lakh units of different types of handsets as mentioned in Bill of material, may be required.

- What are the realistic options for domestic manufacturing/assembly of MCPTT-capable ruggedised handsets at this scale, and the associated cost and timeline implications?

- What device-level security features (secure boot, hardware root of trust, encrypted storage) should be mandated?

5.6 Spectrum Strategy

MHA has in-principle allocation of spectrum in the 814–824/859–869 MHz band (Please comment on availability of radio equipment and commercial devices, outside the standard IMT band,), alongside the possibility of leveraging existing TSP-held spectrum in other bands.

- Should MHA rely on dedicated spectrum, shared/borrowed spectrum from TSPs (with commercial charge-back), or a hybrid approach — considering projected PPDR user numbers (approx.30 lakhs) What is the feasibility and design of priority mechanisms (ACB/ARP/QCI and 5G equivalents) to guarantee PPDR useraccess during mass-gathering or emergency events? Whether such mechanisms can guarantee PPDRuser connectivity even whengeneral public access is curtailed?
- Are there regions in India where spectrum scarcity would materially affect this design, and if so, how should that be addressed?
- How should temporary/on-demand additional spectrum allocation (as contemplated in recent draft rules) be operationalised for PPDRNetwork use during major events?
- Please advise on availability of commercial radio equipment and device ecosystemavailablefor different IMT Spectrum band in India details of radio equipments majorly deployed by TSPs across India may also be provided.

5.7 4G vs. 5G

Feedback is sought on:

- Comparative pros, cons and cost implications of a 4G-first rollout versus a 5G-native rollout.
- A feasible migration path/timeline from 4G to 5G, if a phased approach is adopted.
- Support for 3GPP Rel. 17 or above & upgradeable path to 6G

5.8 Encryption and Security

Security and encryption experts are specifically requested to comment on:

- End-to-end encryption architecture for voice, data and video across the Core, MCX and handset layers.
- Key management, specific requirementsfor group communications and inter-agency interoperability.
- Security implications of each model option in Section6.
- Recommended standards/certifications (e.g., 3GPP security specifications, national cryptographic standards) and network-monitoring/audit architecture for the dedicated Core.

6. Candidate Architecture Models Under Consideration for BB-PPDR

- The following Candidate Architecture models can be consideredas starting points for discussion. Respondents are requested to review these, propose refinements or alternative models, and — as the core objective of this consultationisto decide model which is best suited for India's BB-PPDR network.

1. Model 1: Shared RAN, dedicated MCX core, dedicated/partially shared /shared network core and dedicated spectrum with one TSP.
2. Model 2: Shared RAN, dedicated MCX core, dedicated/partially shared /shared network core and shared spectrum with one TSP.
3. Model 3: Shared RAN, dedicated MCX core, dedicated/partially shared /shared network core with multiple TSPs and roaming agreement with one or multiple TSPs.
4. Whether entire country be considered as one unit or each telecom circle as one unit.
5. Suggest any other Model option.

For each of the models recommended, respondents should address:

- Technical feasibility at India's scale;
- CAPEX and OPEX implications;
- Resilience/failover;
- Customer references with deployment architecture;
- Security posture; implementation and maintenance complexity;
- Suitability for eventual pan-India scale-up beyondthe 10 locations.

The Bill of material as enclosed at Annexure – I is also to be addressed by responders.

7. Specific Feedback Sought, By Stakeholder Category

7.1 Core Network (EPC/5GC) Vendors

- Recommended core architecture (dedicated physically vs. logically separated; single vs. multiple/regional) for a user base of the order of approx.30 lakh, with justification.
- Reference architectures, sizing methodology and indicative cost bands for each model option in Section 6.
- Interoperability with multiple TSP RANs simultaneously and support for MOCN (Multi Operator Core Network) standards.
- What are the indigenous Equipments and Make in India options available?

7.2 MCX / Mission-Critical Communications Vendors

- Recommended MCX platform architecture (centralised vs. distributed) alongsidelatest 3GPPrelease integration with PPDR Core andMCPTT/MCData/MCVideo standards compliance.
- Dispatcher console integration approach for deployment across State capitals, districts and CAPF FHQs.
- Scalability, redundancy and disaster-recovery design for the MCX layer.
- What are the indigenous Equipments and Make in India options available?

7.3 Security & Encryption Experts

- Recommended end-to-end encryption and key-management architecture across Core, MCX and handset layers.
- Comparative security assessment of the model options in Section 6.
- Recommended standards, certification regime and audit/monitoring architecture for the dedicated Core.
- What are the indigenous Equipments and Make in India options available?

7.4 Telecom Service Providers / Mobile Operators

- Feasibility and commercial terms for each model option(Section 6), including MOCN, roaming and hybrid arrangements.
- Ability to guarantee QPP for PPDR traffic on existing towers without degrading commercial service.
- Views on dedicated versus shared/commercial spectrum use, and commercial terms for spectrum charge-back if applicable.
- What are the indigenous Equipments and Make in India options available?

7.5 System Integrators

- Implementation complexity, timelines and risk profile for each candidate model in Section 6, drawing on experience with comparable public-safety or critical-communications deploymentsglobally.
- Recommended phased rollout / migration approach, including any view on a 4G-first versus 5G-native strategy.
- Please also comment on operating model such as Build Operate Transfer (3 years), as a Service or any other recommended model.
- What are the indigenous Equipments and Make in India options available?

