उत्तर प्रदेश पुलिस रेडियो मुख्यालय, महानगर, लखनऊ – 226006

फोन : 91–0522–2333983 सीयूजी : 91–9454400132 फैक्स : 91–522–2335346

E-Mail : adgtelecom@nic.in Website : uppolice.gov.in

संख्याः ई–67/2014 (इक्यूपमेंट) दिनांकः फरवरी ,2015

विज्ञप्ति

उ0प्र0 पुलिस रेडियो मुख्यालय द्वारा जनपद वाराणसी में अत्याधुनिक सुविधायुक्त पुलिस कन्ट्रोल रूम की स्थापना प्रस्तावित है जिस हेतु RFP (Request For Proposal) जारी की जा रही हैं जिसके आधार पर उक्त प्रणाली की स्थापना हेतु भारत सरकार के ऐसे सार्वजनिक उपक्रम, जो इलेक्ट्रानिक्स एवं संचार प्राद्यौगिकी के क्षेत्र में दक्षता एवं अनुभव रखते हों तथा उ0प्र0 आई0टी0 एवं इलैक्ट्रानिक्स अनु0–2 के चिन्हित निगम/निकाय से निर्धारित विभागीय RFP के अनुसार तकनीकी/वित्तीय प्रस्ताव पुनः आमंत्रित किये जाते हैं।

इच्छुक पीएसयू एवं निकाय अपने तकनीकी एवं वित्तीय प्रस्ताव इस मुख्यालय को दिनांक 26.02.2015 विलम्बतम समय 1400 बजे तक उपलब्ध करायें। इस तिथि एवं समय के पश्चात प्राप्त होने वाले ऑफर स्वीकार नहीं किये जायेंगे।

यह भी स्पष्ट करना है कि दिनांकः 20.10.2014 को आमंत्रित विज्ञप्ति जिनके बिड दिनांकः 10.12.2014 को खोले गये थे, में जिन पीएसयू/निगम/निकाय ने प्रतिभाग किया था, उन्हे भी यदि इच्छुक हो तो उनके द्वारा प्रस्ताव पुनः भेजे जाने होंगे। दिनांक 26.02.2015 समय 1600 बजे तकनीकी प्रस्ताव पीएसयू/निकाय के अधीकृत प्रतिनिधियों के समक्ष खोले जायेगें।

इस सम्बन्ध में अतिरिक्त सूचना/जानकारी निम्न अधिकारियों के ई–मेल आईडी अथवा फोन नं0 पर प्राप्त कर सकते है–

1– राज्य रेडियो अधिकारी, प्राविधिक	Mob–9454402612	srotechnical@gmail.com
2– सहायक रेडियो अधिकारी, प्राविधिक	Mob – 9454402615	arotrhq@gmail.com

उपरोक्त RFP से सम्बन्धित समस्त जानकारी एवं अभिलेख उ0प्र0 पुलिस की वेबसाइट uppolice.nic.in से प्राप्त की जा सकती है।

13/2/15

(देवेन्द्र सिंह चौहान)
अपर पुलिस महानिदेशक, दूरसंचार
उ0प्र0पुलिस रेडियो मुख्यालय,
महानगर–लखनऊ

UTTAR PRADESH POLICE RADIO HEADQUARTERS
MAHANAGAR, LUCKNOW -226006
FAX NO : 0522-2335346 MAIL ID – srotechnical@gmail.com

Request For Proposal

for

Establishment of integrated modern control room with GIS & GPS equipment and vehicle tracking system at Varanasi

TENDER NO : E-67/2014(EQUIPMENT) DTD : 13-02-2015

LAST DATE OF SUBMISSION OF SEALED TENDER: 26-02-2015 UPTO 1400 PM

ADDL. DIRECTOR GENERAL OF POLICE (TELECOM)
UTTAR PRADESH POLICE RADIO HQRS,
MAHANAGAR, LUCKNOW – 226006

PH. NO: 0522- 2333983

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A -Functional Requirement Specifications

DETAILS

1. OBJECTIVE OF THIS DOCUMENT

1.1. This document defines the functional specifications for proposed procurement of Computer Aided Dispatch (CAD) System for Uttar Pradesh Police. These specifications define the operational requirements of the police and present a clear framework for shortlisted vendors.

2. BACKGROUND

2.1. Presently, calls for help to the police are made, primarily, by citizens walking into a Police Station and in a small way by dialing 100. Presently, a call to 100 is handled by largely unspecialized call takers and, except a few control rooms, there is no definite strategy to handle the calls systematically.

2.2. This will change. Through a sustained publicity campaign citizens will be encouraged to ask for police help simply by calling 100. Thereafter, the police setup will automatically ensure 'appropriate police action' including registering an FIR.

2.3. Looking at this in segments, following changes will be brought about-

2.3.1. **Call Taking** will become efficient, courteous, and will have the technical support of voice logging, GIS maps and, customized software for recording complaints. It will function like a modern call center.

2.3.2. **Dispatch** of police units will be based on the principle of continuous monitoring and interaction aided by technology, including an Automatic Vehicle Location System (AVLS).

2.3.3. **Response Units**/ Patrol Units consisting of police cars, motorcycles and, foot patrols will be equipped with the necessary tools of the trade.

2.3.4. **Monitoring** will take a new shape when the Circle Officer (CO) becomes responsible for ensuring 'appropriate police action' on each call to 100.

3. FUNCTIONAL COMPONENTS OF CAD

3.1. CALL TAKING

3.1.1. The CAD work flow begins with a Call for Service (CFS). The call could be from a citizen, a police officer on duty or, another agency/ department. The call could be through any available medium of communication- PSTN Call, Cellular Phone Call (GSM, CDMA, WLL), police radio, sms, e mail, alarm inputs, SOS application like NIRBHAYA. The system should be able to integrate future digital modes of communication as well. Calls to 100 (Police), 101 (Fire), 1073 (Traffic Helpline), Women, Children and Senior Citizens' Helplines, etc should be integrated into the same system and prioritization and selective landing at specialized consoles should be possible. The system should be able to display the helpline on which the incoming call is landing along with the caller CLID. The call taker should be able to call back the caller with the click of a mouse. It should also be possible to send an SMS to the number.

3.1.2. The system should be able to accept and make calls to PSTN HotLines to various agencies. There shall also be help lines where anonymous calls would be invited. The system should not record or display the CLI of calls landing on such numbers.

3.1.3. Each Call taker shall operate from a console of the CAD System.

3.1.4. In addition to the call taking consoles for CFS there shall be specialized consoles for handling enquiry calls. The CFS call taker shall transfer such calls to the enquiry console which should be able to store databases and access external ones to answer the queries. Enquiries envisaged are telephone, departmental postings, vehicles lost and found, missing persons, unidentified dead bodies, action taken on CFS, etc.

3.1.5. There shall also be specialized positions for clerical and data entry work. Here, daily crime records, various reports sought from the Police Stations, revision of patrol charts, planning and deployment for one-time events, etc shall be done.

3.1.6. The software should be highly customizable by the user. It should be possible to easily switch between Hindi and English (with a bi lingual key board).

Language switch should be possible just on mouse click or keyboard shortcut for operator ease. The CAD Software should support Hindi for data label displays based on centralized controlled database driven approach. It should be flexible to update the data labels as and when required.

3.1.7. Remodeling of jurisdictions, units, classifications, priorities and, types should be easily possible. The console should offer choices of displaying all units or units assigned to a CFS.

3.2. **CALL CLASSIFICATION**

Each call should pop up a window on the work monitor and reflect on the GIS window simultaneously. The call taker may classify the call into- CFS, Enquiry Call, departmental call (administrative), blank call or, crank call. She may also set the priority of the CFS. Depending upon the classification the next window should offer another form for data entry. Which may also contain links to external web pages to access the relevant information as required. The software should generate the CFS log in separate window. Latest created CFS should show in different color and it should be top of the log.

3.3. **CALLER INFORMATION**

Each call would bring its ANI and the system should be able to retrieve and display data**.**All MCR will collect telecom data from STF HQs periodically. The basic information about the identity of the caller (as told by him) would be entered into the form. It should be possible to find the numbers whose subscriber information and caller information recorded by the call taker are different and generate a report for the concerned agency.

3.4. **CALLER LOCATION**

The PSTN calls should be located on the map according to the information available from the telephone company. It should be easily possible for a call taker to update the caller location with a drag and drop ease over GIS map. The same should also get reflected in reports for analysis. The system should be able to handle ALI (Automatic Location Information) for cellular calls as and when it becomes available from the service provider, in future. The accuracy of mobile caller's location should be as per the information provided by service provider. The same should also get reflected over GIS map on call taker screen while displaying the caller location. For calls where no location information is generated by the system, it should be possible for the call taker to manually pin point or create a general location for the caller. Similarly, it is possible that the caller may not be calling from the point where response is required. The system should be able to handle this. The software should support a complete manual address input Call taking capability. For PSTN calls it should be capable of handling conflicts in address information provided by BSNL and the caller. The caller's information, if the call taker chooses, should be updated into the system database. The system should be e911 and NG911 ready.

3.5. **DUPLICATE CALLS**

The system should be able to handle multiple calls and multiple incidents. An incident can attract more than one call, but each call is important as it may give details about eye witnesses and other supportive evidence. The system should suggest the possibility of a duplicate call based on the location, time, classification, etc. Duplicate calls should be cross referenced for easy retrievability. It should be possible to merge or split CFS depending upon the situation.

3.6. **ALARM SYSTEM TRIGGER CALLS**

The system should be capable of receiving electronic information from a call triggered by an alarm in a premise. It should obtain the location, contact information, protecting agency, etc.

3.7. **CALL RECORDINGS**

All calls should be recorded and tagged with the concerned CFS. They should be easily retrievable. There should be no technical issues about handling different kinds of calls. The call should be recorded as it enters the system. i.e. if a call is transferred from console to console the recording should continue and be stored in a single file. The log should be retained for a period of 3 months.

3.8. **CALLER HISTORY**

In some cases previous history of the caller can be important. For example, a person with a high threat perception, intelligence calls from a reliable/ unreliable number, a call from the victim of a previous crime or, a repetitive crank caller. The system should remind the call taker of the caller's history. It should also be possible to create a reject list where crank callers could be added after warning them through SMS.

3.9. **CFS ACKNOWLEDGEMENT**

After the CFS has been logged in by the call taker, the CAD shall send a SMS to the Caller stating the CFS/Tracking Number along with a password as acknowledgement to the call made to the control room. The caller can use this number on department website (as and when available) to access the event progress details such as Action Taken Reports (ATR), file attachments, Remarks, or other information's as per the prevailing departmental policy for data sharing.

4. DISPATCH

The CFS, once classified and detailed by the call taker, shall be passed by the system to one or more dispatchers. In addition to default dispatch zone call taker should able to send CFS to multiple dispatch zone. The dispatchers are usually one or two per radio channel and their area of control is divided geographically.

4.1. **CFS LOCATION**

The CAD System should display the information entered by the call taker for a CFS. It should display the location as identified by the call taker, ALI or, address database but the dispatcher should also have the option of 'relocating' the CFS.

4.2. **CALLER HISTORY**

The response to a CFS would be affected by previous experience about the caller, location or, locality. The CAD should retrieve and display such information.

4.3. **DISPATCH DECISIONS**

The CAD should suggest units and resources for dispatch based on a predefined algorithm. The conditions could include CFS type, day and time of occurrence, jurisdiction, proximity, specialization, available equipment on duties resources and logical AND/OR combination within rules. The dispatcher shall choose which unit(s) to dispatch and it should be possible to do so with a click of a button. For example, it could be a district's policy that for each CFS about a four wheeler theft the SHO would compulsorily visit the Scene of Crime. The CAD should be freely customizable to include such varying SOPs and operational requirements. The system should be able to handle multiple CFSs.

4.4. **UNIT STATUS**

The GIS should display the assigned, unassigned units using appropriate and intuitive graphical symbols. The dispatcher can command an assigned unit to proceed to the CFS location through radio and through the Mobile Data Terminal (MDT). The unit shall report departure for, arrival at and, departure from a location. There should be drag and drop ease for these tasks. The unit shall report departure for, arrival at and, departure from a location. The software should be capable of displaying and tracking the vehicles on the GIS map, with

color-coding according to their current status. Vehicle color should change automatically with their change in status, ie dispatch, en-route, at scene, available etc. The entire movement of a vehicle from being assigned to a CFS till arrival upon scene should be time stamped and monitored by the dispatcher. The Dispatcher should be able to lock vehicle on map for continuous tracking with auto pan.

4.5. **ACTION TAKEN REPORTS**

The dispatcher should be able to enter the ATR information as reported by the responding unit. ATR could also be entered by the response unit in their MDT.

4.6. **SIMULTANEOUS CALL TAKING AND DISPATCH**

Upon discovering that a call is of an emergency nature the call taker should be able to alert the dispatcher and the operational commander. They should, then, be able to listen to the call and begin dispatching as the call proceeds. Therefore, the CFS form should be displayed on the dispatch console as it is being populated by the call taker.

4.7. **RADIO RECORDS**

The radio communications should be recorded by the system. The log should be retained for a period of 3 months.

4.8. **CALL CONFERENCING AND PATCHING**

It shall be possible for the radio dispatcher to organize a conference call between three to six phone lines from his console. It shall be possible to patch phone and radio as well. These operations should have drag and drop ease.

5. OPERATIONS COMMANDER (SHIFT-IN-CHARGE) CONSOLE

5.1. The Control Room's Operations shall always be commanded by an officer working in shifts. He would be responsible for generating appropriate operational response to each CFS. It should, therefore, be possible for him to monitor all activities of call taking, dispatch and, response. He should also be able to feed and modify the location charts for all response units as and when required. The Operations Console/ Work Area should have a large video display providing, among other things, bird's eye view of the entire deployment and available units. There shall be two such work stations for the Operations Commander and his deputy.

6. OFFICE OF CIRCLE OFFICER (POLICE CONTROL ROOM)

6.1. There shall be an office of the Circle Officer (DSP) (Police Control Room). This office would be right next to the floor of the control room where call taking and dispatching takes place. The two may be separated by a large glass partition. The function of this office would be to supervise the operations without affecting the normal functioning of the control room floor. This office shall have a supervisor's work station, large video display, access to the internal PA system and the internal CCTV, phones, etc.

6.2. This office may also, on occasions be used by higher supervisory officers as an operations room. It shall have enough seating space for a dozen people. It may also be used as a room for briefing visitors about the functioning of the CAD System.

7. RESPONDING UNITS (RU)

7.1. The Response Units (RU) interacting with the CAD shall include police vehicles (Jeeps, SUVs and motor cycles). They shall also include fire engines, ambulances, cranes, etc. Each RU shall be equipped with suitable device(s) that perform following functions-

7.1.1. Voice Communication

7.1.2. Transmit the location and direction of the vehicle to the CAD system. RU should not be able to switch off his GPS Tracking &Internet manually.

7.1.3. Transmit and receive data: Mobile Data Terminals

7.2. **Mobile Data Terminal (MDT)**

7.2.1. The MDT may be a hand held device or one that is permanently affixed to the vehicle and interacts with the CAD by transmitting and receiving data through a suitable mode of communication. The officers shall enter their details into it when they 'take over' duty. The take-over shall include making appropriate text entries on the MDT of taking over of equipment, arms and ammunition, vehicle, fuel volume and kilometers on the odometer. For example, the staff shall indicate by input, the odometer reading of the vehicle at the time of take over. During the duty the officer may change his status to meal break, tea break, available, attending to a CFS, etc. The Mobile Data Terminal should be supplied with the necessary Mobile Application and License. The Software should be able to work on either Android or Windows based operating system. MDT Software should support the integrated GIS map. (Any free ware map is not acceptable). Since the MDT units are envisaged for field implementation it should support centrally controlled remote update of its MDT client software and offline mode operation. The MDT client software should continue to work in offline mode in case of non-availability of network connectivity and synchronize the data with the server once the network is restored.

