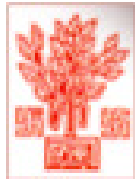


RFP For IT based City Surveillance & Dial 100 for Vehicle Tracking for Emergency Response System

NIT No: RFP/BSEDC/city surveillance/12 Dated: 03/01/2012



Department of Home (Police)



BIHAR STATE ELECTRONICS DEVELOPMENT CORPORATION LTD.

(A Bihar Government undertaking)
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Website: www.beltron.in & www.eproc.bihar.gov.in

IMPORTANT INFORMATION

Non-Refundable Tender Cost	Rs. 10,000/- (Ten Thousand) A/c payee demand draft from a scheduled bank, drawn in favour of BSEDC Ltd.
Sale of RFP document	All working days during office hours starting from 03.01.2012 to 31.01.2012
EMD/ Bid Security	Rs.20,00,000 /- (Twenty Lakh) in the form of BG/dd in favour of BSEDC Ltd. Patna.
Performance Bank Guarantee (PBG)	Performance Guarantee will be submitted in the form of BG @ of 5% of Project Cost/ PO Value by successful bidder.
Last Date of Submission of written queries on Bid document	12.01.2012 till 6.00 PM.
Pre bid conference	At 3 P.M. on 12.01.2012 Venue: Beltron Bhawan, Shastri Nagar, Patna-23.
Last date for submission of Bid (Only through e-Procurement)	Up to 3.00 P.M. on 31.01.2012
Opening of Pre Qualification (General cum Technical) Bid	AT 4.00 PM. on 31.01.2012.

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CHAPTER 1: INTRODUCTION

To enhance security of citizens of Patna and protect vital assets of the city and also to reduce wait time for citizens for getting help during emergency there is a need to develop systems which will ensure highly effective police operations with accurate flow of information and communication.

State-of-the art Control room operations for Patna Police has to be developed. Proposals with comprehensive solutions are requested for following two parts of the Project from competent System Integrators having experience in Geographic Information System (GIS), Global Positioning Systems (GPS), Call Centre solutions, City Surveillance etc.

PART ONE

1.1 GIS/GPS BASED AUTOMATIC VEHICLE TRACKING SYSTEM INTEGRATED WITH DIAL 100 EMERGENCY RESPONSE SYSTEMS FOR PATNA POLICE

1.1.1 SCOPE OF WORK

Supply, Installation, commissioning and Running of “Integrated GIS/GPS based Automatic Vehicle Tracking System and Emergency Response System called Dial100 System” for Patna City Police with centralized control room upto Three (3) Years minimum.

The responsibility of Bidder is to extend training & handholding to the Police Staff (Call Takers, Dispatchers and Administrators) in the control room.

1.1.2 OBJECTIVE

It is proposed to Modernize the Police Control Room (PCR) at Patna with Automatic Call Distribution System using Digital Exchange, Servers and GPS/GIS based AVL system for Dial.

The automatic call distribution shall have the Digital Exchange with Server and 12 clients. The Patna city Police Commissionerates areas and part of Rural areas developing around patna city map have to be digitized up to lane level using scale of 1:1000 for main City and 1:5000 for rural areas.

The automatic vehicle locator unit have to be installed with GPS/GIS receiver, and to be linked with Patna city Police control room.

The whole system has to be integrated to work as a full-fledged solution so that when an emergency call emerges from a public, it has to be identified from where the call emerges. It has to be located in the digital map and nearby patrol vehicle as shown in AVL system has to be diverted. The call has to be recorded in the voice logger and details have to be entered in the computer in a predetermined format (template).

PART TWO

1.2 IT ENABLED SURVEILLANCE SYSTEM FOR CITY SECURITY

1.2.1 SCOPE OF WORK

Supply, Installation, Commissioning and maintenance of the surveillance system to achieve the below mentioned objectives at given locations in the city Patna and can be further extended to Sachivalay, High Court & Vidhan Sabha. The project is proposed on BOOT MODEL.

IP based CCTV cameras will be used to monitor happenings in the Patna City. A mix of High definition IP based Fixed and PTZ cameras will be used for the purpose. Both IP based CCTV Camera should work with Wireless and Fiber based Network.

To enable hybrid connectivity, as per feasibility i.e. Fiber and Wireless based network will be preferred. This network should be zero interruption based communication for links among Control room and IP Cameras installed & spread over 32 locations in the city.

- a) The successful bidder shall be responsible for end-to-end implementation of connectivity of all the locations under this RFP and shall quote and provide/ supply any item(s) of latest make and model not included in the bill of materials, but required for successful implementation and commissioning of the system as well as its management. For such item(s), which have not been quoted by the successful bidder in the bid, but are required for successful completion of the project, the tenderer shall not pay for the same.

- b) The supply of all the installation material/accessories/ consumables necessary for the installation of the systems.
- c) The required networking equipment for end to end connectivity from Control room to individual Surveillance Cameras shall also be provided by the bidder at each location.
- d) The complete ownership of the network proposed on wireless/fibre will that be of Police department Bihar. However complete maintenance will be in the scope of the bidder including rectification of minor or major faults/breakages in the network equipment.
- e) Carry out installation of active components, passive components and accessories supplied as per standards for successful integration and implementation of the systems at each locations connected under this RFP.
- f) Configuring and fine-tuning of subsystems to achieve overall optimal network performance with high level physical & cyber security.
- g) CPE (Customer Premise Equipment) shall have enough gain to provide strong signals for the video & audio communication.
- h) Wireless Communication should be fully secure and shall support 128-bit encryption or better.
- i) Minimum bit-rate of streaming shall be 2 Mbps.
- j) All the locations are connected through wireless or wired medium(fibre) with Local Control Room.
- k) Access Point shall be placed in such a way that it covers the entire locations which is under surveillance. Associated planning and diagrams of placement of Access Points shall be provided by bidder.

All the cameras will be connected to a Command & Control Centre which will be equipped with video management modules and storage modules. Provisions will be made to record and view live incidents at all surveillance premises. Recorded clips can also be viewed readily on requirement. The Command & Control Centre will be equipped with LCD display units to aid the officials in monitoring events. Abnormal activities should identify and indicated by the system.

1.2.2 OBJECTIVE

1. To offer proactive approach to improve public safety and security in the State.
2. To enable tactical and effective communication between authorities.
3. To deploy technology solutions to sense, analyze and enable a coordinated response to handle the threats better.
4. To act as deterrent to potential exploitation of vulnerabilities.
5. Layered approach to secure City Entry/Exit, zones and critical infrastructures.
6. Street Level Security Solutions with Video Analytics, Aerial Surveillance, Traffic Management etc.
7. Intelligent infrastructure to command & control & gain rapid inputs from ground units.

CHAPTER 2: GENERAL TERMS AND CONDITIONS

2.1 ELIGIBILITY CRITERIA

The Tenderers must fulfil the following conditions with supporting documentary proof along with the tender document.

- a) The Tenderer should have an average annual turnover of more than Rs 45 Crores .
- b) The Tenderer should be an Indian company having registered under Companies Act 1956.
- c) The Tenderer should fill VAT returns for the period 2010-2011 and also should have latest sales tax clearance certificate.
- d) The Tenderer should be in the similar / system Integration business for not less than three (3) years on the date of submission.
- e) The Tenderer should have one or propose to set up a service centre within Patna City. Resident Engineers will not be considered as service centre.
- f) The Tenderer should have implemented at least one similar systems in any of the Police department or Government agencies (Global Experience) of project values exceeding 2 crores. Documentary proof about execution of such work and its satisfactory performance should be enclosed in the Technical bid.
- g) A letter of authority from Principals to support for supply, installation and commissioning must be enclosed in case the tenderer is a sole distributor or dealer.
- h) Consortium is allowed. However the Prime Bidder will be held responsible for the delivery of entire project. The compliance of terms & conditions should be adhered as per RFP.