8. Format and Mode of Submission

Respondents are requested to structure their feedback as follows:

- Executive summary of recommendation (maximum three page).
- Option-wise assessment, with pros and cons clearly tabulated.
- Recommended model(s) for India, with detailed justification.
- Relevant case studies, reference deployments or technical standards cited in support.
- Tentative cost against each item as per Bill of Material.

Feedback should be submitted in electronic form (PDF/Word) to the designated e-mail address, with the subject line "BB-PPDR Architecture — Stakeholder Feedback", within the timeline indicated below. Respondents may also be invited for a technical presentation/discussion with MHA following review of written submissions.

9. Indicative Timeline

- Issue of concept note and stakeholder consultation: .....
- Last date for receipt of written feedback: 15 days from the issue of Concept Note

- Stakeholder presentations/clarificatory discussions (if required): [will be notifiedlater].

10. Contact for Queries

Shri Hemant Kumar, Deputy Director (PPDR)

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Contact No.: +917838643007 / +917678400942

Annexure – I

Bill of Material

S. No.	Item	Qty.	Specifications / Sizing
1	Type-1 Robust and Ruggedised Handsets	21,00,000	For field units. 3GPP Rel-15 or later MCX-capable device; dedicated PTT and SoS buttons for Group and emergency Call
2	Type-2 Handsets	6,00,000	For senior officers/supervisory staff. Smartphone-grade MCX handset supporting MC-Voice, MC-Video and MC-Data.
3	Type-3 Handsets	3,00,000	For police stations / control rooms / outposts/thanas/vehicles. Fixed/desk-mount or vehicle-mounted MCX terminal with external antenna provision; suitable for control-room and in-vehicle use.
4.	Body Worn Cameras	To be assessed	MC-Video live streaming integration, 8–10 hr recording, low-light capability, GPS/timestamp tagging, encrypted local storage ruggedness, one-touch activation.
5	Total No. of Cores, including GR/DR	As per model	4G EPC or 5G Standalone Core (3GPP Rel 17 with roadmap to 6G) with integrated IMS and MCX Application Server. Geographically separated Primary and Disaster-Recovery (DR) instances with active-active or active-standby replication; core scalable to 30 lakh.
6	No. of Data Centres	As per model	Data centres hosting core network functions, MCX servers, NMS/NOC systems and security infrastructure

7	No. of MCX Servers	As per model	Dedicated MCPTT, MC-Video and MC-Data Application Servers with Group Management Server, Configuration Management Server, Identity Management Server and Key Management Server (KMS) as per 3GPP MCX architecture; sized for concurrent group-call and dispatcher load at initial and scaled-up subscriber base.
8	DispatcherConsoles	2300 Nos approx.	MCX-compliant application, multi-group monitoring/floor control, GIS-based location display, call recording/audit logs,gateway for legacynetworkinteroperability .
9	Connectivity between TSP Core Network and other Network Elements	As per model	Redundant, diversely-routed transport (leased line/MPLS/dark fibre), aggregate on core interconnect links, with automatic failover; secure interfaces (IPSec) between TSP core, MCX platform, DCPW NOC/NMS and inter-TSP roaming gateways.
10	Disaster resilient components i. Cell on Wheels (CoW) ii. Cell on Light truck with VSAT. iii. In-Building solutions (IBS). iv. BTS on tethered drone. v. BTS on untethered drone. vi. Direct to Mobile Connectivity through Satellite.	As required for disaster areas	
11	Geographical NetworkCoverage in uncovered	As required for operational requirement of PPDR	

	/greenfield areas.	agencies.	
12	Additional Components (hardware/software) to enable MCX services in network, if any	As applicable	One-time integration/engineering cost and recurring licence fees for enabling dedicated PLMN Id, QPP (QoS, Priority, Pre-emption), Slicing, MCX feature set and dedicated MC-SIM provisioning on the TSP's existing network.
13	Cyber Security Firewalls	As required (Primary + DR sites)	Next-Generation Firewall (NGFW) with IPS/IDS, DDoS mitigation, and secure VPN termination; compliant with CERT-In and National Cyber Security Policy guidelines; end-to-end encryption for MCX signalling and media as per 3GPP security architecture.
14	Network Operations Centre (NOC)	As per model	24x7x365 manned NOC for FCAPS (Fault, Configuration, Accounting, Performance, Security) monitoring of RAN, core, transport and MCX application layers, with real-time dashboards and SLA/MTTR tracking.
15	Network Management System (NMS)	As per model	End-to-end NMS/EMS covering RAN, core network, MCX servers and dispatcher consoles, with alarm correlation, performance analytics and integration with NOC.
16	Network monitoring system	As required (Primary + DR sites)	Provides both active and passive service monitoring End to End Network based on software probes TAPS (Test Access Points)to provide 100% network visibility
17	Security Manager	As required (Primary + DR sites)	Provides complete Vulnerability Assessment, mitigation , compliance & regulatory safeguards, operational automation and efficiency
18	Annual Maintenance Charges (AMC)	As per model	Comprehensive AMC covering hardware, software and licences for handsets, core, MCX servers, NOC/NMS and security infrastructure, with defined SLAs for fault rectification.
19	Monthly Plan Charges Per handset/SIM	As per model	Recurring monthly charge per MC-SIM covering data bundle, MC-Voice/Video/Data usage, and priority/pre-emption feature enablement.
20	Any Other Component including SLAs, connectivity with legacy Networks etc.	As per model	Any additional hardware, software or services considered necessary by the respondent to meet the requirements of this note, to be specified with justification.