7.2.2. The Dispatcher shall send CFS data to the RU on its MDT and the RU staff shall initiate the response by accepting the CFS on the MDT.

7.2.3. When instructed by the CAD, the MDT shall display graphical/ textual instructions to reach a location to respond to a CFS. It shall also work as a navigator and suggest the route(s). It shall also provide textual information to the RU about the CFS to be responded to. It shall instruct the officer about the location to be adhered to as defined by the operations commander. There shall be several user-definable options for patrol charts i.e. a chart for week days, another for Sundays and holidays, one for Fridays (Namaaz). The MDT shall also display relevant section of the map and display the location and status of other RUs. It shall show relevant layers when chosen. For example, it should show the location of police outposts, police stations, motor workshops, fuel stations, cinema halls, schools etc. The MDT should indicate the location where the RU has to locate itself if a contingency is declared.

7.2.4. The hand held & four wheeler MDT should have inbuilt camera with video.

7.2.5. The MDT should have an audio recorder which shall be used, among other applications, for recording and transmitting the Action Taken Reports (ATR).

7.2.6. It should be possible for the beat constable to propose entries into the GIS map from his MDT. These shall be vetted by the CAD administrator and after his approval shall become a part of the GIS map. Any freeware map is not acceptable.

7.2.7. It should be possible to make and receive telephone calls from the hand held MDTs. As well as four wheeler MDT

7.2.8. Some response units shall be outside the police department. e.g. private ambulances, cranes, salvage agencies. It should be possible to give them a client application for their mobile or desktop devices. These shall have very limited capabilities and access to the CAD.

7.2.9. There shall be multi level security for all the devices remotely accessing the

CAD. E.g. strong passwords, access to only predefined IPs, MAC numbers, etc.

7.2.10. The mobile application should have the facility to access and get the information of BOLO database. (Be On Look Out)

7.2.11. Standards of Ruggedness: The handheld MDT should adhere to MIL 810G and IP65. The vehicle mounted MDT should adhere MIL 810G and to IP54.

8. SUPERVISION MODULE

8.1. The back bone of the UP Police CAD shall be its supervision system. It shall be the responsibility of a prescribed supervisor to examine each CFS and ensure 'appropriate legal action'. He shall also call up the complainant to solicit feedback and a satisfaction report.

8.2. The CAD should include a client software that can be installed on a computer from which the supervisor can perform the above the functions. It should also be possible for the supervisors to listen to the audio file of a CFS and the textual and audio recorded action taken reports from their own remote systems connected through the internet.

8.3. These remote supervisors should be able to see the GIS screen and the CFS being handled.

8.4. There should be software tools for response analysis, crime mapping, hotspot analysis, etc. It should be possible to select the data on the basis of jurisdictions, date and time of the day range and other data fields.

8.4.1. Thematic Maps: Pin Mapping, Incident Count Mapping, Repeat Incident Count Mapping that show all filtered CFS incidents on the map.

8.4.2. Analysis: It should be possible to analyze crime and criminals in, at least, the following ways.

8.4.2.1. Hot Spot Analysis
8.4.2.2. Trend Analysis
8.4.2.3. Suspect Analysis
8.4.2.4. Crime forecasting
8.4.2.5. Journey to crime
8.4.2.6. Response Times
8.4.2.7. Repeat Callers
8.4.2.8. Change over time mapping
8.4.2.9. Neighborhood Analysis
8.4.2.10. Serial Sex offenders tracker

8.5. There shall be dashboards for different supervisory levels to give them a graphical picture of the performance of those within their jurisdiction.

8.6. The supervisor / Police Station officer should be able to do Patrol Planning and Compliance as ,

a) The supervisor / police station officer remote web user shall be able to assign stationary patrol locations and areas to be patrolled during a shift. It should also be possible for the supervisor to see if his instructions were complied. All this should be possible by simple operations of the mouse or a stylus. The Patrolling task should be assign using GIS map.

b) Patrolling task shall be assigned to the patrol units. It should be possible to assign, report compliance and, review these Patrolling tasks. The Patrolling tasks would be surveillance of criminals, visit to senior citizens and victims, service of summons, warrants and other court processes, etc. It should be possible to add new kind of Patrolling tasks as well. There shall be several user-definable options for patrol charts i.e. a chart for week days, another for Sundays and holidays, one for Fridays (Namaaz).

c) Report of units deviating from the assigned chart shall be generated so that the dispatcher

and the supervisors can take remedial action. Responding to a CFS does not constitute a deviation.

d) In different colors/ icons it should be possible to see the prescribed patrol positions/ area patrols on map for a number of units or for one unit over a period of time.

8.7. The supervisor / Police Station officer should be able to do Patrol Planning Analysis on GIS Map as,

It should be possible to overlay patrol charts, actual positions and, crimes reported over a period of times. This is to analyze tactical the decisions. Were the patrol positions well chosen, did units adhere to it, even then which crimes occurred.

It should be possible for the supervisors to monitor the patrol response i.e. which static positions to hold, when; which areas need mobile patrolling, when. It should be possible to analyze the extent to which the prescription was followed by matching it with actual AVLS information.

9. BEAT MANAGEMENT MODULE

9.1. The MDT shall be used by the beat constables to manage their beats. There shall be one mobile response unit (usually a motorcycle) for one beat.

9.2. The CAD shall contain layers of GIS for storing information of the police beats. e.g. strengths- police premises and assets, residences of Village Chowkidars, SPOs, Weapon license Holders, etc and vulnerabilities- Banks, ATMs, Jewellers, Senior Citizens, etc.

9.3. It shall be easily possible for the beat constable to update the above information in the CAD as a location in the map, as a text entry or, as a picture.

9.4. It should be possible for the all other consoles- call taker, dispatcher, supervisor, etc to propose entries into the GIS map. These shall be vetted by the CAD administrator and after his approval shall become a part of the GIS map.

9.5. The supervisor (e.g. SHO) shall assign stationary patrol locations and areas to be patrolled during a shift. It should also be possible for the supervisor to see if his instructions were complied. All this should be possible by simple operations of the mouse or a stylus.

9.6. Tasks shall be assigned to the patrol units. It should be possible to assign, report compliance and, review these tasks. The tasks would be surveillance of criminals, visit to senior citizens and victims, service of summons, warrants and other court processes, etc. It should be possible to add new kind of tasks as well.

10. OTHER ISSUES

10.1. The CAD should be able to integrate with the Records Management System (CCTNS), Traffic Management Systems and, CCTVs.

10.2. The vendor shall organize the training and hand- holding sessions.

10.3. The software should have rich and meaningful help files.

10.4. It should be possible to integrate a Variable Messaging System (VMS) with the CAD.

10.5. It should be possible to integrate an SMS broadcast service.

10.6. There shall be sufficient power back with UPS, generators, etc to sustain it for 8 hours a day.

10.7. There shall be a Public Address System inside the CAD facility for making announcements to the personnel working there.

10.8. There shall be an internal CCTV system to capture the activities within the police control room.

10.9. It should be possible to integrate Citywide CCTV Systems with the CAD. Functionally, various users of the CAD should be able to access the video images from the co-located CCTV system.

10.10. There shall be an electronic media monitoring section equipped with display screens and video recorders.

10.11. The Communications Center should have server level redundancy in the system. Though not included in the procurement at this stage, it should be possible to create site redundancy.

10.12. The CAD should also support mobile Command Posts (not included in the procurement at this stage) that can conduct localized operations e.g. a VVIP public meeting, cricket match or, a fair.

10.13. The CAD of one district should be able to interact with CAD of another district to share information e.g. BOLOinformation.

10.14. It should be possible for the MDTs and the web supervisors to make update entries to CFS information. It should also be possible for the complainant (citizen) to access information related to his/ her CFS and see the progress made. The complainant should also be able to give feedback by making comments. Authentication shall be made possible by assigning a username (e.g. CFS number) and a password in the acknowledgement SMS sent after each CFS is logged in.

The following three modules shall be a part of UPP CAD:

11. **Task Management:**

11.1. There shall be a Task Management Module to manage common tasks handled by the police station staff.

11.2. These tasks, illustratively, shall be

- 11.2.1.1. Different kind of verifications: PVR, MVR, CVR, etc
- 11.2.1.2. Enquiries into citizens' complaints
- 11.2.1.3. Service of summons, warrants and, other court processes
- 11.2.1.4. Community policing tasks like visit to senior citizens, victims of domestic violence, etc.

11.3. It should be possible for the system administrator to add a new category of tasks easily.

11.4. Some tasks will originate from outside the police station. E.g. Verifications, Court Processes, etc. Some tasks will originate from the police station itself. E.g. surveillance of criminals, enquiries, community policing tasks, etc.

11.5. An officer at the police station will enter all the new tasks that have arrived into the system. The tasks meant for a beat will be further allocated to individual of a group of officers by the SI in charge of the beat. The regular tasks like surveillance will be generated through a set of rules (periodicity, variation of day and night, randomness, etc). The system shall propose the tasks and a schedule but the beat SI shall take the final decision and may make alterations.

11.6. Tasks would be allocated to individual officers or a group of officers, e.g. beat staff in a beat. It would be possible to prioritize tasks and place deadlines within which the task should be completed.

11.7. The tasks allotted to officers shall be communicated to them through either the android app meant for them (for their personal devices) or, in its absence, through SMS. It may also be printed on paper and handed over.

11.8. **Android App**: There shall be an android app and a that may be installed on personal devices of police officers. This app shall be used to access the task management module, human resource management module, traffic enforcement module, etc.

11.9. When an officer logs in to the system/ reports to work his MDT should display the tasks assigned. Upon completing the task the officer shall make entries in the system to that effect.

It should also be possible for the tasked officer to make ATR (Action Taken Report) entries from his android app or from the desktop in the police station.

11.10. It should be possible to access this module from any of the devices that are part of the CAD system.

11.11. Performance Analysis: It shall be possible to analyze the performance of individual officers or a group of them. This analysis would be on parameters like task completion within time, number of tasks done by an officer, best and worst performers, etc.

11.12. Citizen Interface: There shall be a web based citizens' interface where citizens (or authorized functionaries) should be able to check the progress regarding their request or complaint.

11.13. It shall be possible to make entries of new tasks at locations where they originate. E.g. the SSP office, District Court, etc.

11.14. It shall be possible to integrate this module with other external systems like passport management if their API and other technical support is available.

11.15. User IDs shall be assigned to the entire staff of the police station.

11.16. Integration with CCTNS: This module should be integrated with the CCTNS.

11.17. It shall be possible to access this module through the desktops, MDTs and web based users of the CAD system

12. **Human Resource Management Module**

12.1. There shall be a Human Resource Management Module to manage the basic records of officers, organize duty rosters, create absent report, and handle rewards and punishments.

12.2. There shall be a database of all the users/ police officers. This may be imported from an existing database of UP Police.

12.3. It shall be possible to assign duties according to a roster. This should take into consideration issues like- weekly day off, leave, on-call roster, reserve duty, etc

12.4. Information by SMS: It shall be possible to inform officers about their roster of duty, any changes and, broadcast general instructions to their personal mobile phones.

12.5. It shall be possible for the supervisors to reward or penalize officers. This is different from the rewards and punishments as awarded under the prevalent statutes. These would, instead, be commendations of performance as part of the CAD system.

12.6. It shall be possible to access this module through the desktops, MDTs and web based users of the CAD system.

13. **Traffic Module:**

13.1. **Contact Traffic Enforcement**: There shall be a traffic module that shall be used to enforce the MV Act. Under clause 206 of the act a police officer can impound the driving license of an offender. This module shall handle this work process.

13.2. **Impounding Driving License**: A police officer impounds the driving license of a person who commits a traffic offence. He fills a prescribed form and gives a receipt to the offender who is directed to appear before a court or a police officer of jurisdiction to get the offence compounded (clause 200 of MV Act). The system shall include a form that the police officer shall fill-in and print a copy with the bluetooth printer and handover to the offender. The receipt shall include instructions about the procedure the offender has to follow to get his offence compounded.

13.3. The DL is returned to the person when the offence is compounded in a court or by an authorised police officer. (similar to para 13.11 and 13.14 below)

13.4. **Non-Contact Traffic Enforcement**: There shall be a traffic module to enable officers with

mobile devices to capture pictures of traffic offences based on which the system will issue notices, compound offences or, send to court for action.

13.5. **Application Launch**: When a user logs in he or she will enter the username and password. It should be possible to launch the application quickly by pressing a pre-assigned button.

13.6. **Capture**: It shall be possible to capture the photograph of a traffic offence being committed on the road. The police shall also enter vehicle number, offence type and any additional information along with the location of incident either automatically using in build GPS or by manual entry. The police should able to select multiple offence type. The device should automatically capture the time.

13.7. **Data Upload**: The capturing and data entry shall be offline. The data shall be uploaded in the background without interrupting the next photo capture or data entry.

13.8. **Vetting**: Once received at the server an officer will examine the reported offences. He will examine the quality of the picture, clear visibility of offence, registration plate, etc and will reject it or clear it for further action. If rejected, no further legal action has to be taken. But the system shall send a comment to the reporting officer indicating why the report could not be used so that he may improve the quality in future. If cleared, a notice will be generated.

13.9. **Generate Notice**: A notice to the offender shall be generated. It shall contain the photograph, name, address (as available in the RTO database), sections applied and the applicable fines, time of offence, place of offence (GPS coordinates and the name of the location. The notice will have pre-printed matter that will inform the addressee about what he is expected to do. There shall also be an application form requesting for compounding the offence. The notice and the application form shall be mailed .

13.10. Once received by the offender, the disposal of the notice can be in two ways- walk into the traffic office, pay fines online.

13.11. **Traffic Office**: When a person walks into the traffic police's office with a filled up application form, he will be received at a window where the application shall be examined and fine collected. The order of compounding including the receipt of the amount shall be generated. In case of contact enforcement where the DL was seized, it shall be returned.

13.12. **Pay Online**: It shall also be possible for the offender to pay the fine online. He shall login to a website, enter a reference number, fill up an application form. Then he shall pay the specified amount through a payment gateway. The system shall send a receipt by e-mail and/ or sms.

13.13. **No Show by Offender**: If the offender ignores the notice and doesn't show up at the traffic police's office a report will be generated that will be sent, by hand, to the court of jurisdiction. It will be accompanied by a draft of the summons to be issued and a copy of the final order that may be issued by the court.

13.14. **Disposal by Court**: Although not visualized right away, UP Police may provide access to the court so that it can also automate its process and benefit from this system. The system should be absolutely ready for this. The process in the court would entail- issue of summons, issue of warrants, receipt of application for compounding, decision of the court.

13.15. **Offence History**: The system shall maintain the record of offences done and index them on Driving License Number and Vehicle Registration Number. The system shall propose fines and penalties on the basis of previous history of offences (as defined by law).

13.16. **Update personal details**: Although the system shall have access to RTO database, it should be possible to update personal details of the offender. This may happen at the time of the offence, compounding at the traffic police office or, the court. Police shall also undertake

exercises to verify personal data by physically checking people and vehicles through 'stop and search operations'. The updated information shall be stored in a separate table and on the next occasion the new details would be used.