2.2 PRE-BID CONFERENCE

A conference will be held in the office of “**The Managing Director, BSEDC Ltd**” office at 15.00 hours on 12-01-2012 with the prospective tenderers to clarify the technical or any other related matters. These questions /clarifications should be submitted in writing along with soft copy before 18.00 hours on 12-01-2012.

Any decision on the discussion requiring modification; amendments for tender document will be uploaded on the websites www.eproc.bihar.gov.in & www.beltron.in.

2.3 SUBMISSION OF TENDER (TWO-BID SYSTEM)

2.3.1 TENDERING PROCESS

1. BSEDC now invites proposals from interested eligible bidders through e-procurement process for **Integrated GIS/GPS/GPRS based Automatic Vehicle Tracking System and Emergency Response System called Dial 100 for Patna City Police and IT enabled Surveillance System for City Security System** for 3 Years.
2. Bidders shall submit the General, Pre-qualification and Technical details as part of General cum technical bid and Commercial bid through www.eproc.bihar.gov.in
3. Bidder shall submit separate General cum Technical bid and commercial bid for the Project.
4. The bidders shall submit their eligibility and qualification details, commercial bid etc., in the online standard formats displayed in e-Procurement web site. The bidders shall upload the scanned copies of all the relevant certificates, documents etc., in support of their eligibility criteria/technical bids and other certificate/documents in the e-Procurement web site. The bidder shall electronically sign on the statements, documents, certificates, uploaded by him, owning responsibility for their correctness /authenticity. The bidder shall attach all the required documents for the specific tender after uploading the same during the bid submission as per the tender notice and bid document.
5. Registration with e-procurement and online bid submission, bidders may contact help desk of e-Procurement system at the following address;

HELP DESK OF e-procurement system of GoB.

**22, Telegraph Colony,
Kidwaipuri,
ITO Goalamber, Patna
Phone No: 0612-2523006
Mobile: 9939035696
www.eproc.bihar.gov.in**

2.3.2 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) EMD in the form of Bank Guarantee/ Demand Draft (DD) Rs. Twenty Lakh (20,00,000) from a Nationalised bank. (Tender Document fee in the form of DD have to be submitted along with the Technical bid, if the tenderer downloaded from website www.eproc.bihar.gov.in)
- ii) Duly filled in Annexure - A (Profile of the company) with relevant details and enclosures.
- iii) Digitally signed Tender proposal along with credentials and supporting documents.
- iv) Authorisation letters from Original Equipment Manufacturers (OEMs).
- v) Technical solution document detailing about the solution offered.
- vi) Company Registration certificate
- vii) Company Profile
- 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
- xiii) Complinance Certificate for the Technical Specification of Items
- xiv) Power of attorney to the authorised person granting the person signing the proposal the right to bind the bidder as the 'Constituted attorney of the Directorate'.

2.3.3 COMMERCIAL BID

The Commercial Bid as prescribed e-form should be filled up & uploaded on the website www.eproc.bihar.gov.in along with the required enclosures superscribed as “**Commercial Bid for (1) Integrated GIS/GPS based Automatic Vehicle Tracking System and Emergency Response System called Dial 100 for Patna City Police and (2) IT enabled Surveillance System for City Security**” with tender reference and due date.

The tenders not submitted as specified above will summarily be rejected.

2.4 EARNEST MONEY DEPOSIT (EMD)

Earnest Money Deposit of Rs. 20 Lakhs by Demand Draft (DD) or Bank Guarantee from a Nationalised Bank drawn in favour of “The Managing Director, BSEDC Ltd. payable at Patna” should be enclosed with the Technical bid. The EMD will be returned at their own expense to such of those tenderers who are found not qualified on the technical bid. The EMD is not liable to earn any interest.

2.5 DETAILS TO BE FURNISHED AND MODE OF PRESENTATION

- a) The bid document should contain particulars like name and addresses of the Tenderer, 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 in the prescribed format of the tender.
- b) The tender quote should be valid for a period of 180 days from the date of opening the Commercial Bid of the Tender.
- c) The 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 tenderer alone till delivery period.
- f) The supply of equipment for Integrated GIS/GPS/GPRS based Automatic Vehicle Tracking System and Emergency Response System called Dial100 and Surveillance System at Patna city, Installation & commissioning and the scope of work shall be as per the tender requirement.
- g) Submission of any additional documents will not be entertained after tender opening unless required by the purchaser. The website will not accept any document after closure of submission schedule.

2.6 OPENING OF TENDER

The tenders received on the date and time specified in the tender document will be opened by the Committee members of BSEDC Ltd. on the website www.eproc.bihar.gov.in can be seen by the authorised bidders who hold the digital signature on behalf of their companies.

The Technical bids of tenderers, which are correct and qualified in all respects, will be evaluated and those who qualify on the basis of technical bid will be informed through the decision on the website, the date and time of opening of their commercial bids. The Commercial bids of the technically qualified tenderers will be opened. The decision of the Managing Director, BSEDC Ltd shall be final in this regard.

2.7 TECHNICAL EVALUATION FOR EQUIPMENT AND ACCESSORIES

The tenderer should make all necessary arrangements for technical evaluation of GIS/GPS/GPRS based AVL System with related equipment and accessories including all the possible samples quoted in the tender document. The evaluation will be conducted by the BSEDC evaluation team. Non-compliance will be summarily rejected.

OR

The tenderer can show an established Dial 100 system with quoted type equipment/system installed by them anywhere in India at any Police Department or Government agencies. The evaluation will be conducted by the BSEDC evaluation team at the site of earlier commissioned project by the firm. Non-compliance will be summarily rejected.

Forfeiture of Earnest Money Deposit:

If the successful tenderer fails to act according to tender conditions in any aspect or backs out after the tender was accepted, the EMD will be forfeited to BSEDC limited.

2.8 REJECTION CRITERIA

- i) Tender should be submitted in the official tender document sold by BSEDC limited. Tender document sold to one person / firm cannot be used by any other person / firm.
- ii) Tenders submitted without furnishing any of the required details specified in Annexure-A will summarily be rejected.

- iii) Tenders should be submitted with digitally signed document and seal of the tenderer in the tender document and also in the Technical and Commercial e-forms in separate schedules. The Tenders received without being duly certified by the tenderer for fully accepting the terms and conditions of the tender and for abiding by the rules laid down, will summarily be rejected.
- iv) The tenders submitted without EMD and tender document fee or valid certificate for exemption in technical bid will summarily be rejected.
- v) Tenders submitted without the specification for each item quoted or compliance statement in the technical bid will be summarily rejected.
- vi) Tenders with incomplete information, subjective and conditional offers/bidder's own terms & conditions including partial offers will be liable for rejection.
- vii) Tenders submitted without audited financial statements for the previous 3 years along with IT returns copy, STCC copy will summarily be rejected.
- viii) The tenderer should enclose the documentary proof for the supply of similar Integrated GIS/GPS/GPRS based Automatic Vehicle Tracking System and Emergency Response System called Dial100 to various organisations (Domestic or International) with performance certificate in the technical bid.
- ix) The Tenders submitted with incomplete details against the required specifications in Technical bid will summarily be rejected.
- x) Tenders with variance / contradiction between Technical and Commercial Bids will be liable for rejection.
- xi) In addition to the above rejection criteria, non-compliance in any aspect of this tender document will make the tender liable for rejection.

2.9 SPECIAL TERMS

Department(Govt of Bihar) reserves the right to negotiate with the successful L-1 Tenderer for further reduction of price and to ensure make/quality/specification of materials to be supplied. Department reserves the right to increase or decrease the quantity requirements to the extent govt feels the exigency of the new project of any quantity in terms of products & services.