13.17. **Accounting**: The system shall do the account keeping of the fines collected and deposited in the treasury.

13.18. **Analysis and Reports**: There shall be detailed and diagrammatic analytical reports. They shall analyze the performance of individuals, group of individuals or, the system as a whole**.** It shall also analyze the offences, repeat offences, spatial pattern of offences reported, how many notices get disposed by the traffic office and how many by the courts, etc.

13.19. **BOLO**: There shall be 'Be On the Look Out' list. This would, among others, list vehicles against which traffic notices are pending. Patrol officers shall key in numbers into the MDT which shall report back if the number is in the BOLO list.

13.20. **Android App**: There shall be an Android App and a that shall be installed on the personal devices of police officers who do not have an official MDT. They shall also report traffic offences.

(B)

Minimum Technical Specifications

Details

1 CAD Core Components

1.1 Data Center– Hardware

1.1.1 **Chassis**

1.1.1.1 Rack mount servers with suitable racks. Tower type servers shall not be acceptable.

1.1.2 **Servers**

1.1.2.1 CPU: 2 x 8 Core Xeon Series with 2.2 GHz with 16 MB cache, 1333 MHz FSB. Higher configuration will be preferable

1.1.2.2 48 GB DDR3 1333 MHz or higher

1.1.2.3 5 x 1 TB Hot Plug SAS HDDor higher if needed for storing all data at least of 30 days

1.1.2.4 Suitable Raid controller with at least 512 MB cache,

1.1.2.5 HDD shall be configured for RAID 6.

1.1.2.6 Graphics controller

1.1.2.7 Integrated Dual Gigabit NIC and other Standard Ports i.e. Serial, USB ports and PCI, PCI express slot, as required for the system.

1.1.2.8 Redundant Power Supply

1.1.2.9 Other standard accessories i.e. Keyboard of min107 keys, Optical scroll Mouse, min 18.5" LED Monitor etc.

1.1.2.10 DVD Writer With 1 TB external USB HDD.

1.1.2.11 Operating System Windows Server 2008 or better

1.1.2.12 Original latest antivirus software with adequate user licenses

1.2 Application Servers: Same as 1.1.2

1.3 Communication Servers

1.3.1.1 The system should be IP based server edition with the TDM & PCM switching with the OPEN Standards, Non-blocking Technology.

1.3.1.2 Dual 8 Core Xeon series 2.2 GHz CPU, 12 GB RAM, hot swap PSU & hard drives, Equivalent OR Higher.

1.3.1.3 Should support all telecom interfaces in Indian Telecom Service provider offerings.

1.3.1.4 ISDN Interface, SIP Trunk Interface & Analogue trunks interface capabilities

1.3.1.5 Min 2 ISDN PRI Hardware should be included

1.3.1.6 Digital, Analog and IP Extension Support.

1.3.1.7 Total IP Extensions- min 30 Nos, 8 Analog extensions, 8 Analog Trunks

1.3.1.8 System should have capabilities to work on Main & Remote gate way architecture

1.3.1.9 Min 8 Party conference Bridge Facility should be provided

1.3.1.10 Integrated voice messaging system with minimum 4 channel concurrent access for IVRS function (Integrated or External)

1.3.1.11 Voice messaging - Pre-defined text to voice conversion information

1.3.1.12 IVR message to caller if there is a delay in answering the call

1.3.1.13 System should support reporting applications to analyse the performance of the call takers, dispatchers and supervisors and the system as a whole

1.3.1.14 System should be capable of working in 230 V A.C OR D.C Power supply environment.

1.3.1.15 SIP enabled

1.3.1.16 ISDN supplementary services for digital phones

1.3.1.17 Support for ACD call centre application with CTI and advanced call routing

1.3.1.18 Chassis based with Rack Mountable system

1.3.1.19 Redundancy: In case of complete system breakdown the calls should land on the phone instruments placed at the call takers, dispatcher and, supervisors' desks.

1.4 ***CTI/ ACD Server:*** **ConfigurationSame as 1.1.2**

1.5 ***EMAIL Server*****: Configuration Same as 1.1.2**

1.6 **Gateway Units**

1.6.1 Radio Gateway Unit

1.6.1.1 The unit should be connected to the radios using the audio and control interfaces of the radio

1.6.1.2 Should be agnostic to the make of the radio and its frequency of operation.

1.6.1.3 The radio gateway unit should convert the audio and control signals received from the radio into IP packets and transmit them to the main system for further processing, over an IP link.

1.6.1.4 Should have a DSP which should support VOX and VMR. The DSP should support active noise reduction for filtering out the noise from the radio network.

1.6.1.5 Should have dual Ethernet links, each of 10/100Mbps bandwidth for connecting to the IP network. The dual Ethernet link is necessary for meeting redundancy requirements.

1.6.1.6 Should support both star and ring topology of the Ethernet network.

1.6.1.7 Should support cluster based redundant main system. The radio gateway unit should be able to get connected to the redundant main system when the working system fails. Preferably, the switchover from the working to redundant system should not affect the current voice communications.

1.6.1.8 Should be able to control the configuration of the radio, to which it is connected. The configuration will be done by the system administrator.

1.6.1.9 Should be capable of connecting minimum 8 radio nets.

1.6.1.10 It should be possible to add more Radio gateway units at different locations or at the same location over the IP network to connect more radio nets.

1.6.1.11 Should support data transmission over radio.

1.6.1.12 For redundancy, offered solution should provide 2 PRI lines each with Last Mile Connectivity on Different Media (Copper, Fiber, RF). Required DID services for various help lines needs to be activated & configured for PRI lines.

1.6.2 **Interface Gateway Unit (IGU)**

1.6.2.1 The main system should be able to integrate the IGU over an IP network, which will be used to interface the traditional TDM/PCM interfaces of the network. The IGU can be placed at the same location or at a different location. The IGU should have a modular design with multiple types of plug-in cards, catering to the different types of interfaces. The interfaces should include the following:

1.6.2.2 FXS - for connecting analog telephones.

1.6.2.3 FXO - for connecting PSTN CO lines.

1.6.2.4 E1/ PRI - for connecting to PSTN/Private networks.

1.6.2.5 E&M - for connecting the private networks

1.6.2.6 .GSM/ CDMA - for connecting to the mobile networks

1.6.2.7 Inter-operability between all types of interfaces should be possible. Inter-networking on E1/PRI over Q-signaling should be possible with other PABX to extend usability across networks

1.6.2.8 If the main system stops working, all the gateway units should be able to work with the redundant system automatically.

1.6.2.9 System Features: The system should support all standard and advanced telephony features such as Call between all interfaces, Call Hold, Call Transfer, Call Consult, Redial, Call Pick-up, Trunk to trunk call transfer, Call forwarding, Emergency Call, Call Intrusion, 3-party conference, Multi party conference, Automatic Call distribution, Auto Attendant, etc.

1.7 Voice Logger

1.7.1 The system should be equipped with a voice recording system so that all the voice conversations can be recorded.

1.7.2 Recorded voice files should be accessible from the Web based application to the authorized users.

1.7.3 Voice logger should offer a reporting module to generate the desired reports.

1.7.4 The configuration of the voice logger should be possible by the system administrator

1.7.5 The system should have capacity to retain voice logs for a minimum period of 720 hours

1.8 ***Backup and Recovery servers for redundancy:*** **Configuration Same as 1.1.2**

2 Work Station Specifications

2.1 Call Taker Workstation with Bilingual Keyboard , Headset, telephone,

Dispatcher Workstation with Bilingual Keyboard , Headset, telephone, foot pedal for PTT
Supervisor Workstation with Bilingual Keyboard , Headset, telephone, foot pedal for PTT

2.1.1 Intel core i7-4790 3.6 GHz,1333 MHz FSB, 8 MB cache or better
2.1.2 4GB DDR3 RAM, 500 GB SATA HDD or better.
2.1.3 Integrated Graphics, Integrated Gigabit NIC and other Standard Ports i.e. Serial, Parallel, USB ports and PCI, PCI express slot, as required for the system.
2.1.4 Other standard accessories i.e. Keyboard with min 107 keys, Optical scroll Mouse, Min 18.5" LED Monitors (2 for Call takers & 3 for Dispatchers and Supervisors) with display cards, Multimedia speakers etc.
2.1.5 Operating System latest Microsoft Windows 7 or latest
2.1.6 Licensed antivirus software
2.1.7 Headset with microphone should be sturdy, industrial grade and wired, wireless Quantities for Wired and Wireless Headsets as mentioned in BOQ to be provided with specifications as mentioned in 2.1.9.
2.1.8 Sturdy, industrial grade foot pedal for dispatcher and supervisor
2.1.9 Headsets with microphones for Operators
2.1.9.1 Dual Ear
2.1.9.2 Crisp Clear Sound
2.1.9.3 Wideband Frequency
2.1.9.4 Adjustable Headband
2.1.9.5 270 degree rotation microphone
2.1.9.6 Acoustic Shock Protected
2.1.9.7 Anti-static shock for microphone
2.1.9.8 Clothing clip
2.1.9.9 Headset Hook

2.2 Mobile Data Terminal Specifications

2.2.1 **Common Features of all types of MDTs**
2.2.1.1 On screen keyboard with Hindi and English languages. Optional: a physical keyboard with English and preferably, Hindi keys.
2.2.1.2 Sunlight readable display: Sunlight readability is one of the key prerequisites of this device as entire working is out of the office under direct sunlight. The screen of this device should be bright to ensure less human error during inputting data. (Especially while on the road in harsh environmental conditions.)
2.2.1.3 Latest technology: Along with embedded processing, latest windows / Android OS to give a lot of freedom for application development and deployment should be provided.
2.2.1.4 Remote update of OS and applications should be possible. Rich and meaningful help files in Hindi and English should be available. Appropriate tool tips should also be available.
2.2.1.5 Voice recognition typing in English should be possible.

2.2.2 **MDT for Four Wheelers**
2.2.2.1 Fully rugged as per MIL 810G & IP54
2.2.2.2 The most important feature of a vehicle mounted device should be to sustain the vibration of the set up. The MDT along with the vehicle docking set up should be resistant to vibration & shock. It should ensure that any radio communication from the vehicle does not interfere with the computing device ensuring error free uptime for the solution.
2.2.2.3 This MDT would be installed in police patrol vehicles and is meant for in-vehicle use and hence should be anchored to the vehicle for driver safety, device security, and user ergonomics. The MDT should follow specific installation protocols for proper ergonomics, power and communications functionality and would also include WAN modem, power conditioning equipment, and WAN, WLAN, and GPS antenna for the vehicle.
2.2.2.4 Convertible tablet feature: At a flick this device should be able to convert into a tablet with built in touch screen/digitizer features. This feature should provide versatility in terms of usage as the user can easily switch between standard and tablet feature while on the move.
2.2.2.5 High performance computing power & storage.
2.2.2.6 The device should be latest 3rd generation computing platform with high capacity storage. Also low temperature booting options should be available.

2.2.3 **MDT for two wheelers**

2.2.3.1 Ultra Rugged MIL 810G, IP 65: The user should not worry about the hardware he is carrying. His full focus and attention should be towards his call of duty. MIL grade hardware should ensure a minimal failure rate ensuring high uptime and better deliverables.

2.2.3.2 High battery life with Hot Swap Battery: By having hot swap battery technology should be adopted to provide at least 10 hrs working for the device under any conditions. The battery should be easily user removable and no tooling should be required. A hard shut down of the device is not recommended in any application environment.

2.2.3.3 Thermal Management: This device used should be a very low power consumption CPU and the conductive cooling design to ensure that there are no hotspots in the machine which will be uncomfortable for the users.

2.2.3.4 Integrated Camera, GPS & WAN, hand strap

2.2.3.5 All the above integrated features without compromising the ruggedness of the MDT.

2.2.4 MDT for Supervisory Officers

2.2.4.1 To ensure that once the officer is outside the office the supervisor does not have to worry about taking care of the hardware. Most of the usage will be when the supervisor is not at his desk. (Vehicle, crime scene, patrol etc)

2.2.4.2 Bright sunlight readable display with Multi touch: A bright and easy to read display to ensure the user friendliness of the device. The display should be sunlight readable with better reflectivity. The multi touch functionality will be a strong value adds in analyzing imaging data.

2.2.5 Technical specifications of MDTs are as under:

MDT	MDT for Patrol Bike (Rugged)	MDT for Supervisors (Consumer Grade)	MDT for Vehicle (Rugged)
Processor:	at least 650 MHz	at least 650 MHz	at least 1 GHz
Memory:	RAM at least 1GB and flash memory of 8GB	RAM at least 1GB and flash memory of 8GB	RAM at least 4GB and flash memory of 32GB
Operating System:	Windows/ Android	Windows/ Android	Windows/ Android
Generation	3G supports and 4G/LTE compatible	3G supports and 4G/LTE compatible	3G supports and 4G/LTE compatible
GSM	Yes	Yes	Yes
Voice:	Yes	Yes	Yes*
Camera & Video:	at least 5 M Pixel for rear camera Flash	at least 5 M Pixel for rear camera Flash	at least 5 M Pixel for rear camera Flash
Screen size:	Min 3. 5” with qwerty keypad.	Min 5"	minimum 9” or above
Size/ Dimensions:	Handheld	Handheld	Dashboard mountable cradle from OEM of MDT to be supplied. (Local/Assembled cradle will not be accepted).
Weight	<500 gms including 1 battery	<500 gms including 1 battery	
Handling Hindi:	Yes	Yes	Yes
Screen luminosity:	Sunlight readable.	Day light readable	Sunlight readable.
Ruggedness Standard:	MIL 810G and IP65		MIL 810G and IP54
GPS:	Integrated	Integrated	Integrated Antennae
Ports:	1 USB	1 USB	1 USB
Bluetooth:	Yes	Yes	Yes
Battery duration:	min 10 hours	min 10 hours	
Extra Battery	1		

Charger	1 (220 V AC) 1 (12 V DC for Motor Bike/ Car)	1 (220 V AC) 1 (12 V DC for Motor Bike/ Car)	Car Battery Charging should be possible
Carrying Pouch	1	1	Vehicle mount

***** Voice functionality to be inbuilt in MDT or optionally Mobile Handset with SIM (voice plan of minimum 500 minutes) of qty equal to MDT to be supplied for duration of project. SMS with caller number should be sent to this respective mobile for each CFS sent to MDT.

- With cradle for hand held MDT for USB port.

2.2.6 **Technical Specifications for the Bluetooth Printers for MDTs are:**

Weight with Battery	Less than 500 gms
Size	Wearable on Belt
Media Width	2"
Endurance	Approx 800, 6" receipts
Power	DC Input 12- 15 V with external DC Jack
Recharge Time	Less than 5 hours
Drop Specification	4ft multiple drop
Print Technology	Direct Thermal, at least 200 DPI
Print Speed	At least 2" per second
Media Type	Direct Thermal Receipt Paper
Communication	USB 2.0, Bluetooth Adhoc Network
Compatibility	Should be compatible with Android and Windows CE
Accessories	Cigarette Lighter Charger & Wall Charger
	Swivel Mount Belt Clip

3 CAD Software Specifications

3.1 Computer Aided Dispatch Software

1	The application software should be capable of integrating with Telephony system including EPABX, CTI/ACD interface.
2	The Central CAD server software shall have the capability to coordinate the communication between all the CAD product modules.
3	The software should be able to support a fully functional emergency CAD response system like Dial 100.
4	The Software should have integrated soft phone functionality.
5	The Software through various tools should support incident management like Call input, call dispatching, call status maintenance, mobile unit tracking, and call resolution & closure.
6	The Software should have the ability to display the location of the vehicle on an integrated

	GIS map.	
7	The Software should have the ability of identification of the location of a distress call on an integrated GIS map.	
8	The Software should support features like Automatic Number Identification (ANI)/Automatic Location Identification (ALI).	
9	The software should support Multi-Language (Hindi and English). Voice recognition typing in English should be possible. The system should be able to support multi-language. It should be possible to easily switch between Local Language(Hindi) and English. Language switch should be possible just on mouse click or keyboard shortcut for operator ease. The CAD Software should support regional language for data label displays based on centralized controlled database driven approach. It should be flexible to update the data labels as and when required	
10	The software should have capability to support multiple agencies like Police, Fire, Medical including 100, 101, 108.	
11	It should be able to support routing incidents to appropriate dispatcher according to call type and location.	
12	It should be able to archive incidents that begin with a phone call and generation of user-specified reports and records. Integration with useful Android/ Window based applications should be possible.	
13	In order to support the MDT Operations software must have High Database Availability with support for Oracle / SQL Server	
14	The Software must have a provision to open multiple map windows for easy decision-making by the CAD operators, i.e. Call Takers, Dispatchers and, Supervisors.	
15	The Software must have floating windows capability i.e. the operator should be able to shift/ position & resize the window form as per his requirement	
16	The system should have provision to work during Failover / Redundancy mode. In case of failure in main servers, the system should have provision to switch automatically to the secondary server without disturbing the operator application.	
17	The CAD application should be customizable to fulfill user stated and future needs. Bidder should have source code/own IP to undertake development if and when required without replacing the entire application software.	
18	The system should be secure and feature an intelligent Log-in & Log-out facility. The same user should not be able to Log-in simultaneously at different machines when operating on LAN. The CAD software should also support handling of forgot password situations by generating one time password over SMS & E-mail to reset the Password on user request. The system should have the provision for OTP (one time password) to remotely located web users.	
19	The CAD software should be capable of swapping between call takers, Dispatcher; Supervisor based on the user authentication, without the need to have separate licenses in each category. The software should able to work as combined Call-taking & Dispatching functions by single operator.	
20	The system should be designed for accessing the police control room by citizen in distress through any available medium of communication i.e voice, text and image. The voice communication could by PSTN, Cell phone, police radio. Text could be SMS & E-mail.	
21	The system should have a fully integrated GIS map in the CAD application software stored locally in each operator work station and Mobile Data Terminal to ensure quick pop up of caller/incident /vehicle location. The maps used in control room and by the field units on MDT should be same. The map should be provided with intelligent query/search functions to assist in dispatching & monitoring operations. It should have the capability & tools to view attribute details of the specific GIS layers on map click. Mapping Tools to be provided to be able to group the	

	multiple attribute layers and to control (ON and OFF) the same. It should also support zoom in/out by using mouse while operations for ease of use. Google or any free ware map will not be acceptable. There should be no dependency on the map service provider.
22	The system should have provision to integrate with video feeds available from CCTV camera through APIs with any Video Management Server, in future. The operator should be able to see the camera locations mapped on to the GIS map for easy identification. The system should be intelligent to display the nearby camera based on the event location.
23	The CAD software should be able establish the messaging facility between operators and field units. It should be able to send generic as well as predefined formatted SMS using gateway/Base modem to field units, operators and other concerned persons, senior officers and support agency contacts.
24	The application GUI should be user friendly for ease of operation and keeping in mind the response time to attend to emergency.
25	The user should get operation time exceeded warnings for situations wherein the system is in extended period of event edit mode, dispatch time or even to the MDT user about the time exceeding for on-route status change.
26	The CAD software should support monitoring of system health and sending notifications to supervisory officers in case any anomaly is detected.
27	The CAD software should be able to receive alarms (using standard XML format) generated from external systems for CFS creation. The alarms can be generated from external security systems. Fire alarm systems or emergency notifications from citizen mobile clients to report distress situations.
28	The CAD system software should have the feedback button for CAD user on main screen of all modules, including remote viewer to give the feedback.

3.2 Call Taking Software

When a Call Taker receives a call, the Accept Event Command will be used to enter data in the Call Information dialog box. This central dialog box will allow operators to enter basic information about all Calls For Service(CFS) regardless of the Police Station or Police jurisdiction, ultimately the received information will be passed on to respective Dispatcher in order to respond to the call. The Call Information dialog box leads operators through the process of recording information, ensuring the collection of critical data and increasing accuracy. The only fields required to accept an incident are the incident's location and type. Event type is used to determine the dispatch group routing.

1.	The software should support a complete manual address input Call taking capability.
2.	Intelligent Login facility: The software should feature an intelligent Log-in & Log-out facility, where same user should not be able to Log-in simultaneously at different machines when operating on LAN.
3.	Automatic Number Identification and Automatic Location Identification: When an emergency call from a fixed line is received, the software must be able to display via pop-up, on call taker desktop, automatically caller name & number (ANI) and address (ALI) in call-taker screen as well as the caller's location should be zoomed in map based on location information like Latitude / Longitude if available.
4.	Event creation and Incident Appraisal: The Call-taker module should facilitate event creation, by providing 'a drop down menu' for various functions like creation of an event, files attachment, location of nearby event and other information related to an event should be recorded and updated.
5.	Soft Phone: The software is to be provided with a Telephone window allowing operators to dial, answer, end a call, keep the call in busy status, and free a specific call. The functionality should also provide the status of incoming and outgoing calls.

	6.	Provision of Standard Operating Procedures (SOP's):The software should have the capabilities to set the Standard Operating Procedures (SOP) for Call-taker and Dispatcher. The same needs to be invoked during creation of event or dispatch of the vehicles.	
	7.	Provision for 'Emergency Call' or 'Hot Calls': Proposed software should have the capabilities to create the Emergency Call and Hot Calls. Call-taker should have to fill the minimum information for a hot call. Dispatcher and supervisor should receive the alert/ notification for the same. Dispatcher should take the necessary action and provide the quick response. To facilitate quick response to emergency calls / hot call, there must be a special and dedicated emergency call / hot call button in the Call-taker software.	
	8.	Incident scheduling and Mapping: Incident-scheduling functionality should be available in proposed software for future events like, VIP Visit, Rally, Festival etc. The software shall have provisions that on setting the date and time for the particular event, automatic event should be generated on that date. The Scheduled Event feature should allow operators to create, edit, delete, and search for a scheduled event. For example, an operator can schedule an event for patrolling purposes. This feature should provide an option to schedule the event on a daily, weekly, or monthly basis.	
	9.	Integrated Map Display Browser: The software should be integrated with an intelligent GIS map. Tools to provide facility to search the location of a Dial 100 caller location and incident on a map.	
	10.	**CFS Status Display & Search:** The Call Taker GUI screen must be provided with 'CFS Status Window' displaying the status of all CFS like 'Pending', 'Open', 'Dispatched', 'Closed' etc. The Software should be able to Search the CFSs using various search option. Like CFS Status, CFS ID, Telephone no, Date & Time, CFS Type etc.	
	11.	Location of Interest (LOI) Search Options: The Call-taker module shall have the facility to search for various 'Location of Incident' (LOI) in the vicinity of an event like nearest Hospital, Blood bank, Fire brigade. (Applicable in Dispatcher module also).	
	12.	Automatic Administrative Unit Event Association: The software should have the facility in the system to populate within it, the relevant Police Station name and Police Zone name (based on event location through GIS) , when any new event is created to save precious time in effective response to a distress call.	
	13.	Display CFS No. on Map: There should be tools to display on GIS Map Unique CFS / Event Number with date for easy decision making of the Response Units.	
	14.	Highlight specific Cross Reference Event: System should have the facility to support cross-reference of events and highlighting related events while creating new event for decision making by the Call-taker.	
	15.	Update Existing Event/ Incident Information: The software should allow the Call-taker/Dispatcher/Supervisor to be able to update/modify existing Event/Incident/CFS details for any Additional/Supplementary information related to the same. Also there should be provision to attach relevant files like pdf, word etc to the event, for ensuring an effective response to the distress call.	
	16.	Event Schedule capability: Tools to be provided to facility the Supervisor to schedule a planned event on daily/weekly or monthly basis. The System should automatically generate alerts on scheduled time for such events.	
	17.	On click Map attribute display: Tools to be provided to facilitate the CAD operators, supervisors and, patrol unit MDTs to view attribute details associated with GIS map feature on map click.	

	18.	Map Group Layer capabilities: Mapping Tools to be provided to be able to group the multiple attribute layers and to control (ON and OFF) the same.	
	19.	Voice Record and Play with Event: The software should have provision for Voice Recording of all calls between Caller & Call-taker, with playback option.	
	20.	Language Selection for GUI: It should be possible to switch between Hindi and English using a keyboard short cut.	
	21.	Audio Alert: Software should have capability to Audio Alert an operator/ supervisor if an event is not attended in predefined time duration.	
	22.	Telephone Data Update: If the Caller Telephone number does not pre-exist in the database, then after entering for the first time manually, the Software should be capable of storing it in the Database. The operator should also be able to update the incoming calls caller location by a simple drag and drop operation.	
	23.	Duplicate/ Repetitive Calls: The software should alert the call taker, dispatcher and, supervisor about the possibility of a single event- multiple call situation or a multiple event- multiple call situation.	
	24.	A freely configurable structured query script should be available within the Software to assist the control room agent with predefined Questions and Answers to ask for, during the call. Based on the answer to the call the response for the call taker should be prompted.	
	25.	User-defined Alarm: The Application should be configured with user-defined alarm modules that will be flashed on all the other screens in case of major incident. For Ex: Terrorist attack.	
	26.	**Multiple Calls & CFSs :** The system should be able to handle multiple calls and multiple CFSs as well as multiple calls and single CFS scenario. The same should also be available in reports for post event analysis.	
	27.	**Telephone Data Search :** The Software should be able to Search, Add, Delete & Modify the telephone data along with caller categorization i.e Black listed no and Normal.	
	28.	**Display of Call medium & Helpline:** The Software should be able to display the call medium (PSTN, mobile, radio) and the helpline information from where the call is being received. This is to provide awareness to the call taker as based on the helpline on which the call is landing its priority and response may change.	
	29.	**Smart Addressing & Drill down address search:** The Software should support smart addressing feature to search and select the address by various options. This could be achieved a) By typing in smart address search field listing the probable results automatically b) By using the drill down search for address selection such as Area, Sub area, Street (Road) and Building Name c) By directly clicking on the map.	
	30.	**CFS Location (Free Draw):** The software should support registering the CFS locations not only in the form of point spots but also as line or polygon area. This is to handle situations wherein the affected/reported points is an area e.g. accident on a road segment or riot in an area. The Call taker should be able to freely draw to record such locations in the system.	
	31	**Display of special Caller Zone:** The system should provide means of identifying the special caller zones such as communal sensitive zone, VIP Zone etc. as call taker response may change based on it.	
	32	**CFS to Multi Group Dispatch:** At the time of the CFS creation, In addition to default dispatch group, selection of multiple dispatch groups should be possible for coordinated response. The dispatcher/supervisors should be able to see the status of linked CFS and the units assigned to it.	
	33	**Call Logs:**The call taker should be able to view call logs consisting date/time, CLID, Call type details such as Blank, Crank, CFS, Enquiry, Departmental etc. for the calls made to	

	the control room.

*3.3 **Dispatch Software***

The dispatcher will get the event from the call-taker based on priority and will assign event to the dispatch unit i.e. Police Vehicle, based on pre-defined logic (nearest, free etc.) supported by GIS. The proposed Radio Dispatcher Software is specially designed to present information in an easy-to-understand manner, using multiple windows that can be sized and moved, color-coded, sorted, and are operated based on the standard Windows GUI operation. The Dispatcher will also have all the basic Call-taker features.

1.	Dispatch vehicles to incident sites or locations: The Software should suggest the patrol units of jurisdiction and/ or closest to the location of incident. The dispatcher shall choose which unit(s) to dispatch and it should be possible to do so with drag-and-drop ease.
2.	Real time location of the vehicle: The Software should enable the Dispatcher to see the real time vehicle location on the integrated GIS Map. Dispatching tools should have the facility to track the vehicle on the said map .
3.	Ability to track vehicles in dispatch mode: Tools must be provided to facilitate the Dispatcher to be able to monitor the assigned vehicle in various modes like – Dispatch mode, En-route mode, Arrive mode and Available mode. The entire movement of a vehicle from being assigned to any incident till arrival upon scene should be time stamped and monitored by the dispatcher.
4.	Event Chronology: Proposed software should have the capabilities to record the all event related information changes/ updation made after the creation of event by the same or different operators, like call-takers, dispatchers, supervisors.
5.	Vehicle Playback: Proposed software should have the tools to provide the playback of the vehicle history data, displayed on the integrated GIS Map.
6.	Vehicle Status with color-coding: The proposed software should be capable of displaying the vehicles on the GIS map, with color-coding according to their current status. Vehicle color should change automatically with their change in status, ie dispatch, en-route, at scene, available etc.
7.	New Event Alert: The software shall provide an alarm/ alert for every for new event entered in the system.
8.	GIS Functionality: Software should support the following GIS Functionality - a) Event and address objects- for duplicate/repetitive calls b) GPS interface- for Patrol Vehicle tracking c) Any scale- map display d) Route module- regular & frequent monitoring of any particular location.
9.	Audio-Visual Indication: The Software should provide with an indicator to indicate that an event has exceeded the predetermined time in its current status.
10.	Incident Symbolization: There should be facility for Incident and Resource Symbolization. To facilitate easy identification of event status (pending, open, closed), events should be displayed on map with different colors.
11.	Geo-fencing: The proposed software should have 'Geo-fencing' capability. Software tools should facilitate in allocating areas for all patrolling units depending on Police needs.
12.	Shortest Path Indication: There should be provision for Shortest Route to guide Vehicles. Dispatcher can find from the GIS based map the shortest path from the dispatched vehicle to the event location and convey the shortest path direction to the dispatched vehicle. The Shortest Path feature allows user to identify the shortest path or route between the source and destination. The dispatcher can direct the vehicle and assist them to reach the location using the turn by turn navigational information provided by the system. This information should be same at both the ends.
13.	Display of Resources & Incidents on Map: There should be provision for display of Resources and Incidents on Map.