2.10 TENDER EVALUATION CRITERIA

The Committee member of BSEDC limited will prepare a list of firms based on the compliance of detailed Technical specifications and company profile furnished in tender. The tenderers who do not conform to the technical specifications or tender conditions or tenderers without adequate capabilities for supply shall be straight away rejected. All eligible Tenderers will be considered for further evaluation on the merits of the following aspects:-

Sr. No.	Category	Marks	Method of allotting marks
1.	Technical Architecture, Network,	30	<ol style="list-style-type: none">1. Redundancy & Design of Network = 62. Interoperability of the devices and equipments= 63. Scalability of the solution = 64. Security of Network = 65. Storage and Retrieval Technology = 6
2	Technical Bid Submission & Technical Presentation of the proposed Solution	20	The Technical Evaluation committee / Technical Consultants will analyse and the bid will be given marks according to the submission/presentation of Bid. Based on the solution design, presentability, content offered in the Bid, the marks would be assigned by the Committee. Dial 100 and Emergency Response System = 10 City Surveillance based on CCTV System = 10
3	Manpower / Resource	10	<ol style="list-style-type: none">1. The bidder's existing Technical Manpower resource in Bihar duly certified by HR = 52. Experience of Manpower in IT based Security Services = 5
4	No of years of experience in the similar field	10	Experience in similar nature of work involving <ol style="list-style-type: none">1. Intracity network =22. IP based Surveillance) = 2

			3. EPAX Exchange) = 2 4. Wireless communication = 2 5. Optical Fiber = 2
5	Experience in IT based Security Projects	10	1. Minimum one project for State / PSU / Govt. / Large Enterprises = 5 2. Experience in 2 or more Projects = 5
6	Operation & Maintenance of similar projects	10	1. Minimum 1 Project = 5 2. Projects 2 and above = 5
7	Experience of Site Survey, Microwave survey and experience of calculation of link budget / availability for Wireless / Optical communication	10	1. Experience of Wireless Network = 5 2. Experience of Optical Fiber (Planning, Laying, Maintenance of Optical Fiber and allied Tools and accessories) = 5
Total		100	

Note: The qualifying marks of Technical Bid is 70.

2.11 ACCEPTANCE OF TENDER AND WITHDRAWALS

- a) The final acceptance of tender is entirely vested with Managing Director, BSEDC limited, Patna, 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 Tenderers. After acceptance of the Tender, the Tenderer shall have no right to withdraw his Tender or claim higher price.
- b) The tender accepting authority may also reject the tenders for reasons such as changes in the scope of procurement with advanced technology equipment, lack of anticipated

financial resources, court orders, accidents or calamities and other unforeseen circumstances.

2.12 CONTRACT AGREEMENT

- a) The successful tenderer will be informed by a provisional order to execute an agreement on a stamp paper to fulfil the contract as enclosed in the format within 15 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 and EMD will be forfeited by considering the tenderer as not responded.
- b) Expenses incidental to the execution of the agreement shall be borne by the Tenderer.
- 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 Tenderer.

2.13 SECURITY DEPOSIT

The successful Tenderer will remit the Security Deposit of 5% of the P.O. Value in the terms of Bank Gurantee from a Nationalised Bank drawn in favour of “**The Managing Director, BSEDC limited**, Bihar State, payable at Patna” should be enclosed with the contract agreement within fifteen days from the date of receipt of the provisional order.

- a) The Security Deposit remitted by the Tenderer will be returned after the expiry of warranty period and on the performance satisfaction by the user.
- b) The Earnest Money Deposit will be forfeited if the tenderer fails to remit Security Deposit within 15 days or to act on the tender conditions or to complete the project.

2.14 RELEASE OF PURCHASE ORDER

Purchase order(P.O.) will be issued to the successful tenderer (L1 Project Cost for three years) after execution of contract agreement along with the Security Deposit.

2.15 PRE DESPATCH INSPECTION

BSEDC, at its discretion, may ask the tenderer to make arrangements for Technical evaluation by the technical team of the department for all the equipments, GIS/GPS/GPRS based AVL System and related equipment at factory site or at the tenderers warehouse prior to despatch.

2.16 SUPPLY, INSTALLATION AND COMMISSIONING

- 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 Patna Police Control Room at the risk of the Tenderer.
- c) Tenderer shall be responsible for commissioning the new equipment and accessories with interface compatible to the existing equipment and accessories with the concurrence and co-ordination of the liaison 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 Tenderer for each equipment at free of cost.
- e) If the supply, installation and commissioning of the equipment are not completed as specified in Annexure-A 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) Atleast one System Engineer in General shift to be stationed at Patna Control Room a period of 36 months from the date of handing over the project to ensure for the stability of equipments and also to attend to failures expeditiously during emergency.

2.17 PAYMENT TERMS

Sr. No.	Percentage (%) of payment	Condition/Event
1		No Advance payment shall be made.
2	60%	Amount will be paid after supply, installation, testing and running of Project. Certificate for running of project will given by Police Department and BSEDC.

3	40%	Amount will paid into 12 QGRs.
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2.18 TRAINING

The Tenderer shall arrange for a training free of cost to the Call Centre Agents, Supervisors, Technical staff and officers of Police Department either at the time of installation and handing over or at a common place on the operation and use of systems and software utilities (30 persons for operation side and 10 persons for maintenance side with training materials on operation and maintenance of equipment for a period of one week and referesher training of 3 days on the 7th month of handover).

2.19 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 Tenderer.

2.20 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.

2.21 WARRANTY

- a) A warranty periods of 36 months should be allowed against the continuous working with satisfactory performance for all the equipment and accessories used for commissioning 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 tenderer is liable to rectify or replace free of cost.

2.22 (COMPLIANCE OF SLA)

*PENALTY FOR BREAK DOWNS

During the warranty period, any failures of ACD, AVL, UPS, Camera, Surveillance system etc., have to be restored within 2 hours. Otherwise penalty will be imposed at 0.5% on the total value of the system per site per week (168 Hours) and part thereof from the time of failure.

* SPARES SUPPORT

The tenderer shall undertake to supply the necessary lifetime spares required to maintain the equipments for a period of 10 years.

The Tenderer must sign and affix the seal in every page of the Tender document duly signed and completed original Tender Documents must be submitted in respective cover without fail.

Declaration:

I/We _____ have gone through the terms and conditions of the Tender and will abide the rules as laid down.

TENDERER:

SIGNATURE:

NAME:

SEAL OF THE ORGANISATION:

CHAPTER 3: ANNEXURE – A

3.1 PROFILE OF THE COMPANY

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

Sr. No.	Details	Remarks
1	<ul style="list-style-type: none">Name of the organization and year of incorporation.The year from which the firm is involved in supply of GIS/GPS based Automatic Vehicle Tracking System, Emergency Response System.The year from which the organisation is involved in OUT DOOR CCTV Surveillance system.	
2	Nature of organization	
3	Address of the Registered office of Tenderer with phone and Fax number.	
4	Sales Tax registration No. 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 three 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)	
8	Details of qualified Technical personnel available for Installation, commissioning and maintaining the project	
9	Name of the Government agencies and other organisations, to whom the supply installation and commissioning of similar systems were made in the preceding three years (enclose copy of purchase orders and other documents)	
9	Details of service centre in Patna or nearest location (Full address with Phone and Fax No.)	=

10	Indicate your delivery schedule (against the various activities listed)		
	Date of receipt of provisional order	D	

	Signing of Contract Agreement	D+ 15 days	
	Supply of ordered items	D+ 60 days	
	Installation and commissioning of equipment	D + 90 days	
	Acceptance of the system including Trial run for one month	D+ 120 days	
	Completion and Handing over of the system	D+ 120 days	

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

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 Tenderer:

Date:

Place:

3.2 DETAILS OF REQUIREMENTS FOR PART ONE

3.2.1 GIS/GPS/GPRS BASED AUTOMATIC VEHICLE TRACKING SYSTEM INTEGRATED WITH DIAL 100 EMERGENCY RESPONSE SYSTEM FOR PATNA POLICE

Dial 100 involves GIS/GPS based Automatic Vehicle Tracking System, electronic form management and integration with digital land base map. It is intended to use Geographically Information System (GIS) and Global Positioning System (GPS) technologies to track the Police Van/Vehicle and graphically display its position on the digital map of Patna City at the Central Police Control Room (CPCR). It is proposed to carry out recording of all calls received from citizen of Patna through Dial 100. Each individual call will be recorded and attached with the challen form of that call and will be forwarded to the dispatch operator on the LAN along with the challen. Dispatch operator will locate nearest Police Van/Vehicle on the digital map and forward it through GPRS/CDMA channels.