14.	Recording of all movements on map: There should be provision for recording of all movements on map – date wise, vehicle wise.
15.	**Dispatching:** The CFS, once classified and detailed by the call taker, shall be passed by the system to one or more dispatchers (within pre-defined zone and multi zone). The dispatchers are usually one or two per radio channel and their area of control is divided geographically.
16.	**CFS Location:** The CAD System should display the information entered by the call taker for a CFS. It should display the location as identified by the call taker, ALI or, address database but the dispatcher should also have the option of 'relocating' the CFS.
17.	**Caller History:** The response to a CFS would be affected by previous experience about the caller, location or locality. The CAD should retrieve and display such information.
18.	**Action Taken Reports(ATR):** The dispatcher should be able to enter the ATR information as reported by the responding unit.
19.	**Simultaneous Call Taking & Dispatching:** Upon discovering that a call is of an emergency nature the call taker should be able to alert the dispatcher and the Supervisor They should, then, be able to listen to the call and begin dispatching as the call proceeds. Therefore, the CFS form should be displayed on the dispatch console as it is being populated by the call taker.
20.	**Voice Records:** The radio communications should be recorded by the system. The recording should continue and be stored for the desired period.
21.	**Call Conferencing and Patching:** It shall be possible for the radio dispatcher to organize a conference call between three to six phone lines from his console. It shall be possible to patch phone and radio as well.
22.	**CFS Status:** There should be facility for CFS Symbolization. To facilitate easy identification of CFS status (pending, open, closed), CFS should be displayed on map with different colors.
23.	**Viewing:** The software should facilitate viewing of CFS and Vehicle Chronology. Status of all vehicles & CFS on the map.
24.	**Alternate Route Display:** The Software should also support suggesting an alternate route apart from the recommended shortest path to reach CFS location
25.	**Drag & Drop Dispatch:** The Software should support drag and drop based vehicle dispatch over map for operator ease and faster response
26.	**Communication with field units:** The software should support communicating (call/SMS) with field units by directly clicking on vehicle icon over map for ease of communication
27.	**CFS information delivery acknowledgement:** The Software should support visualization of acknowledgements received from the field MDT unit for CFS information delivery & Acknowledgement
28.	**CFS Transfer:** The software should be able to transfer the CFS to other groups to attend as it falls out of their jurisdictions
29.	**Swap CFS:** The software should provide feasibility for swapping CFS in between two field units as based on the time they are attending the CFS it may be more logical to swap CFSs for faster response without the need of withdrawing the vehicle and re-dispatching it.
30.	**Hold CFS:** The software should support holding the CFS for availability of specific vehicle/responding unit. Once the field unit is available it gets dispatched automatically to the specified CFS
31.	**Nearby Support Agencies:** The software should be able to search and display the nearby support agencies contact details and location on map based on various parameters such as proximity, agency/organization type, etc
32.	**Location of Interest (LOI):** The software should be able to search and display the nearby location of interest such as hospitals, schools, temples etc. on map based on various parameters such as proximity, LOI category, etc.
33.	**Multi – Level Skill for response plan:** The software should support to consider the skills of vehicle on board staff apart from the MDT user while recommending the field units for the reported CFS.

*3.4 **Supervisor***

The Control Room operations shall always be commanded by an officer working in shifts. He would be responsible for generating appropriate operational response to each CFS. It should, therefore, be

possible for him to monitor all activities of call taking, dispatch and, response. He should also be able to feed and modify the location charts for all response units as and when required. The CAD should include a client software that can be installed on a computer from which the supervisor can perform these functions.

1.	Status of all Call Takers and Dispatchers are updated in real time on the supervisor's screen.
2.	The status of each call and the assignment of resources are updated on the view of supervisor.
3.	Using these inputs, the Supervisor can effectively monitor the operation of the control room and take vital decisions to control the operations
4.	Supervisor shall have all facilities of call taker and dispatcher.
5.	Supervisor should be able to issue instructions pertaining to a CFS while it is in progress.
6.	The software should have the provision to schedule CFSs like, VIP Visit, Rally, Festival etc. On setting the date and time for the particular CFS, automatically the CFS should be generated on the set date. The scheduled CFS feature should allow operator to create, edit, delete, and search for a scheduled CFS. For example, a CFS could be scheduled for patrolling purpose on a daily, weekly, or monthly basis.
7.	Digitization & Assignment of Routes: There should be a facility to digitize routes and assign patrolling vehicles. Special routes can be digitized on map and vehicles can be assigned to those routes for daily / weekly patrolling or based on given criteria
8.	Patrol Response Planning and Compliance: It should be possible for the operations commander and the web supervisors to plan the patrol response i.e. which static positions to hold, when; which areas need mobile patrolling, when. It should be possible to analyze the extent to which the prescription was followed by matching it with actual AVLS information.
9.	Create Route: The software should have the provision available within GUI for daily patrolling of the Police units and their patrol locations. Tools for route creation should be provided and Police vehicles assigned for regular patrolling, to those pre-defined routes.
10.	Assign one or more vehicles to the route
11.	Assign check points to the vehicles
12.	**CFS monitoring** : The software should facilitate supervision of control room operations. The supervisor should be able to examine each CFS and ensure 'appropriate legal action' is taken. He shall be able to call up the complainant to solicit feedback and a satisfaction report. The supervisor workstation should have the provisions for the functionalities of both call taker & dispatcher. Supervisor should be able to issue instructions pertaining to a CFS while it is in progress.
13.	**Dispatch Group/Zone Access:** The software should have the facility to access all dispatch groups / zones CFS and RUs. It should also have the facility for selection of individual zones for monitoring and action of each CFS and RUs. It should have access and view of all pending CFSs. It should also have the facility to view CFSs Zone/PS wise.
14.	**System Settings:** The Supervisor software should be able to undertake various system settings & configuration such as: a)Allotment of Telephone Extension number b) Screen Setting (Single, Dual & Triple), c) Map Path Setting d) CCTV camera icon display on GIS Map.
15.	**Unlocking of CFS:** The Supervisor software should be able to unlock the assigned CFS in process and reassign to another dispatcher to take further action.
16.	**Over the Air (OTA) Configuration:** The Supervisor software GUI should have the provision to configure the GPS modems/MDT installed in the vehicles by sending the SMS commands such as vehicle location refresh rate, restart and any other commands supported by the GPS modem/MDT
17.	**Chronology:** The software should have the capabilities to record all CFS related information changes / updating made after the creation of CFS by the same or different Operators, like Call Takers, Dispatchers, Supervisors. There should be provision for supervisor to review these records using user friendly Graphical User Interface.

18.	**CFS Status:** The software should have the capabilities to view the CFS status in report formatted with police zone wise and days/date selection. It should also be possible for the supervisors to listen to the audio file of a CFS and the textual and audio recorded action taken reports from their own system.
19.	**Contingency declaration:** The system should support declaring contingency situations wherein each field unit will be notified of contingency situation and the pre-defined positions where they need to position themselves.
20.	**Dashboards:** The Supervisor should be able to view the following dashboards: a) Police station wise CFS closure status b) Call Takers status (such as logged in/out, break, busy, idle)
21.	**Reports:**The Supervisor should be able to view the following textual reports: a) CFS Chronology b) Vehicle History c) Action Taken Reports d) CFS Closure History e) Operator status

*3.5 **Web Client Software for Supervisory Officers***

Remote Viewer module will be a web-based software monitoring tool to be used by the supervisor / senior officers and police stations for monitoring of limited CAD functionalities using LAN/WAN (Intranet) and Internet. This module provides bird's eye view of the entire deployment and available units. This remote viewer should be able to see the GIS screen and the CFS being handled.

1	The Web Server software shall provide tools for Monitoring of events and live tracking of Police Mobile units, using a standard Web Browser.
2	The software should support three critical functionalities related to Police control room namely – Dial 100 Incident/Event Monitoring, Police Fleet Monitoring and, Patrol Units' Reports & Analysis.
3	Remote Viewer will be a web-based solution to provide for Monitoring of events and live tracking of Police Mobile Response Units by senior officers on their browser LAN/WAN or internet.
4	**Monitoring:** The software should support monitoring of all CFS Critical functionality which related to Police control room namely – CFS Monitoring, Police Vehicles Fleet Monitoring, Reports, Charts & Analysis.
5	**GIS Map:**The software should have integrated GIS map with Zoom In, Zoom OUT, PAN functionalities. GIS map should display the current scale.
6	**CFS Monitoring:** The Software should support active CFS monitoring with detail information and location & Id on the map.
7	**Live vehicle Tracking:** The software should support live vehicle tracking of the response units with details. Like Vehicle Call sign, Police station, Time Stamp, Speed and Current location.
8	**Play back History:** The software should view vehicle history data of the response units with details. Like Vehicle Call sign, Police station, Time Stamp, Speed and Current location. Using various search option like, Date wise, Latest No. of Records.

	9	**Geo-fencing::** The proposed software should have 'Geo-fencing' capability. Software tools should facilitate in allocating areas for patrolling units depending on Police needs and also receive the Notification when vehicles cross the Geo-fence.	
	10	**Reports:** The software should have in built web based Reporting module. The reporting module should have an ability to create various reports using various options like Date wise, Police Station, Police Zone, CFS Type, Sub type etc. The reports should be in both printed and electronic format.	
	11	**Dashboards:** There shall be dashboards for remote web clients and Smartphone clients to give them graphical picture of the performance of those within their jurisdictions in the form of charts and detailed view with dispatch group and center/police station filtering capability with dynamic dashboards. **a) Control Room Operations - Dashboard :** i. CFS Status (Pending, Dispatched, etc.) ii. CFS Status – Priority Wise iii. Avg. Response time iv. Calls Received Vs Calls Created v. CFS Type Distributions vi. Responding Units GPS modem update status **b) CFS Closure Status – Dashboard:** vii. This dashboard should display the CFS closure status for all police stations for a selectable period.	
	12	**Vehicle Dash board:** The reporting module should have inbuilt dashboard to view the performance and health check of GPS devices fitted in the patrol vehicles.	
	13	**Tools for Analysis on GIS map:** There should be software tools for incident and response analysis in geospatially enabled environment. The tools will have the provision to select the data on the basis of jurisdictions , date and time of the day range and other data fields enabling to create Thematic Maps like, • Pin mapping, • Incident count mapping • Repeat Incident count Mapping **Analysis:** It should be possible to analyze crime and criminals in. at least, the following ways, • Hot Spot Analysis • Trend Analysis • Suspect Analysis • Crime forecasting • Journey to crime • Response time	

		• Repeat Callers • Change over Time mapping • Neighborhood Analysis • Serial sex offender tracker • Patrol Charts • Crime against women(type of crime and category of response should be retrievable with the help of software)
	14	**Single Sign On (SSO):** The software should support single sign on feature for the web client to avoid need of re-login for various modules/sections.
	15	**Voice Log Playback**: The web/mobile (smartphone) clients should allow user to access and hear the recorded voice conversation in between the citizen and the control room. The remote user can also playback the voice attachments or audio based action taken reports to get more insight about the CFS.
	16	**Patrol Planning and Compliance:** a) The supervisor / police station officer remote web user shall be able to assign stationary patrol locations and areas to be patrolled during a shift. It should also be possible for the supervisor to see if his instructions were complied. All this should be possible by simple operations of the mouse or a stylus. The Patrolling task should be assign using GIS map. b) Patrolling task shall be assigned to the patrol units. It should be possible to assign, report compliance and, review these Patrolling tasks. The Patrolling tasks would be surveillance of criminals, visit to senior citizens and victims, service of summons, warrants and other court processes, etc. It should be possible to add new kind of Patrolling tasks as well. There shall be several user-definable options for patrol charts i.e. a chart for week days, another for Sundays and holidays, one for Fridays (Namaaz). c) Real time report of units deviating from the assigned chart shall be generated so that the dispatcher and the supervisors can take remedial action. Responding to a CFS does not constitute a deviation. d) In different colors/ icons it should be possible to see the prescribed patrol positions/ area patrols on map for a number of units or for one unit over a period of time.
	17	**Patrol Planning Analysis on GIS Map:** It should be possible to overlay patrol charts, actual positions and, crimes reported over a period of times. This is to analyze tactical the decisions. Were the patrol positions well chosen, did units adhere to it, even then which crimes occurred. It should be possible for the supervisors to monitor the patrol response i.e. which static positions to hold, when; which areas need mobile patrolling, when. It should be possible to analyze the extent to which the prescription was followed by matching it with actual AVLS information.
	18	**Create and View BOLO database:** It should be possible to Create and View the BOLO database, such as stolen vehicle etc.
	19	**One Time Password (OTP):** The software should have the facility to access by entering One Time Password (OTP) received on the mobile.
	20	**Police station/Center view with Notifications:** The Remote viewer client should also provide a view for police stations/centers wherein it provides the monitoring of CFS and fleet information's based on their jurisdictional area. It should also provide notifications in case any major CFS is reported.

3.6 ***Report & Administrative Tool Software***

The CAD should include a module for managing and configuring the resources and other functions like – User creation based on role and responsibility, Various master data creation – CFS, CFS Sub type, Priority, Vehicles, Police Station, Police Zones, Response Plan, Schedule CFS etc.

1.	The application software should offer administration tool for optimum utilization of resources, master database creation and other analytical purposes. Through this software various parameters should be configured like: Users: Stations (PS): Vehicles; Events; Resources etc.
2.	An administrative tool shall enable the Systems Administrator to define users & configure their access privileges; to remotely configure client applications; to check database integrity & perform data synchronization in case of database failure; and to check for critical system component (i.e. message server, Communication server & database server) failure with automatic notification to pre-defined contact personnel.
3.	It shall act as a central supervisory agent, providing access control.
4.	It shall also incorporate user pre-defined reports and facility to automatically email these customized reports to the designated users.
5.	The software should be able to schedule & automatically generate reports. Web based Report module should have the ability to produce reports with appropriate charts and graphs.
6.	The report generation tool should have the facility to provide the report in both printed and electronic format. A single comprehensive 'User Manual' that contains all the documentation required by system users should be provided.
7.	The reporting should also have an ability to create reports using relational criteria and logical operators e.g., less than, greater than, equal to or less than and equal to, wild cards, Boolean operators, etc). The reporting should have the ability to support the execution of all standard queries, excluding external, remote database inquiries, in least possible time. The application should have a variety of reports like; 1. Call Details 2. Event Details 3. Fleet Summary 4. Geo Fence IN/OUT 5. Operator activity Break Code 6. Vehicle activity , Daily activity summary, dispatch response, stop 7. Active Event By Event Types 8. Efficiency of call takers: speed of response, longest idle time, etc 9. Facility to generate the various graphical reports.
8.	**Configuration & Creation of CAD Master Data base**: The application software should offer administration tool for optimum utilization of resources, master database creation and other analytical purposes. It shall enable the Systems Administrator to define users & configure their access privileges. The Software should create / configure various master database like: 1. Users & Role creation of operators 2. Dispatch Zones/ Groups & Police Stations 3. Vehicles 4. CFSs & CFSs Sub-type 5. Shift Master 6. Skill Master 7. LOI Creation 8. Add Agencies 9. Schedule Report 10. Schedule Backup 11. Language setting and dictionary creation 12. Response Plan

	13. Telephone Data Import
9.	**Response Plan(Dispatch Decisions) :** The Supervisor software should be able to configure/create the response plan based on various conditions such as CFS type, day and time of occurrence, jurisdiction, proximity, specialization, available equipment and on duties resources and logical AND/OR combination within rules
10.	**Telecom Data Import Utility:**There should be a provision to import the Citizen's telecom data in a pre-defined CSV format to simplify the task of telecom data import to save huge amount of time and efforts lost in manual data entry while also eliminating the possible errors which may have occurred due to manual data entry.

3.7 CAD Mobile Software for MDT

CAD Mobile application is to provide the Mobile Workforce with full access to the police event data empowering them to make informed decisions while in the field. It will enable the mobile workforce to remain in communication with the command center allowing event assignment information to be delivered to the device as required.

1	The mobile application software should display all Dispatch related transactions, assigned to the respective units.
2	The mobile application software should also display all Event Information, assigned to the respective units.
3	On activating an assigned event by the mobile unit staff, the mobile application software should also display the Event & Vehicle Status – i.e. dispatch, en-route, at scene, arrived and closed.
4	On activating an assigned event by the mobile unit staff, the mobile application software should also display event information – i.e. Event-id, Event-Type, Caller Phone Number, Caller Name, Caller Address, on browser and Event location on map window.
5	It should enable the mobile users to report the status of the response unit (On route, At scene, Finished) or any other details corresponding to the event to the dispatch / control center.
6	It should also enable the mobile users to report event closure.
7	The mobile application should have a pre-loaded GIS map, with basic map functions like Zoom, Pan, Fit. Further, the CAD Operators' map and the MDT map should be same so that they remain in sync and map updation gets shared.
8	Mapping tools should be available for finding the exact location of the event and to search the shortest path to reach at event location. The Shortest route should not only be graphically displayed on map, but also in a textual tabular format for guiding the vehicle driver in event location.
9	The mobile application software should have the capability to display real-time location of the Vehicles on the map.
10	The mobile application software should support Message / SMS Capabilities between the dispatch consoles and mobile unit.
11	The mobile users should have the ability to provide information to the control / dispatch center through text messages and event closing reports
12	The mobile application software should also have an option to send 'Panic' signal to the control / dispatch center.
13	The mobile application software should establish SMS&GPRS communication with the central servers.
14	**Taking Over Duty:**The software should have the provision for the field officers to enter their details into it when they 'take over' duty. The take-over shall include making appropriate text entries on the MDT of taking over of equipment, arms and ammunition, vehicle, fuel volume and kilometers on the odometer. For example, the staff shall indicate by input, the odometer reading of the vehicle at the time of take over. During the duty the officer may change his status to meal break, tea break, available, attending to an CFS , etc.
15	**Dispatch for CFS** : The Dispatcher shall send CFS data to the RU on its MDT and the RU staff shall initiate the response by accepting the CFS on the MDT. The software shall be capable of

		delivering the acknowledgment to the CAD software for receipt of CFS information on the MDT device as well as its acknowledgment from the MDT user. The software should display all Dispatch related transactions assigned to the respective units.	
	16	The software should display CFS, Caller information along with Q&A as registered during the CFS creation assigned to the respective units.	
	17	The MDT user should have facility to relocate the CFS location considering the actual ground situation. It should be possible by a simple click over GIS map or alternatively should also be possible to automatically relocate the CFS location to the vehicles current location on user command.	
	18	On activating an assigned CFS by the RU staff, the mobile application software should also display the CFS & vehicle Status – i.e. dispatch, On Route, arrived and Finished.	
	19	On activating an assigned CFS by the RU staff, the mobile application software should also display CFS information – i.e. CFS -ID, Type, Caller Phone Number, Caller Name, Caller Address and CFS location on map window.	
	20	**Action Taken Report :** The software should enable the RU to online update the status of the response unit (On route, Arrived, Finished) or any other details corresponding to the CFS to the dispatch / control center. It should also enable the mobile users to report CFS closure / Action Taken Report in the form of textual entries, image/video files. Action taken reports can also be in the form of audio clips for MDT users ease. All Action Taken data should be available to Dispatcher and Supervisor through logs.	
	21	**GIS Map & Tools:** The mobile application should have a inbuilt integrated GIS map, with basic map functions like Zoom, Pan, Fit. Further, the CAD Operators' map and the MDT map should be same so that they remain in sync. The dispatcher should also be able to guide the RU to reach CFS location. The MDT user (RU) should be able to see and add the Location Of interest (LOI) such as police outposts, police stations, motor workshops, fuel stations, cinema halls, schools etc. in the GIS map. These shall be vetted by the CAD administrator and after his approval shall become a part of the GIS map .	
	22	**Shortest Path route:** Mapping tools should be available for finding the exact location of the CFS and to search the shortest path and Navigational facility to reach at CFS location with facility of auto update of driving directions display. The Shortest route should not only be graphically displayed on map, but also in a textual tabular.. It shall instruct the officer about the location to be adhered to as defined by the control room.	
	23	**Communication Capabilities:** The MDT application should support exchanging the notes and attachments with the control/dispatch center. The MDT application shall be able to register the on board staff along with the current vehicle in charge who had logged into it. The skill sets/inventory of such staff (on board staff) should also be considered while recommending the unit in response to the CFS as per dispatch decision/response plan.	
	24	**Scheduled CFS/Task assignments:** The MDT application should support to view and execute the scheduled CFSs/tasks such as VVIP visit, Service of summons, surveillance of criminals, courtesy calls to senior citizens, etc.	
	25	**Traffic Impact:** The MDT application should be able to display and report congestion on the roads to the dispatch / control center.	
	26	**Images/Photos/Videos:** The mobile application software should have a capabilities to transmit captured photo/videos from field to police control room using inbuilt MDT device camera	
	27	**Calling Facility:** It should be possible to make and receive voice calls from MDTs	
	28	**Access to Patrol Chart:** The mobile application should have the facility to view the assign patrol chart and update the status of the same	

29	**Access to BOLO Database:** The mobile application should have the facility to access and get the information of BOLO database. (Be On Look Out)
30	**Contingency:** The MDT should indicate the location where the RU has to locate itself if a contingency is declared. It should also give the notification /alert when contingency is declared. The vehicle unit should be able to view the shortest path with navigation information providing driving directions from vehicles current position to the defined contingency location
31	**Security:** There shall be multi level security for MDT devices remotely accessing the CAD. E.g. strong passwords, access to only predefined IPs / MAC numbers, etc.

3.7.1 *Smart Phone Client for Senior Officers:*

There shall be a Smartphone accessible web based client for senior officers to provide insight over the CFS progress and control room operations for their jurisdictions. It should provide the following at the minimum.

1	**General:** This application will be a web-based software monitoring tool to be used by the senior officers for monitoring of limited CAD functionalities using internet/GPRS on their smartphone.
2	**Event/CFS Monitoring:** The software will support monitoring of all CFS/events within their jurisdiction. It should provide at-least the following information about CFS: a) Status wise list of CFS within their jurisdiction b) CFS General Information c) Caller Information (with on-click call facility) d) Notes & Attachments e) Photos (exchanged in between the control room & the MDT user) f) Audio (Call recordings/voice logs, audio based action taken reports) g) Responding units details with status assigned to attend CFS h) Actions comments on CFS progress or closure request i) Q&A registered during call/CFS registration j) Citizen, control room Supervisor comments The Mobile user should also be able to add notes, photos and feedbacks.
3	**GIS map:** The software will have integrated GIS map with Zoom In, Zoom OUT, PAN functionalities. GIS map should display the current scale. It should display the traffic congestion data (if available) as reported by the MDT user.
4	**CFS Closure:** In some cases (based on operational workflows) it should also be possible for mobile client user to close certain CFS which are submitted to him/her for closure with facility to instruct the police station/center owning the reported CFS to take actions as commanded.
5	**Live vehicle Tracking:** The mobile client should also facilitate the user to track the response units assigned to the CFS over GIS map.
6	**Mobile Dashboards:**There shall be dashboards for remote web clients and Smartphone clients to give them graphical picture of the performance of those within their jurisdictions in the form of charts and detailed view with dispatch group and center/police station filtering capability with dynamic dashboards. The dashboards can be : i. CFS Status (Pending, Dispatched, etc.) ii. CFS Status – Priority Wise iii. Avg. Response time iv. Calls Received Vs Calls Created v. CFS Type Distributions vi. Responding Units GPS modem update status vii. Patrol Compliance

3.8 Communication Server Software

1	Communication server Software will facilitate data communication link between the command and control center and the vehicle-mounted unit for the management of the GPS receiver and the transmission of the real time vehicle positioning information to the control room AVLS consoles. It should also provide the interface between the AVLS software and CAD.
2	The Communication Server software should provide tools to manage all data message communication, including real-time vehicle positioning information, between the Dispatch Consoles and the vehicles.
3	The software is to have provision to support concurrent multi-communication channel including GSM-GPRS as the method of data communication.
4	The proposed software should utilize the TCP/IP protocol for all communications.
5	Software should have the ability to remotely configure the data transmission interval of the GPS determined location of the vehicle.
6	Communication Server Software must have facility to poll a specific GPS receiver of a vehicle to transmit its current positional information.
7	Communication Server Software should have capability of detecting vehicles with speeding violations.
8	Software must have capability to restrict vehicles within geo-fence boundary limits and provide reports to operator in case of any vehicles crossing their corresponding geo-fence boundary.

3.9 Message Server Software

1	The Message Server Software should function as a distribution center, with ability to receive messages from AVLS/CAD client applications & distributing them to other AVLS/CAD client applications based on a user configurable set of rules.
2	The Message Server Software should support centralized logging of relevant Command CenterAVLS/CAD related message communications.
3	The Message Server Software must be able to define system users & their access privileges of AVLS/CAD.
4	The Message Server Software should have facility to check database integrity & provide for re-synchronizing of the mirrored database in the event of a failure of one of the database.

4 Networking Components

4.1 LAN/ WAN

4.1.1 **L3 Core Switches**

- 4.1.1.1 Full Layer 3 switch
- 4.1.1.2 Min 20 Dedicated ports and min 4 dual personality ports for choice of fibre.
- 4.1.1.3 Min 2 dedicated stacking ports of 24 Gbps each for stacking and upto 8 switches can be stacked at a time or better
- 4.1.1.4 Switching capacity: Min 184 Gbps and through min 136.9 mpps making the switch a non blocking one or better.
- 4.1.1.5 The switch supports IPv6 and 10 Gig ports for future use.
- 4.1.1.6 Lifetime warranty and free software upgrades

4.1.2 **L2 Switches**

- 4.1.2.1 Fully manageable Layer 2 switch
- 4.1.2.2 Min 20 dedicated ports and 4 Dual personality ports for any fiber termination or better
- 4.1.2.3 Switching capacity of min 48 Gbps and throughput of min 35 &mpps making it a non blocking switch or better.
- 4.1.2.4 The switch should support up to 64 VLANs, Spanning Tree and Trunking,
- 4.1.2.5 Should support various security protocols.
- 4.1.2.6 Lifetime warranty and free software upgrades

4.1.3 **Firewall–** As per requirement

4.1.4 **WAN Routers**- Necessary Router H/W to be included in BOQ for CCTNS and other connectivities

required to be established as per the scope.

4.1.5 **Latest Anti Virus**- As per requirement

4.2 ***GSM Modem***

4.2.1 Air Interface: EDGE, GPRS, GSM,CDMA
4.2.2 Frequency Bands: 850/900/1800/1900 MHz
4.2.3 GSM GPRS Max Power: 400mA
4.2.4 CPU Processor: ARM946/DSP at 104MHz or better
4.2.5 DTMF Mandatory
4.2.6 Echo & Noise Cancellation Feature
4.2.7 Min. 1 UART Interfaces
4.2.8 Min. 1 USB Interface
4.2.9 Status LED Indicator
4.2.10 SIM Socket (1.8V/3V)
4.2.11 Embedded SIM option
4.2.12 Linux, Android & Windows Drivers
4.2.13 Operational Temp: -5 to 55 degrees or better

5 GIS Software

5.1 Technical Specifications for the Digital GIS 1:1000 scale map

5.1.1 The use of GIS should strictly adhere to the End User License. Specifically, the Intellectual Property Rights (IPR) for the Map Image should be as per End User License.
5.1.2 Scale of the required GIS map of each city: 1:1000 scale for city area and 1:5,000 scale for rural area with road positional accuracy of +/- 10 m
5.1.3 Purpose: The GIS map required should be compatible and must support

5.2 AVLS and Vehicle Navigation System with routing and driving directions calculation .

5.3 GIS map for CAD and Navigation on MDT & handheld should support for visual and, voice (preferably) based turn by turn direction and visual should support English.

5.4 Navigation on MDT should display current locations ,target place, feature to save routes, time to go, expected time of arrival and distance to go

5.5 GIS map should be locally hosted at police premises and should have features to update the attribute and police level information

5.6 GIS map should work for Security planning and Traffic management

5.7 GIS map should support application to find Nearby Points of Interest

5.8 Application should work on mobile platform (Android or Windows) in the similar functionality as that of the web platform

5.8.1 Specifications: In order to support routing, the map shall be provided in navigation format with specifications as follows:

5.8.1.1 Road network should be segmented in a manner that it has unique junction nodes and can supports routing algorithm to navigate and calculate distance to each individual locations .

5.8.1.2 Roads shall be classified properly on the basis of usage, average speed, road conditions, connectivity etc. so that priority of each road segment is properly set .

5.8.1.3 Road network shall be segmented at -

5.8.1.3.1 Every intersection of two or more roads

5.8.1.3.2 Every Administrative boundary level

5.8.1.3.3 Where Rail Track intersects with any road objects

5.8.1.3.4 Every road segment having a corresponding start and end junction longitude and latitude to create the whole routable road network. Further every segment shall be attributed with a unique identifier; name, if it exists and its length.

5.8.1.4 Road network continuity shall be maintained to enable navigation/routing.

5.8.1.5 Administrative layers shall represent parent-child relationship. For example, each record in locality layer shall have a parent defined as city name. This shall apply to all administrative layer .

5.8.2 **List of Layers**

a. Administrative

5.8.2.1 District

5.8.2.2 City boundary

5.8.2.3 Locality boundary

5.8.2.4 Building with attributes

5.8.2.5 Boundary / Area of Police Station Police

5.8.2.6 Jurisdiction limits

5.8.2.7 Police Zonal classification

5.8.2.8 Ward Boundary

b. Transportation

i. Road network with specifications as defined in Point 4 above

ii. Rail network

c. Landmarks

i. Police Head Quarters, Police stations, Police Chowkis and other Police installations

ii. All Govt. offices/ Institution etc..

iii. All major landmarks of the city

d. Land Use

i. Water bodies

ii. Green areas

e. 3 D

i. 3 D landmarks with textures for important building

ii. All buildings with height attribute .