3.2.1 TECHNICAL SPECIFICATION OF MATERIALS

3.2.1.1 EPABX SYSTEM

Sr. No.	Description	Parameter	Compliance
1.	Technology	PCM-TDM/IP/Non-blocking	
2.	Interface approval	TEC (Telecommunication Engineering Centre) Approved	
3.	Type of Interface	ISDN interface for digital, Basic interface for Analog lines	
4.	No. of lines (Max. Approved by TEC)-Analog trunk and ISDN BRI, ISDN PRI lines	Tenderer to specify	
5.	Type of Extension Support	Analog and Digital	
6.	Expansion of Extensions	Multiples of 32 Analog extensions, 32 Digital extensions (tenderer to specify the factor quoted). The requirement currently shall be 1 ISDN PRI interface, 8 ISDN BRI interface, 8 Analog trunks ports, 32 Digital extensions, 16 Channel interactive voice messaging system with minimum 60 minutes of voice storage media, Ethernet port for Computer Telephony Interface, Supervisor monitoring and reporting	

		terminal, System administration.	
7.	Run Distance	Not less than 800 mtrs. on 0.5mm dia. cable for Digital Telephones.	
8.	Max. Loop resistance for analog extensions	2500 ohms including telephone	
9.	Requirement at the time of supply	32 analog extensions, 32 digital extensions, 8 analog trunk lines and 1 ISDN PRI. 8 ISDN BRI.	
10	Expansion available (Max. capacity)	Tenderer to specify the maximum capacity	
12	Support for digital trunk lines	To be provided	
13	Standards which are to be supported. a. CAS 2Mbps. as per CCITT G.703 & G. 704 b. CAS R2 as per CCITT Q.421 to Q.424 c. ISDN interface as per CCITT I.430 (BRA), I.431 (PRA) I.440, I.450, I.441, I.451, G.703 (PRA), G.704 (PRA), ETSI CTR3 (BA) CTR4 (PRA) & Austel	Tenderer to specify support provided clearly	
14.	Support for QSIG (Q interface) & T Interface (Switched Public ISDN line with DSS1)	Tenderer to specify	
15.	Support for E&M signalling a. E&M continuous (A and D format) b. E&M discontinuous c. E1 d. Loop signalling (DC)	Tenderer to specify	
16.	ISDN supplementary services for Digital phone	To be provided	
17.	Support for ACD call center with CTI and advanced call routing	To be provided	
18.	Networking of multiple systems through Digital Networking a. ETS 300011 b. QSIG-ECMA 141 c. ETS 300172 d. QSIG-ECMA 143 e. ETS 300173 (CLIP, COLP, CLIR) f. ECMA 164 g. ETS 300238	Tenderer to specify the compliance of standards	

	(CNIP, CONP, CNIR) h. AOC ECMA 211/212		
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18 (a)	Built – in Battery chargers or TEC Type approved external Battery charger	To be provided and tenderer to specify	
(b)	Sealed maintenance free battery for 4 Hours back up	Specification sheets with details of the battery used to be provided	
19	Design of EPABX System	Rack with universal slots, Floor mountable.	
20	Provision for remote maintenance using Modem	To be provided	
21	Conferencing	8 party conferencing to be provided (to be configurable dynamically)	
22	Group conferencing	Tenderer to specify details	
23	Working on 230v AC mains and DC voltage	Tenderer to specify voltage and current requirements in both AC & DC supply	
24	Voice Messaging unit	Tenderer to specify (Integrated inskin)	
25	Voice Mail system	Tenderer to specify (Integrated inskin)	
26	Features supported by Voice message unit. a. Voice mail for 60 mail boxes b. Storing upto 1000 messages of 30 sec. Duration each.	Tenderer to specify the compliance clearly.	
27.	Digital Extension Telephone instrument (32 port shall be supplied)	Tenderer to enclose detailed specifications	
28.	Digital Head set and Hands free kit (25 shall be supplied)		
29.	Network Terminal	Necessary interfaces like PRI, BRI to be supplied.	
29.	Any other features offered	Tenderer to enclose details	
31.	Wiring of MDF, 32 Digital extensions, 32 Analog extensions.	Tenderer scope of work	
32.	Provide industry tested, proved and market-leading switches to ensure smooth installation and protecting businesses existing call centre hardware investment	Tenderer to enclose the details	
33.	ISDN PRI card for connecting one number of ISDN PRI line from	PRI line has to be provided by tenderer and its recurring till the	

BSNL/Government agencies	expiry of warranty period	
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3.2.1.2 CALL CENTRE FEATURES

Sr. No.	Description	Compliance
1	The PBX should support ACD (Automatic Call Distributor) features with advanced call routing features.	
2	The EPABX ACD should support multiple Wall Display boards (upto 32)	
3	The EPABX ACD Call Centre should have 01 Call Centre supervisor to provide operational supervision and Statistical Data Reports.	
4	It should be possible to expand the number of agents upto 40 including supervisor.	
5	a)The supervisor shall be responsible for the Operation and control of the Call Centre. The following features shall be provided for Call Centre Supervision.	
	b) The Supervisor Package shall be able to provide Dynamic configuration of the ACD.	
	c) Supervisor shall be able to set up the call Centre queue length, Queue Over flow timing based on the time of the day, traffic conditions, no. of agents present etc.	
6	The ACD system should be capable of providing the wait announcement. This wait announcement shall be given to the callers once they are put to Queue. Vendors need to provide this facility and also should provide documentary evidence for this feature.	
7	The ACD system shall provide atleast 2 different messages to the waiting callers in between the music. Vendors need to provide this facility and also should provide documentary evidence for this feature.	
8	The Agent should be able to call Supervisor for a Help to handle the cat caller. The help function should be on the following way. (Vendor to comply this strictly and may require to be demonstrated)	
a.	While on call, the Agent shall press the help key. This does not affect the ongoing call with the Agent.	
b.	Supervisor should get an emergency call by way of a key flash and ring in the phone.	
c.	Supervisor then upon pressing the key will place a call to the Agent in the 2 nd line, which does not affect the Agent's conversation with the Caller.	
d.	Agent at a suitable time asks the caller to hold and quickly bring the supervisor into the conference.	
e.	This way, if Supervisor is busy on other call, the caller need not be given Music, which further antagonizes the caller. Agent giving the Help signal to Supervisor's telephone, Agent without even a break, can continue the call	
9	The ACD system should recognize the Agent by his PIN. PIN shall be	