5.8.3 Details of GIS Data layers with attributes

Layer No	Layer Name	Description
1	District Boundaries	Name coded to Polygon
2	Colonies	Name coded to Polygon
3	Boundary / Area of Police Station	Name coded to Polygon
4	Jurisdiction limits	Name coded to Polygon
5	Arterial Roads	Symbology
6	Main Roads	Symbology
7	Important Roads	Symbology
8	Industrial area	Symbology
9	Shopping area	Symbology
10	Parks and Gardens	Symbology
11	Railway Stations	Symbology
12	Water bodies	Symbology
13	Police Stations	Symbology
14	Hospitals	Symbology, Name
15	Fire stations	Symbology
16	Hotels	Symbology, Name
17	Restaurants	Symbology, Name
18	Banks	Symbology
19	Cinemas	Symbology, Name
20	Auditorium	Symbology, Name
21	Post and telegraph offices	Symbology
22	Historical Places	Symbology, Name
23	Petrol Pump	Symbology
24	Airline and travel agency	Symbology
25	Museums	Symbology, Name

26	Apartments	Name, House Number (where available)
27	Buildings	
28	Industries	Name
29	Library	Name
30	Parks	Name
31	Railway Stations	Name
32	Railway Reservation Centre	Name
33	Institutions	Name
34	Shopping Centre	Name
35	Water feature	Name
36	Blood Bank	Symbology
37	Place of worship	Name
38	Information Centre	Symbology, Name
39	Art Gallery	Symbology, Name
40	Education and Training Institutions	Name
41	Courts	Name
42	Clubs	Name
43	Offices	Name
44	Hostels	Name
45	Centre Lines of Arterial, Main and Important Roads	One Ways Defined
46	Rail Lines	Symbology
47	Other Roads Outlines	Symbology
48	Arterial road label	Labels of Arterial Roads
49	Main road label	Labels of Main Roads
50	Important road label	Labels of important roads
51	Other road label	Labels of Other Roads
52	Building	
53	Annotation layer	All important names of Industries, offices, Institutions, colonies, parks, water feature and other important points of interest required for navigation

6 Infrastructure

6.1 Earthing

As required

6.2 UPS: 20 KVA with min 2 hours backup

Certifications	ISO 9001and 14001 Certified OEM
Technology	Rectifier&Inverter bothwithIGBT based DSPDesign, Double Conversion TrueOn-lineUPS
Input Voltage & Range	240 – 460 V AC - Three Phase on full load
Input Frequency Range	40 to 70 Hz ± 0.2Hz
Output	20.0 KVA
O/p Voltage	220 VAC(1Ph) with an option available for 380V(3Ph)
Output Frequency	Free runningMode50Hz±0.5Hz

Regulation	
O/p Voltage Distortion	<5% (Non-linear load) <2% (linear load)
Output Waveform	PureSine wave
Output PF	0.8 or better
BatteryBackup	30minute
BatteryType	SMF12V
Batterybrand acceptable	EXIDE, PANASONIC,HITACHI, ROCKET or OEMs manufactured batteries
VDC	Shallbe384VDCormore
Efficiency	Shallbemorethan 92%
BatteryRatings	Shallmeet min. VAH=17600
Installation	Rack orTower
Paralling	Shallbe available with min. N+1. Where N is the Number of UPS mentioned in BOQ.
Noiselevel	<50dB@ 1 Meter, EN62040– 2, 2006, EN62040-1-1 : 2003, EN 62040-3
Protection	IP20
SurgeProtection	External Transient Voltage Surge Suppressorat i/p of UPSofSurge capacityof 50kA with fastresponse timeof <0.5nS, 1449-3 UL listed, NEMA enclosurealongwith monitoringLED(Product catalogueshall beattached)
DGCompatibility	UPSto be compatiblewith DG Set supplyand mains supply
General	ECO mode shallbe available
Standard	USBport withsoftware formonitoring with SNMP card orRJ45 Interface.
Alarms &Indications	All necessaryalarms&indications essential forperformance monitoringof UPSto be incorporated.
LCD Display	Shallbe available inbuilt
Overload	120% for5 min &150%for60 sec
Earthing	Proper earthing<2 Volts

6.3 ***Generator***

6.3.1 25 KVA Diesel Generator Set for Air Conditioning, area lighting, etc (including installation)

Diesel Generator of Capacity: 25 KVA
Current (Amps) 35
Power Factor 0.8 (lag)
No. of Phases - 3 Phase
Engine specifications
BHP - 32
Cooling - Water Cooled
Aspiration - Natural
No. of Cylinders - 3
RPM - 1500
Displacement (Ltrs.) - 2.5

Fuel - HSD
Fuel Consumption (Ltr/hr) @ 75% Load with Radiator & Fan - 4.8
Governor - Mechanical
Starting System - 12 V Electrical
Lube oil Specification - CF4 15W40
Lube oil Sump Capacity (Ltrs.) - 6.5
Lube oil consumption (LPH) - 0.01
Total Coolant Capacity (Ltrs.) - 7.5

Alternator specifications

Voltage Regulation (Max.) - +/- 1%
Class of Insulation - H Class
RPM / Frequency - 1500 / 50 Hz
Power Factor - 0.8 (lag)
No. of Phases - 3 Phase
Voltage - 415 V
Enclosure - IP 23

Conformance standards

IS 4722, BS 5000, IS 1460, ISO 8528, BS 5514, ISO 3046
Recommended to have Genset with Automatic and Manual changeover.

6.4 PA System

Main features

Flexibility
Streaming both in local network and internet
Unlimited number of both sources and incomers of stream in the system
Possibility to setup an independent operating
Audio playback from a file or an external source
Audio streams mixing - playlist creation support

Net Speaker

The same high audio quality in the whole system
Wide range of stream sources
Maximum number of zones: 100
IP and PC based solution – easy to use and maintain
Easy to deploy and use
Event scheduling
Integrated 14W amplifier
Remote configuration and administration
External interface
POE or 12V power
10/100Base-TX Ethernet
The output of the amplifier
The output of Line out/ Headphones
The slot for Micro SD card
1x digital input and output

6.5 Rack along with accessories likes rack mountable switch, Monitor Keyboard, Mouse

As per known brands.

6.6 Air Conditioning for Data room and control room floor

For 24x7 operation Air Conditioners. Qty of A.C's to be calculated based on cooling for 3000 Sq.Ft area to maintain required temp for working area and specified temp for Server Room .Calculation of qty of A.C's to be justified in response.

6.7 **Fire Extinguishing System**

As per requirement

7 Accessories

7.1 ***CCTV System for Control Room***

7.1.1 For the monitoring of all call takers, dispatchers, equipment room and other activities of control room
7.1.2 PSU will propose reliable cameras for the purpose
7.1.3 Monitoring is to be done by the on-site supervisor and web supervisor
7.1.4 Adequate recording facility (720 hours)

7.2 ***Laser Printer***

Description	Parameter
Speed	35 pages per minute (ppm) in A4 and 18 ppm in A3
Resolution	1200 x 1200 dpi
Duplex	Full Duplexing unit
Media types	Paper (coloured, letterhead, light, plain, preprinted, prepunched, recycled, rough, heavy), bond, cardstock, envelope, labels, transparency, vellum
Duty cycle	Up to 65,000 pages per month
Toner	Four spare Toner Cartridge.
Memory	256 MB
Driver compatibility	Compatible with Windows, Mac OS and Linux
Interfaces	Ethernet and USB ports
Power requirements	220 to 240 VAC (+/- 10%), 50/60 Hz (+/- 3 Hz)

7.3 **Photo Copier**

7.3.1 Digital photocopier with min speed 20cpm
7.3.2 Function : Print , Copy, Scan
7.3.3 Scanning speed of 7ppm @ 1200dpi
7.3.4 Scanning resolution of 1200dpi
7.3.5 Connectivity: USB, Ethernet

7.4 **Display Unit**

Display (Ultra HD4K TV) -

Screen Size(Inches)	65
Type of Television	LED
Backlight	LED
Aspect Ratio	16:9

Picture Features -

Resolution(Pixels)	3840 x 2160
Picture Processor	4K X-Reality PRO
Picture In Picture	Yes
Picture Mode	Dynamic/Normal/Cinema/THX 4K (Cinema/Bright Room)/Monitor/Custom/Professional1/Professional2

Audio Features -

Selectable Sound Modes	Standard, Cinema, Sports, Music, Game, Compressed Audio

Stereo Playback	Yes
Surround Mode	Yes
Number of Speakers	2.2ch
Connectivity -	
HDMI Input	Yes
USB Port	Yes
Composite Input	Yes
Component Input	Yes
Digital Audio Out (Optical/Coaxial)	1 (Rear)
Ethernet	1 (Rear)
Wifi	Yes
DLNA Support	Yes

(C)

BILL OF QUANTITY

S No	Item Description	Quantity
1	**CAD Core Components** **Data Center – Hardware**	
A	**Chassis**	
B	**Servers**	
	Application Servers	
B.1	CAD Server	
B.2	AVLS Server	
B.3	GIS Server	
B.4	Incident Analysis Server	
B.5	SMS Server	
B.6	Web/Email Server	
	Communication Servers	
B.7	CTI/ACD Server	
B.8	Voice Logger	
	Backup and Recovery	
B.9	Backup and Recovery Servers for Application andCommunicationto ensure redundancy	
B.10	Storage and storage Back Up System (External USB HDD – 1TB each)	04

Note-The above list of server is indicative in terms of performance. The PSU is free to propose the actual no. of servers appropriate for the proposed system subject to the minimum number of 10 Servers to fulfil the FRS and standards of robustness, redundancy and, speed, however the decision of the department will be final.

C	**Communication Platform Hardware**	
C.1	IP EPABX with Accessories	One
C.2	Gateway for integration of ISDN PRI, GSM,CDMA, VHF Radio & Analog PSTN Interfaces	One

S No	Item Description	Quantity
D	**Data Center – Software and customization**	
	CAD Software	
D.1	CAD Server Database Software with English and Hindi Support	One
D.2	AVLS Server Software with English and Hindi Support	One
D.3	GIS Server Software with English and Hindi Support	One
D.4	Incident Analysis Server Software with English and Hindi support	One
D.5	SMS Server Software	One
D.6	Software for 3 application modules – Task, HR & Traffic	One
E	**Communication Software**	
E.1	CTI/ACD/IVR Server Software	For 15 Call Takers, 10 Dispatchers and 3 Supervisors
E.2	Voice Logger	One
E.3	WEB/Email Server software	One
	TOTAL – Data Center Software	
F	**Control Room Software**	
F.1	CAD Software for Call Taker, Dispatcher and Supervisor with English and Hindi Support	28 Users for Call Taker and Dispatcher. Can be used to log in as Call Taker ,Dispatcher or Supervisor
	TOTAL – Control Room Software	
2	**Networking components**	
A	Managed L2 24 Port LAN Switch	As Required
B	Managed L3 LAN Switch	As Required
C	Routers in full redundant and Switches configuration	As Required
D	Firewall and Anti Virus	As Required
E	GSM Modem	04
F	LAN cabling for entire control room with CAT6 Cable, I/O's, Jack Panel, SMB, Patch Chords, N/W Rack (To be quoted as separate line item.)	As required
3	**Infrastructure**	
A	Earthing	As required
B	20 KVA UPS with min 2 Hrs Battery Back up	One
C	25 KVA Diesel Generator set – Automatic- for remaining control room equipments /ACs, lighting - Back Up Diesel Generator with installation	TWO
D	Rack along with accessories likes rack mountable switch, Monitor Keyboard, Mouse,	As per required
E	Air Conditioning (for 24x7 use) for Data room and control room floor	Minimum 10

	with Concealed ducting and provision of suitable rating stabilizers with split A.C. of 2 ton each (Approx Area: 3000 sq.ft)	
F	PA System for the Control Room	One
G	Fire Extinguishing System	As per Requirement
H	**Site Preparation Charges**	**Also refer Note Below**
a	Partitioning of the work Area into Zones with Glass and Doors	As per approved Design
b	Cubicles including Chair and Table (Chairs for Operator and for Supervisors will be different)	As per no. of operator seats & approved design
c	Documents storage/Filing cabinets, cupboards etc	As per approved design
d	False Ceiling and Flooring	For 3000 Sq Ft Area
e	Electrical Wiring and Earthing	As per requirement. And provision of safety equipment (Lightening arrester) from lightning etc.

Note:

1) Vendor will carry out site survey of proposed Control Room Area & will propose various options of Layout Diagrams depicting the Control Room Setup.
2) Once signed approval of Layout is received, Vendor will prepare 3D Walk through of the proposed Control Room design with various Colour, Materials etc.
3) Site preparation will commence on approval of 3D walk through Model of site.
4) Flooring should be of Vitrified type & as per approved sample.
5) For all Electrical Wiring carried out at site, necessary NOC / Approvals will be taken by vendor from Directorate of Electrical Safety and submit to Police.
6) All Cabins (Including Server Room) in Control room including Main Entrance will be of Toughened Glass & same material doors.
7) In addition to Access Control Toughened Glass door for Main Entrance there will be Glass Sliding door with sensors.
8) Provision of Ceiling Lights and Fans at appropriate points to cater entire area of Control Room.
9) Painting of Walls and provision of suitable Roller Blind (Curtains) for Windows.
10) Civil / Plumbing works as per site requirement.
11) Approved suitable furniture for control room.

4	**Accessories**	
A	CCTV System for Control Room with Cameras to monitor and record the activities of entire control room with fixed cameras along with storages. Which can be viewed remotely	One
B	Access Control System	Two
C	Media Monitoring System (Refer Note Below)	Lot
D	LED Screens / Display (each of 65")	02
E	Laser Printer	One
F	Photocopier	One

G	Paper Shredder	One
	TOTAL – Data Center Hardware	

Note:

1) The proposed Media Monitoring System will have 2 No's of 2x2 Matrix of 32"LED TV's.
2) Suitable Dish TV connections will be installed with recording facility so as to display different news channels on each of the 4 No's of TV's.

S No	Item Description	Quantity
5	**System Size-Control Room Hardware**	
A	Call Taker Workstation with Bilingual Keyboard , telephone	15
B	Wired Headset	30
C	Dispatcher Workstation with Bilingual Keyboard , telephone, foot pedal for PTT	10
D	Supervisor Workstation with Bilingual Keyboard , telephone, foot pedal for PTT	3
E	Wireless Headset	20
F	MDT for Two wheeler – Rugged Handheld	75
G	Software and license fee for MDT for two wheeler	75
H	Portable blue tooth Printer for above MDT for Printing Traffic challans	25
I	MDT for Supervisor – Commercial grade Hand Held	50
J	Software and license fee for MDT for Supervisor	50
K	MDT for Vehicle - vehicle Mounted Rugged	75
L	Software and license fee for MDT for Vehicle	75
M	No of PRI Lines (Redundancy)(Refer Minimum Tech Specs 1.6.1.12)	2
N	GSM/CDMA Card (Part of EPABX) for 8 connections .	As required
O	No of ports for voice logger	40
P	Digital /IP phone with CLI facility	40
	TOTAL – Control Room Hardware including MDTs	
6	**Professional Services**	
A	**GIS Map Charges**	
A.1	GIS Map Digitization	Urban – 70 sq. km. Rural - 1450 sq. km
A.2	Map POI creation as per the layers and point of interest	No of POIs (minimum 20,000)
A.3	3D Landmarks (Prominent Buildings) List to be provided by SSP VNS	50
A.4	Map Updation Charges	As per requirement
B	**System Integration**	

B.1	Project Management Charges	
C	**Installation of End Points**	
C.1	Installation Charges for Mobile Data Terminal (Vehicular)	Based on no of units
D	**Operations Support**	
D.1	Warranty charges for a Period of 2 Years from the date of final ATP	
D.2	Extended Warranty for a further period (Per year)	
D.3	24x7 Onsite support charges (Per year)	3 Persons
D.4	Daily Maintenance / Cleaning of Control Room till handover	Lumpsump
D.5	Training (Written training materials should be provided)	
	Call takers	50
	Dispatchers	40
	Supervisors/Operations Commanders	6
	Remote Supervisors	60
	Trainers for MDTs	10
	TOTAL- Professional Services Charges	
7	**Communication and Connectivity Charges**	
A	Annual PRI Line Rental (Refer Minimum Tech Specs 1.6.1.12)	At Actual. Based on no. of PRI line and no. of Outgoing calls
B	Annual GSM/3G Charges for MDT and SMS service (for handheld MDTs it should include 500 minutes free minutes for voice communication per MDT and within the CAD group Voice Communication should be free) (3G data plan should be based on the expected volume of data exchange) (Refer Note Below)	Based on the no of MDTs
C	2 Mbps Bandwidth (Leased Line / MPLS) charges for control room with redundancy for seamless working	Lot
D	Suitable Internet Connectivity at Control Room for various Integrations (NIC SMS Gateway, Remote Viewer, 3 Modules S/W etc.)	02
	TOTAL – Communication and Connectivity Charges	

Note: All the SIM cards used will have Private APN configured for Data Security and end to end Data communication between Device and Control Room. These SIMs should be 3G configurable/ replaceable to 4G/LTE when available in the market.

- NIC SMS Gateway will be provided by UP Police. Facility of fall back to base modem for sending SMS to be configured in case of non-availability of SMS gateway.
- CCTNS Connectivity at Control Room for access from Police Station will be provided by UP Police.

(D)

Terms and Conditions

1. The PSU should propose open systems based on client/server architecture and personal computer.
2. The PSU should provide solutions running on a Linux/Windows with sufficient processing power and main memory to drive the full hardware and software configuration of the System, and deliver the projected workload and performance requirements of the System.