Sr. No.	Description	Compliance
	entered either in the Agent desktop PC or in the Phone.	
10	ACD system shall be configurable for a Fixed Clerical time for all Agents or individual Agent selectable Clerical time using the key.	
11	ACD system shall allow a Pause facility for the Agents. Pause time shall be either fixed for the whole system or shall be individual Agent selectable using the key.	
12	The Supervisor shall be able to provide Real Time monitoring and reporting of call patterns and call characteristics for planning.	
13	It shall be possible to provide Real time displays for both ACD and agent groups. Each view should contain 3 separate pages, which the supervisor can switch between any times. Any number of views can be opened simultaneously each with any combination of selected group and displayed information.	
14	The ACD Group real time view shall provide actual information for each ACD group related to the ACD group displaying number of calls in the queue, current Calls, expected delay longest in queue.	
15	A customisable Dashboard to be provided by the application to mark the VIP's and the defaulters in the applications. This dashboard should be configurable	
16	A Directory of VIP Telephone numbers will be provided. On receipt of a call from a VIP, the call may be diverted to a particular agent and also the colour of the screen of that agent's Desktop should change to a different colour.	
17	The Agent Group details shall show averages about a. Queue b. Ring c. Talk times	
18	It should be possible to set up a view to meet precise actual needs and save it for future use without the need for any new set up procedure.	
19	It should be possible to define 1.Groups to be displayed 2.Histograms to be displayed 3.Average Values to be displayed 4.Time period to be used for statistical and trend graph calculation.	
20	It should be possible to display different agent states with multiple Histogram colours for occupied agents, talking agents, agents in clerical	

Sr. No.	Description	Compliance
	state and available agents.	
21	The ACD Group view shall display Agent details with information as call state, connected number and call duration of each, per agent. It shall also inform about the current call-when did it start, how long did it ring, how long took talking state-and it shall display statistical information for each agent.	
22	When several agents are combined to form an agent group, agent real time views shall be required. The screen shall show the status as well as the averages of ringing, talking, and clerical time as per selected agent group. The supervisor shall define the type of average display information. Detailed information about the available agents per selected agent group shall also be provided.	
23	The Call Centre Supervisor reporting system shall comprise of a wide range of standard reports. In addition it should be possible to create macros of a series of reports and schedule the automatic generation of reports.	
24	The following reports shall be required: (a) Call Centre performance Reports: 1.Agent Reports-queue activity, queue performance, call code activity, completed call details, log on activity and performance 2.Group Reports-Abandoned calls, Agent Activity, agent performance, Agent log-on activity, call breakdown, call code activity, call handling, call wait, calls answered, short calls. 3.Queue Reports-abandoned calls, agent activity, agent log-on activity, agent performance, call breakdown, call code activity, call handling, call waiting, answered calls, short calls, trunk utilization.	
25	It should be possible to key in alphanumeric messages in the Supervisors Desk top and output the same to the desktop of all the agents. The message to be displayed may be continuous free text or alarm texts, which get active when a predefined threshold is reached. The text should scroll in the monitor of the Agent Desktops.	
26	The Vendor should provide a user definable reporting system that supports simple English interface to the database layer (end user layer) drill-down features and should provide functions to export the report to the excel format or email the reports and so on.	
27	The following metrics should be possible to define and measure in the call Centre. Service level Average speed to answer Abandon Rate Utilisation rate Average wait to abandon Occupancy rate Average talk time	

Sr. No.	Description	Compliance
	Average Wrap time Average call time Average caller time Calls per agent Call time per agent	
28	The solutions should provide call Centre intelligence reports, which should enable the supervisor to manage the performance of the application and the agents. The report should be with a framework to extend further reports, drill-downs functionalities and 3D graphics, charts to present the report in good manner.	

3.2.1.3 CTI SERVER, AVL SERVER, DATA BASE SERVER

CTI server shall be configured in such a way to have the data duplicated from Data base server and AVLS server for data retention:

Sr. No.	Description	Parameter	Compliance
1.	Processor	Dual Quad-Core Intel Xeon 2.66 GHz or above,	
2.	DDR RAM with ECC	8 GB RAM with ECC expandable to 16GB	
3.	Hard Disk	Hot swappable hard disk, 3*500GB HOT PLUG SAS HARD DISK @ 15000 rpm, RAID 5	
4.	Graphics	Onboard	
5.	Display	22" Wide LCD/ TFT monitor	
6.	Key board	PS/2 or USB Keyboard	
7.	Optical Drive	DVD RW	
8.	Ethernet card	Integrated dual gigabit Ethernet	
9.	Mouse with pad	PS/2 / USB Optical or Laser	
10.	SCSI Interface	Raid 5 controller with Battery backed Cache	
11.	Expansion slots	PCI, PCIE etc.,	
12.	I/O Ports	Standard I/O ports	
13.	Cabinet	Rack Mountable 2U	
14	Power supply	Hotswap Redundant Power supply	
15	Operating system	CTI and Database server to have Windows 2008 server Database server shall have MS SQL 2008 AVL server to have suitable OS and Database (Appropriate User Licence has to be added in respective servers)	

16.	Server management software	To include features for system health monitoring, server maintenance, etc.	
17.	CTI Software	CTI Software with 20 User license has to be included in CTI server prices	
18.	Anti virus software	To be included with 3 years subscription	
19.	KVM switch	Suitable KVM switch for the setup	
20.	Rack	Suitable Rack has to be provided to accommodate the servers, other HW and accessories	
21.	GIS/AVL Software	AVL & GIS Viewing Software with 5 user licence to be added in the Server price. Additional AVL Software licence for single user (To be quoted separately in optional item)	

3.2.1.4 VOICE LOGGING SYSTEM

Sr. No.	Description	Parameter	Compliance
1.	Processor	Quad-Core Intel Xeon 2.66 GHZ or above, Upgradable upto 2 CPU	
2.	DDR RAM with ECC	4GB RAM with ECC expandable to 16GB	
3.	Hard Disk	Hot swappable hard disk, 3*500GB HOT PLUG SAS HARD DISK @ 15000 rpm, RAID 5	
4.	Graphics	Onboard	
5.	Display	22" Wide LCD/ TFT monitor	
6.	Key board	PS/2 or USB Keyboard	
7.	Optical Drive	DVD RW	
8.	Ethernet card	Integrated dual gigabit Ethernet	
9.	Mouse with pad	PS/2 / USB Optical or Laser	
10.	SCSI Interface	Raid 5 controller with Battery backed Cache	
11.	Expansion slots	PCI, PCIE etc.,	
12.	IO Ports	Standard I/O ports	
13.	Cabinet	Rack Mount 2U	
14.	Power supply	Hotswap Redundant Power supply	
15.	Operating system	Windows 2003 server (Appropriate User Licence has to be added)	
16.	Server management software	To include features for system health monitoring, server maintenance, etc.	
17.	Anti virus software	To be included with 3 years subscription	
18.	Voice Logging	Simultaneously the conversations of the 20 agents with the Public over phone and shall be suitable for minimum of 400 hrs. of Voice logging. The expansion shall be possible in multiple of 4 port upto 32 ports.	

Sr. No.	Description	Parameter	Compliance
	The recorded voice shall be indexed and Linked with Challan Number. The voice Logger shall have the CTI capabilities. It will automatically track the incoming call and intrude into the call and start the recording. The recording shall go on till the call is disconnected. In the event of call transfer the voice logger shall follow the call and intrude again on the next station and appends in to the same file.		
	The format for the voice file shall be in MP3 format.		
	It shall be possible to configure (either) Automatic voice recording on answering the call by the Agent. (or) Manual selectable to record into voice logger by the call taker or Agent. The selection shall be done by the Supervisor/System Administrator and the Agent / Call taker on the click of icon on the call screen.		
	24 Port Dialogic or equivalent card with the driver		
	Voice Logger software compatible with the call Centre package		

3.2.1.5 AGENTS / DESPATCHER / SUPERVISOR / ADMINISTRATORS PROFESSIONAL WORKSTATION

The workstations shall be of the following configuration:

Sr. No.	Description	Parameter	Compliance
1.	Processor	Intel® Core™ i7 Bsed Processor or Intel Xeon 3500 Series or better processor	
2.	Chipset	Intel Chipset	
3.	Motherboard	Original Intel	
4.	Memory	4 GB Expandable to 8 GB	
3.	Hard Disk Drive	500 GB SATA	
4.	Graphics	Integrated (on board)	
5.	Audio	Integrated (on board) High Definition Audio controller with Internal Speakers	
6.	Ethernet	Integrated (on-board) 10/100/1000 controller	
7.	Ports	Standard	
8.	Form Factor	Minitower	
9.	Power Supply	300 Watts	
10.	Display	22" LCD/TFT Colour	
11.	Keyboard	PS/2 / USB	
12.	Mouse	PS/2 / USB Laser	
13.	Operating System	Operating system Pre installed Microsoft Windows 7 Professional Restore / Recovery	

		DVD , OS CD/DVD and documentation CD with each PC	
14.	Antivirus	Latest antivirus software with licence and media with 3 year subscription	

3.2.1.6 GPS RECEIVERS WITH MODEM

Sr. No	Parameter	GPS specifications	Compliance
i.	General		
1	Tracking channels	12 channels	
2	L1 frequency	1575.42Mhz C/A code	
ii.	Acquisition time		
1	Cold start	60seconds (typical) Time To First Fix (TTF)	
2	Warm start	40 seconds (typical) with current almanac, position and time	
3	Hot start	10 seconds TTF with current almanac, position, time and ephemeris	
iii.	Re-acquisition time		
1	General	1second	
2	Maximum Blockage	Upto 30 seconds	
	Position accuracy	Position horizontal 20 meters or better	
iv.	Velocity	0.1meters/ sec	
v.	Satellite data collection	2seconds to 12 seconds for synchronization. Continuous data collection and parity checking on all twelve channels	
vi.	Position solution	2D position, velocity and 47 geodetic datum to be supported (Default WGS84)	
vii.	Position update rate	1second	
viii.	Output messages	NMEA0183	
ix.	Antenna	Embedded passive antenna or Active Antenna	
x.	Maximum vehicle Dynamics	500m/sec	
xi.	Environmental		
1	Operating temperature	0 deg C to 55 deg C	
2	Storage temperature range	-30deg C to 70 Deg C	
3	Humidity	95% non condensing 40 deg C	

4	Altitude	18,000meters	
xii.	Electrical		
1	Power	Power derived from Radio modem (tenderer to specify the voltage)	
2	Power consumption	0.9 Watts or better	
3	Power connector	Any standard type connector	
4	Back up power	Lithium battery inside housing (Tenderer to specify the voltage)	
xiii	Mechanical		
1	Cable length	Suitable interconnecting cable with connectors to be specified	
2	Mounting	Magnetic base	
3	Housing	Water resistant plastic	

3.2.1.7 GSM MODEM

1	E-GSM, GPRS 900/1800 Dual Band Module.		
2	Modem should support interface for GSM -GPRS Communication network.		
3	Modem should support AVTS application.		

3.2.1.8 CTI APPLICATION SOFTWARE

Sr. No.	Description	Compliance
1.	The Vendor shall provide Application software for ACD and shall be required to write application for the population of the screen based on Caller Line Identification with unique ID	
2.	The software shall be in English & Hindhi (Bilingual)	
3.	It shall provide Command Entry and Menu selection	
4.	It shall provide multiple screen functionality.	
5.	The Application Software should support Hooking into the data base (Add, Edit, Delete Features etc)	
6.	It should support transfer of voice and Data between stations.	
7.	It should provide application to dial out the other locations like fire, ambulance etc	

8.	It should provide On Screen Telephone features.	
9.	It should provide compatibility with Voice Logging and retrieving system with archiving on CD ROM.	
10.	It shall also provide different report generation which shall be decided mutually during the system study and Design Reports/Data to be captured from database to be made available by the enduser.	
11.	The Application software should include multi level security options.	
12.	User access should be allowed via the entry of valid username and password. The system also should validate with the ACD and will provide with the single sign, which should be allowed to extend further.	
13.	Functionality available to the user will depend on the username.	
14.	The agents should be able to record the complaint/requests based on multiple issues. The application should priority the complaint/requests based on the nature of request received. The agents should be able to record the complaint/requests based on the nature of request received.	
15.	The request/complaint should have template, which will reduce data entry operations for the call agents.	
16.	The entry of data into certain pre-defined fields will be permissible for some users only.	
17.	Provision should be made to give certain users access to the entire data or to the pre-define area.	
18.	The application should track the interaction history across all media from within and outside the call Centre.	
19.	The Vendor should provide application, which is out-of-box, integrated with CTI/ACD if not the vendor should provide toolkit.	
20.	The application should be fully workflow integrated for the escalations, notifications, alerts and response to the same.	
21.	The application should provide with GUI and easily configurable	
22.	Workflow tools to modify the business process in the Call Centre	
23.	The workflow should support dynamic branching and execution depending on the customer, e.g., if the customer is a VIP it should be dynamically alert the supervisor and the agents and also inform the VHF team.	
24.	The application should provide cascade the status once the issue is resolved or any update information is received by NEAREST POLICE STATION / PATROL VEHICLE. Once the service request/complain is resolved the VHF is notified by the NEAREST POLICE STATION / PATROL VEHICLE. VHF team should update appropriate service request with relevant	

	information, which will enable the call agents to provide correct information to the customers.	
25.	Workflow should support multi-level escalation based on severity of the complaint or the requests. Escalation rules should be configurable.	
26.	At any point of time it should be possible to monitor an request / Complaint of its status, length of time helps up at a particular point. This function should available through the GUI.	
27.	A unified queue should be provided for the Supervisor to check the agents call status and see the progress of the call Centre and service request / complaint.	
28.	Scripting help should be available to the agents whenever he/she has to answer a call.	
a.	The script should be user configurable. The configuration should be based on the call that is received.	
b.	The scripting should support the use of nested and parallel scripting and branches	
c.	The scripting toll must integrate to any database to allow data to be embedded in the script such as name, connection type, Phase type, address etc.	
29.	The application should provide a mechanism for the resource allocation based on the availability, geographic area, company, individual or relevance.	
30.	Should provide way to manage the critical Customer / critical event management system.	
31.	The agents should be able to capture notes with respect to any Complaint that he / she handles. These notes should be available whenever the account is queried.	
32.	MIS Reports:- Following are some sample MIS Reports required:- 1.Call Centre formats 2. Crime wise Query Reports 3. Areas wise Calls Reports 4. Daily Report format 5. Particular period / monthly / yearly report format However, the design of the format shall be finalised during customization.	

3.2.1.9 AVL SYSTEM SOFTWARE

Sr. No.	Description	Compliance
1	The AVL software used for the vehicle tracking application.	
2	The AVL software shall log in the vehicle reports coming from more than two repeater sites through their respective base modems	
3	The software shall allow the dispatch controllers to select any desired zone and view the vehicles on their respective monitors.	
4	The software shall provide the display of vehicle location on maps, logging of vehicle movements and provide the performance reports of the vehicle and drivers in a spreadsheet format	
5	The movement of vehicles can be played back at any time by choosing date and vehicle IDs.	
6	The software shall have basically two components The IOP (Input-Output Processor) The viewer processor.	
7	The above two components are connected through TCP/IP protocol and LAN available to operating system.	
8	It shall be possible for several IOPs and several viewers to be networked together	
9	It shall be possible for a viewer to access reports from any group of vehicles through one or more IOPs.	
10	The Viewer software the system to operate on suitable operating system providing mapping, tracking and logging the vehicle movements. All the viewer's station shall be equipped with this software.	
11	Load and calibrate maps of layered type, raster or any other type.	
12	Display vehicle on the maps by showing its icon in the colour.	
13	Identity code or Alias name or any combination of them.	
14	Auto scroll to keep the desired vehicle in view.	
15	Zoom in/Out.	
16	Find selected by its ID or Alias name	
17	Message communication with the selected vehicle	
18	Unlimited vehicle tracking	
19	Advisories to indicate vehicle moving over specified area.	
20	Automatic detection of vehicle starting, pressing over Maximum/Minimum speed limits.	

21	Multimedia alarm in control office during panic condition, passing speed limits etc.	
22	Command to delete a vehicle from display	
23	Vehicle history downloading	
24	Display of several vehicles on a map along with their locations, speed and direction of movements and time	
25	Record all movements, date wise, vehicle wise etc.	
26	Reporting of GPS messages in encrypted form to prevent unauthorized interception of messages (Optional)	
27	Choice of NMEA protocols for GPS messages	
28	Conversions of encrypted messages to ASCII format and display	
29	Display of vehicle movements in spreadsheet format etc. for further analysis	

3.2.1.10 DIGITIZED MAP

A digital GIS (seamless) map of Patna city (1:1000) and part Rural Areas around Patna city (1:5000) in layers with details as indicated below. The map must be geo-referenced in WGS 84 datum, and to be created from satellite imagery with resolution of 1:1000 & 1:5000 or better. The GIS Map must be compatible with the finalized Vehicle Tracking System. The GIS Map must contain the following functionalities also.

- 1) When used in conjunction with appropriate network analysis software, routing and driving directions must be available for each segment to cater to possible future requirements of VIP security planning and Traffic Management.
- 2) Searches for attributes such as “Nearest Hospital” etc., must be possible with the GIS.
- 3) The GIS must be capable of working with the DIAL 100 Application, so that the respective colony of origin of a telephone call is brought on the screen.

a. LAYER SPECIFICATION FOR DIGITISED MAP

Layer No.	Layer Name	Description
	POLYGON FEATURES	
1	District Boundaries	Name coded to polygon
2	Colonies	Name coded to polygon
3	Boundary / Area of Police Station Jurisdiction limits	Name coded to polygon
4	Police Zonal classification	Name coded to polygon
5	Telephone Exchange Jurisdiction limits	Name coded to polygon
6	Vital Installations	Name coded to polygon
7	Communalism Prone Area	Name coded to polygon

8	Caste sensitive Area	Name coded to polygon
9	Prohibition Prone Area	Name coded to polygon
10	Arterial Roads	Symbology
11	Main Roads	Symbology
12	Important Roads	Symbology
13	Industrial area	Symbology
14	Shopping area	Symbology
15	Built up area	Symbology
16	Slum area	Symbology
17	Parks and Gardens	Symbology
18	Wooded area	Symbology
19	Railway Stations	Symbology
20	Water bodies	Symbology
21	Grid	Grid Numbers of Map

b. POINT FEATURES

22	Police Stations	Symbology
23	Hospitals	Symbology, Name
24	Fire stations	Symbology
25	Location of VIP Residence	Symbology
26	Hotels	Symbology, Name
27	Restaurants	Symbology, Name
28	Banks	Symbology
29	Cinemas	Symbology, Name
30	Auditorium	Symbology, Name
31	Embassies/Foreign Mission	Symbology, Name
32	Post and telegraph offices	Symbology
33	Historical Places	Symbology, Name
34	Petrol Pump	Symbology
35	Airline and travel agency	Symbology
36	Museums	Symbology, Name
37	Overhead Tank	Symbology
38	Apartments	Name
39	Buildings	Name
40	Industries	Name
41	Library	Name
42	Parks	Name
43	Railway Stations	Name
44	Railway Reservation Centre	Name
45	Institutions	Name
46	Shopping Centre	Name
47	Water feature	Name
48	Blood Bank	Symbology
49	Place of worship	Name
50	Traffic Light	Symbology

51	Information Centre	Symbology, Name
52	Art Gallery	Symbology, Name
53	Education and training institutions	Name
54	Courts	Name
55	Clubs	Name
56	Offices	Name
57	Hostels	Name

c. LINE FEATURES

58	Centre Lines of Arterial, Main and Important Roads	One ways defined
59	Rail Lines	Symbology
60	Other Roads Outlines	Symbology
61	Arterial road label	Labels of Arterial Roads
62	Main road label	Labels of Main Roads
63	Important road label	Labels of important roads
64	Other road label	Labels of Other Roads
65	House number label	Numbers to depict distribution in areas other than apartments
66	Annotation layer	All important names of Industries, offices, Institutions, colonies, parks, water feature and other important points of interest required for navigation
67	Arrows	To indicate flows of traffic/water drainage

3.2.1.11 SPECIFICATION FOR 20 KVA TRUE ON LINE (N+1) UPS

Sr. No.	Description	Parameter	Compliance
1	Capacity	20 KVA True online N+1 UPS (2 hours backup)	
2	Type	IGBT	
3	Crest Factor	3:1	
4	Cold Start	To be provided in Battery mode for full load condition	
5	Generator Compatibility	To be provided	
INPUT:			
1	Voltage mains Operating	230V +/- 15%	
2	Frequency	50Hz +/- 5%	
3	Battery (secondary source)	Sealed maintenance free type battery (AH and no. of batteries shall be suitably selected for a back up time of 120 mins. (Min.)@ 16000W	

		resistive load or 20KVA load with 0.8PF. The details are to be specified by the tenderer along with the make of the battery.	
4	Min. Input voltage required for battery charging circuit to function properly.	To be specified by the tenderer	
5	Battery storage Rack (Wooden)	External Battery storage Rack for housing the batteries safely. Rack to be supplied along with the UPS system.	
6	Battery Voltage (Min. & Max.)	To be specified by the tenderer	
OUTPUT:			
1	Nominal voltage	230V AC, single phase	
2	Pre-settable range	230V +/- 5%	
3	Voltage Regulation	+/- 2%	
4	Frequency	50Hz	
5	Variation in frequency	+/- 5%	
6	Load Power factor	0.80 lag to Unity	
7	Waveform	Pure sine wave	
OTHER /GENERAL DATA:			
1	Overload capacity	120% for 10 minutes	
2	Overall Efficiency	Greater than 85% @ full load	
3	Min. Input Voltage required for battery charging circuit to operate	To be specified by the tenderer	
4	Ambient Temperature	0 deg C to 45 deg C	
5	Ambient Humidity	0-95% RH Non-Condensing	
6	Duty cycle	Continuous	
7	Cooling	Forced air cooling	
8	Protections	i) Overload ii) Short circuit iii) Input low voltage iv) Output over voltage v) Batteryover discharging vi) Fuses for input & output	
9	Controls	Manual. By-Pass switch with suitable current rating	
10	Power sockets	Required number of 5 A Power sockets to connect the Work Stations in the project.	
11	Trip conditions	Over load	
12	Indications	Mains on, Inverter on, Battery low, Overload, Input, Under/Over Voltage	
13	Alarms (Audio)	For extreme battery low voltage and Mains	

		failure conditions	
14	Input Cable	Proper rated mains cable to be provided	

3.2.1.12 SPECIFICATIONS FOR A3 SIZE MFP MONO LASER (PRINT/SCAN/COPY/FAX)

Sr. No.	Description	Parameter	Compliance
1	Engine Speed	Minimum 18 A3 size pages per minute	
2	Resolution	600 x 600 dpi	
3	Duplex	Full Duplexing unit	
	Media types Paper, envelopes, transparencies, card stock, postcards, labels and recycled paper		
4	Duty cycle	Upto 10,000 pages per month	
5	Toner	Three spare toner cartridge	
6	Memory	64 MB or more	
7	Driver compatibility	Compatible with Windows, Mac OS and Linux	
8	Interfaces	Ethernet and USB ports	
9	Power requirements	220V AC + /- 10% 50Hz +/- 5%	
10	Operating temperature and relative humidity	To be specified by the Tenderer	