3 The PSU should propose such a Non-proprietary system that has multiple supports in software development packages, application and database solutions; and multi-vendor support in hardware platforms, peripherals and Original Equipment Manufacturer (OEM) parts.

4 The PSU should propose solutions based on International Standards, ensuring interoperability between existing and future systems.

5 The System should be **scalable** in time and features, providing the ability of the architecture to change in size or scale to suit the changing conditions now and in the future.

6 The System shall be **modular and expandable** to permit equipment interchange and system expansion. Hardware and software should be upgradeable in order to deliver fast adaptability to unpredictable circumstances and improving technologies.

7 **The PSU shall be responsible for design, supply, installation, interfacing, testing and commissioning on TURNKEY basis. PSU will provide 2 years warranty with extended warranty for 2 more years. The system should be operational 24X7.**

Contractor shall provide system experts for 24X7 operational support during trial, warranty period. PSU will arrange the training program for the police persons who will be manning the control room/ system and will also associate the police personals during the commissioning of the system.

8 The PSU shall provide access to the customer, to the required protocols and Software modules required to integrate the application with any other Software application; and it shall facilitate and assist the integration.

9 The system must continue to perform normal receiving of Dial 100 calls in case of total failure of the system.

10 The system shall include a standard computer, screens depending on the applications included, and the possibility

to include a touch-screen for communications management. The dispatcher post shall include

keyboard, mouse, scratch pad and communications devices: headset and microphone/speakers etc.

11 It shall be possible to access the application with different profiles: supervisor or dispatcher. Depending upon the configuration and level, it shall be possible to access all or part of the communication resources or information in the control room.

12 The system shall have the capability to configure for each user to access different features: access for each Software module, access to each communication interface, access to different types of forms.

13 The user shall access the system from any dispatcher post equipped with the required communications hardware. This shall give the possibility to define, based on the Control Room needs, users with call-taker profile and/or dispatcher profile. General profiles can also be defined for users who could work both as call-takers / dispatchers, depending on the service demand. PSU shall include minor suggestions desired by user.

14 **Payment will be made as follow** :

a) 40 % after supply, installation, commissioning and successful operation of the system and receiving internal ATP report from the supplier (PSU).
b) 60% after successful final ATP done by a departmental committee.

15**PSU will ensure functionalities of all the functions mentioned in FRS. If needed, PSU will have to include additional items apart from mentioned in the BOQ.**

16.PSU will provide the details of proposed man power who will be part of system for application development,modification,customization and maintenance. CVs of proposed resources as part of Bid.

2.0 ELIGIBILITY CRITERIA

The PSU must fulfill the following conditions with supporting documentary proof along)

a) The details of similar systems implemented in any of the Police department or Government agencies (Globally and domestic).Documentary proof about execution of such work and its satisfactory performance should be enclosed in the Technical bid.

b) A letter of authority from Principals to support for supply, installation and commissioning must be enclosed in case the PSU is a sole distributor or dealer.

c) PSU will be held responsible for the delivery of entire project. The compliance of terms & conditions should be adhered as per RFP.

d) Turnover of PSU as well as main associate (techno partner) should not be less than 75 Crores.

e) PSUs will give the certificate to the effect that all CVC guidelines are being followed by them

in procurement.

3.0 GENERAL CUM TECHNICAL BID

The General cum technical bid should not be furnished with commercial quote.

The General cum technical bid should contain the following:

i) It is to be submitted in two separate sealed covers.
ii) Duly filled in **Annexure - A & B** (Profile of the company) with relevant details and enclosures.

iii) Signed documents(every page) along with credentials and supporting documents.

iv) Authorization letters from Original Equipment Manufacturers (OEMs).

v) Technical solution document detailing about the solution offered.

vi) Registration certificate

vii) Profile of associates

viii) Latest sales tax clearance certificate

ix) Order copies with satisfactory letter

x) Last Three years IT returns

xi) Last Three years Audited Financial document.

xii) Datasheet of the quoted products with OEMs certified

xiii) Compliance Certificate for the Technical Specification of Items

xiv) Power of attorney to the authorized person granting the person signing the proposal.

xv) Each page of Technical Bid should be numbered and signed by authorized person.

xvi) Index should be made for Technical Bid.

xvii) Make and Model should be clearly mentioned in unpriced BOQ against each Hardware equipment.

xviii) Every parameter must be supported by technical data sheet (pamphlet).

4.0 FINANCIAL BID

A- The FINANCIAL Bid as prescribed form should be filled up,signed and submitted in two separate sealed covers along with the required enclosures.

B- Price of hardware, software and license fee should be quoted separately.

C- The PSUs not submitted as specified above will summarily be rejected.

D-**L-1 will be decided on the basis of cost and 2 years warranty period.**

5.0 DETAILS TO BE FURNISHED AND MODE OF PRESENTATION

a) The bid document should contain particulars like name and addresses of the PSU, cost including excise duty, customs duty, sales tax, surcharge, freight, Octroi, insurance and such other levies applicable for delivery. Taxes and other charges must be quoted separately.

b) The price quote should be valid for a period of **180days** from the date of opening the Commercial Bid .

c) The price quote ,both in words and figures for each item with make, model and specifications should be indicated in Commercial bid.

d) Technical specifications and Brochures for each item quoted should be enclosed in the Technical Bid.

e) Increase or revision of any duties, taxes and surcharges will be borne by the PSU alone till delivery period.

f) The supply of equipment for system, Installation & commissioning and the scope of work shall be as per the requirement.

g) Submission of any additional documents will not be entertained after due date unless required by the department. UP Police will not accept any document after closure of submission schedule.

6.0 REJECTION CRITERIA

i) Offers should be submitted with signature on every page of the document. Offers received without being duly certified by the PSU for fully accepting the terms and conditions of the RFP and for abiding by the rules laid down, will summarily be rejected.

ii) The Offers submitted without required valid documents/certificates in technical bid will summarily be rejected.

iii) Offers submitted without the specification for each item quoted or compliance statement in the technical bid will be summarily rejected.

iv) Offers with incomplete information, subjective and conditional offers/PSU's own terms & conditions including partial offers will be liable for rejection.

vi) Offers submitted with incomplete details against the required specifications in Technical bid will summarily be rejected.

vii) Offers with variance / contradiction between Technical and Commercial Bids will be liable for rejection.

viii) Offers without technical demonstration will be rejected.

ix) There shall be a technical evaluation of the proposed system and those PSUs not fulfilling the Functional Requirements and the Minimum Technical Specifications shall be disqualified.

x) In addition to the above rejection criteria, non-compliance in any aspect of this RFP document will make the offer liable for rejection.

7.0 ACCEPTANCE OF OFFER AND WITHDRAWALS

a) The final acceptance of THE OFFER is entirely vested with ADG(Telecom) who reserves the right to accept or reject the tenders without assigning any reason.

There is no obligation on the part the Department to communicate with the rejected offers. After acceptance of the offer, the PSU shall have no right to withdraw his offer or claim higher price.

b) The offer accepting authority may also reject the tenders for reasons such as changes in the scope of procurement with advanced technology equipment, lack of anticipated financialresources, court orders, accidents or calamities and other unforeseen circumstances.

8.0 CONTRACT AGREEMENT

a) The successful PSU/PSUs will be informed by a provisional order to execute an agreement on a stamp paper to fulfill the contract within 5 days from the date of receipt of Provisional Order. The non- execution of contract agreement within the prescribed period will entail cancellation of the order.

b) Expenses incidental to the execution of the agreement shall be borne by the PSU.

c) The conditions stipulated in the contract agreement form should be strictly adhered to and any violation of the conditions will entail termination of the contract without prejudice to the rights of PURCHASER and to recover any consequential loss from the successful PSU.

9.0 SECURITY DEPOSIT

The successful PSU will remit the Security Deposit of 10% of the P.O. Value in the terms of Bank Guarantee from a Nationalized Bank drawn in favour of "**IGP/Director(Telecom) payable at Lucknow"** shouldbe enclosed with the contract agreement within five days from the date of receipt of the provisional order.

a) The Security Deposit remitted by the PSU will be returned after the expiry of warranty period and on the performance satisfaction by the user.

10.0 SUPPLY, INSTALLATION, COMMISSIONING& ATP

a) The Supply of equipments including all accessories should be as per the specifications.

b) The equipment and its related accessories should be supplied, installed and commissioned at the selected place at the risk of the PSU.

c) PSU shall be responsible for commissioning the new equipment and accessories with interface compatible to the existing equipment and accessories with the concurrence andcoordination of the officer of the department for the implementation of project at respective sites during installation.

d) All relevant documents such as operation and user manuals, schematic and circuit diagram, service manual including trouble shooting shall be supplied by the PSU for each equipment at free of cost.

e) If the supply, installation and commissioning of the equipment are not completed as specified time from the date of receipt of the provisional order, the user Department shall have the right to cancel the order and also take any such action which will be deemed fit according to the circumstances.

f) **Procedure of ATP** :-

Supplier will intimate IGP/DIR (Telecom) as soon as the system is fully installed and commissioned. IGP/DIR (Telecom) shall ensure to initiation of the process of ATP for satisfactory operation as follows :-

1st Phase : Internal ATP by supplier itself.

2nd Phase : Technical committee will start the process of ATP within 7 days from the date of submission of internal ATP by the supplier and will complete the ATP within 10 days. The shortcoming, if any, will be resolved by the supplier within 20 days, after that, the department will finalize the ATP within 03 days. Supplier shall not be responsible for any delay on account of the department.

The process of both phases of ATP, mentioned above will be as under :-

Step : 1- Functional Testing
Step : 2- Full Load Testing
Step : 3- Redundancy Testing

The date on which ATP is completed as per the satisfaction of the department, will be the “Date Of Commencement”.

11.0 LIQUIDATED DAMAGES FOR NON-FULFILMENT OF PURCHASE ORDER

Penalty will be levied at 1% per week on the total value of the project implementation subject to a maximum of 6% for any delay in supply, installation and commissioning beyond the stipulated

period. Any unreasonable delay in completing the projects may entail blacklisting of PSU.

12.0 PENALTY FOR NON-FULFILMENT OF CONDITIONS

Penalty will be levied at 10% on the total value of the equipment or the actual loss incurred by the Department whichever is lower if the conditions stipulated in the Contract Agreement are not fulfilled or observed till the project is completed with satisfactory performance and handed over.

13.0 WARRANTY

a) A warranty period of minimum 2 years or agreed otherwise should be allowed against the continuous working with satisfactory performance for all the equipment and accessories used for commissioning and support of the systems from the date of handing over the completed project.

b) If any defects in manufacturing or technical aspects are noticed within the warranty period, the PSU is liable to rectify or replace free of cost.

14- PENALTY CLAUSES

The following penalties will be imposed if the required of uptime of 99.5% is not achieved.

Sl No.	Uptime Penalty	Penalty
1	**99% <Uptime<99.5%**	**Service Extension will be credited for the period equal to the downtime**
2	**98% <Uptime<99%**	**Service Extension will be credited for the period equal to the downtime**
3	**95% <Uptime<98%**	**Service Extension period will be credited for the period equal to five times the downtime.**
4	**Uptime<95%**	**UP police may terminate the contract, en-cash the performance guarantee and impose costs as specified.**

A quarterly report on the system uptime/downtime calculation including force majeure cases shall be provided by the operator to SSP concerned within 15 days of the expiry of each quarter. The same will be verified by UP police and penalties, as applicable, will be imposed.

15. FORCE MAJEURE

Neither party shall be responsible to the other for any delay or failure in performance of its obligations due to any occurrence commonly known as Force Majeure which is beyond the control of any of the parties, including, but without limited to, fire, flood, explosion, acts of God

or any Governmental body, public disorder, riots, embargoes, or strikes, acts of military authority, epidemics, strikes, lockouts or other labour disputes, insurrections, civil commotion, war, enemy actions. If a Force Majeure arises, the Bidder shall promptly notify User in writing

of such condition and the cause thereof. Unless otherwise directed by UP Police, the Bidder shall continue to perform its obligations under this Agreement as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

16- **Profile of PSU & Main Associate to be filled in Annexure separately (As given below).**

Annexure- A

Profile of the PSU

The PSU should furnish the following details to be pre-qualified for the commercial bid opening.

Sr. No	Details	Remarks
1	Name of the PSU and year of Incorporation.	
2	Nature of PSU	
3	Address of the registered office of PSU with phone, mobile no., e-mail ID and Fax number.	
4	Registration No. if Any TIN/VAT: CST:	
5	Income Tax clearance certificate (Latest to be enclosed)	
6	Audited balance sheet and income statements of the just concluded year and the previous two years (Details relating to the sales made on similar system should be furnished separately.)	
7	Project officer who will be handling the above project. (Name, qualification and experience and contact phone number with mail-Id)	
8	Details of qualified technical personnel available for installation, commissioning and maintaining the project.	
9	Name of the Government agencies and other organizations to whom the supply installation and commissioning of similar system were made in	

	the preceding three years. (enclose copy of purchase order and other documents)	
10	Details of service centers in U.P OR NCR Region (Full address with phone and Fax no.)	
11	PSU will have to provide an affidavit on non-judicial stamp paper worth rupees 100 regarding that their firm or the equipments which they are offering is/are not blacklisted by any department / authority.	
11	**Indicate your delivery schedule (against the various activities listed)**	
	Date of receipt of provisional order	D
	Signing of Contract Agreement	D + 5 days
	Supply of ordered items	D + days
	Installation and commissioning of equipment	D + days
	Acceptance of the system including trail run for one month	D + days
	Completion and Handling over of the system	D + days

Note : All the details above with supporting documents must be provided by the PSU.

I/We ..... hereby declare that the particulars furnished by us in this offer are true to the best of my/our knowledge and we understand and accept that, if at any stage the information furnished are found to be incorrect or false, we are liable for disqualification from this tender and also liable for any penal action that may arise due to the above.

Name :

Designation :

Signature :

Seal of the PSU :

Date :

Place :

Annexure- B

Profile of main associate

The associate should furnish the following details to be pre-qualified for the commercial bid opening.

Sr. No	Details	Remarks
1	Name of the associate and year of Incorporation.	
2	Nature of associate	
3	Address of the registered office of associatewith phone, mobile no., e-mail ID and Fax number.	
4	Registration No. if Any TIN/VAT: CST:	
5	Income Tax clearance certificate (Latest to be enclosed)	
6	Audited balance sheet and income statements of the just concluded year and the previous two years (Details relating to the sales made on similar system should be furnished separately.)	
7	Project officer who will be handling the above project. (Name, qualification and experience and contact phone number, MAIL ID)	
8	Details of qualified technical personnel available for installation, commissioning and maintaining the project.	
9	Name of the Government agencies and other organizations to whom the supply installation and commissioning of similar system were made in the preceding three years.	

	(enclose copy of purchase order and other documents)	
10	Details of service centers in U.P OR NCR Resign (Full address with phone and Fax no.)	
11	Associate will have to provide an affidavit on non-judicial stamp paper worth rupees 100 regarding that there firm or the equipments which they are offering is/are not blacklisted by any department / authority.	

Note : All the details above with supporting documents must be provided by the associate.

I/We ..... hereby declare that the particulars furnished by us in this offer are true to the best of my/our knowledge and we understand and accept that, if at any stage the information furnished are found to be incorrect or false, we are liable for disqualification from this tender and also liable for any penal action that may arise due to the above.

Name :

Designation :

Signature :

Seal of the Associate :

Date :

Place :