3.2.1.13 VIDEO WALL (LCD) 2X2 MATRIX VIDEO WALL - WALL SIZE SHOULD BE 92" DIAGONAL – 2 NOS.

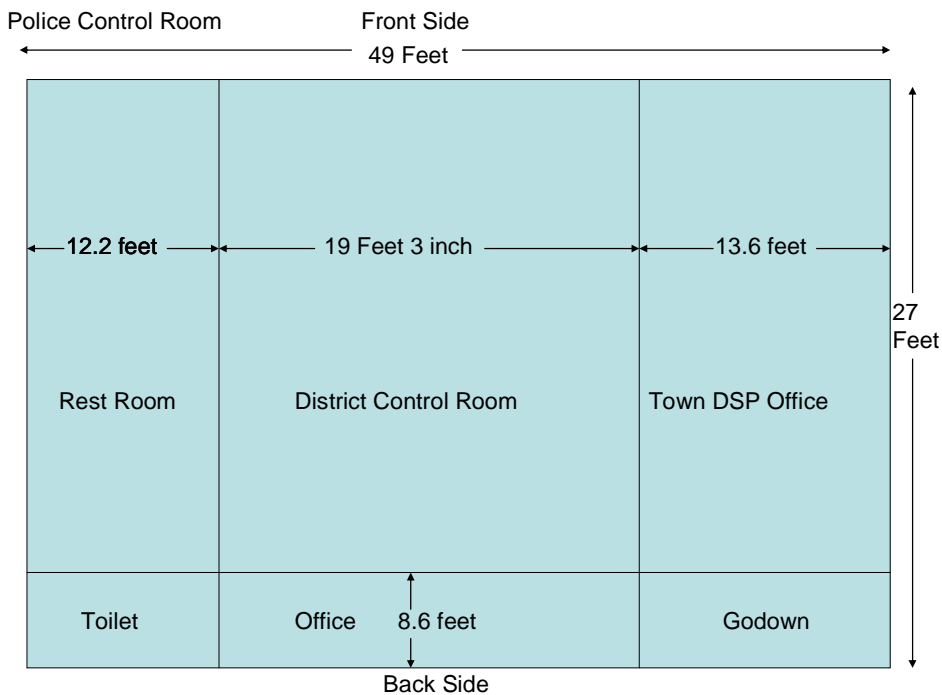
Sr. No.	Parameter	Description	Compliance
1	Diagonal size	46 inches or above	
2	Resolution	1366 X 768	
3	Luminous flux	500 Cd/m ² (typ)	
4	Contrast	3000:1	
5	Input / Output	1 x DVI –D in/out, VGA, Composite etc.,	
6	Direct Ethernet access	Control through standard Ethernet browser. Easy and fast firmware upgrading over Ethernet	
7	Integration to third party equipment	External video wall control from different devices	

3.2.2 BILL OF MATERIAL FOR GIS/GPS/GPRS BASED DIAL 100 FOR PART ONE

Sr. No.	Description	Qty.	Unit Cost (INR)	Total Cost for Three Years (INR) (Inclusive all taxes and expenditures)
1	Call Center EPABX System with Call center features	1		
1a	Digital Telephone Instruments for Agents and VHF Opertors	32		
1b	Supervisors	2		
1c	Headsets for Agents	20		
1d	ISDN E1 PRI Modem-PAIR	1		
2	CTI Server with Operating system as per specification with CTI software	1		
3	Application software for call center operation and AVLS software as per requirement	1		
4	Data Base Server with operating system and Database as per specification	1		
5	Voice logger Unit	1		
6	Server for AVLS as per specification	1		
7	Standard Workstation for Agents/VHF operators /Supervisors	25		
8	20 KVA UPS as per specification	2		
9	A3 Multifunctional Printer with networking and duplexing	1		
10	External CD writer	1		
11	Digitized Map of Patna city (Minimum if 1:1000 Resolution for urban and 1:5000 for rural) as per layers and specification.	1		
12	GPS receiver with antenna along with a modem suitable for vechile mounting, Mobile Data terminal for vechile with minimum 80 Character LCD back lit display and special keys for preprogrammed keys	140		
13	GPRS SIM module with SMS in CUG and GPRS service, 36 months of service included	145		
14	Base communication with 4 SIM options	2		

15	Internet/Leased line for AVTS from Routers, Modems, Security Firewall, Antivirus and Antispam from network and intrusion protection system	1		
16	Soundless Genset - 30 KVA with panel and accessories	1		
17	Engineer posting in the Call centre for Maintenance and Facility management	3		
18	Installation & Commissioning	LS		
19	Video Wall (LCD)	2 Nos.		
Total amount including all taxes and expenditures (INR) for Three Years				

3.2.2.1 DIAGRAM FOR CENTRALIZED POLICE CONTROL ROOM (CPCR)



The proposed venue & area of Police control room to be provided by the department at TB ward-hospital premises of SP office, Patna which is sufficient space. Prospective bidders may visit the current location which will be handed over in ready to move in for setting up IT infrastructure. The above diagram is not the exact drawing rather a tentative proposal.

3.3 DETAILS OF REQUIREMENTS FOR PART TWO

3.3.1 IT ENABLED SURVEILLANCE SYSTEM FOR CITY SECURITY

Scope of Work

Supply, Installation, Commissioning and maintenance of the surveillance system to achieve the below mentioned objectives at given locations in the city Patna and can be further extended to Sachivalay, High Court & Vidhan Sabha. The project is proposed on BOOT MODEL.

IP based CCTV cameras will be used to monitor happenings in the Patna City. A mix of High definition IP based Fixed and PTZ cameras will be used for the purpose. Both IP based CCTV Camera should work with Wireless and Fiber based Network.

To enable hybrid connectivity, as per feasibility i.e. Fiber and Wireless based network will be preferred. This network should be zero interruption based communication for links among Control room and IP Cameras installed & spread over 32 locations in the city.

- a) The successful bidder shall be responsible for end-to-end implementation of connectivity of all the locations under this RFP and shall quote and provide/ supply any item(s) of latest make and model not included in the bill of materials, but required for successful implementation and commissioning of the system as well as its management. For such item(s), which have not been quoted by the successful bidder in the bid, but are required for successful completion of the project, the tenderer shall not pay for the same.
- b) The supply of all the installation material/accessories/ consumables necessary for the installation of the systems.
- c) The required networking equipment for end to end connectivity from Control room to individual Surveillance Cameras shall also be provided by the bidder at each location.
- d) The complete ownership of the network proposed on wireless/fibre will that be of Police department Bihar. However complete maintenance will be in the scope of the bidder including rectification of minor or major faults/breakages in the network equipment.

- e) Carry out installation of active components, passive components and accessories supplied as per standards for successful integration and implementation of the systems at each locations connected under this RFP.
- f) Configuring and fine-tuning of subsystems to achieve overall optimal network performance with high level physical & cyber security.
- g) CPE (Customer Premise Equipment) shall have enough gain to provide strong signals for the video & audio communication.
- h) Wireless Communication should be fully secure and shall support 128-bit encryption or better.
- i) Minimum bit-rate of streaming shall be 2 Mbps.
- j) All the locations are connected through wireless or wired medium(fibre) with Local Control Room.
- k) Access Point shall be placed in such a way that it covers the entire locations which is under surveillance. Associated planning and diagrams of placement of Access Points shall be provided by bidder.

All the cameras will be connected to a Command & Control Centre which will be equipped with video management modules and storage modules. Provisions will be made to record and view live incidents at all surveillance premises. Recorded clips can also be viewed readily on requirement. The Command & Control Centre will be equipped with LCD display units to aid the officials in monitoring events. Abnormal activities should identify and indicated by the system.

Broad Objectives:

- a) To offer proactive approach to improve public safety and security in the state
- b) To enable tactical and effective communication between authorities.
- c) To deploy technology solutions to sense, analyze and enable a coordinated response to handle the threats better.
- d) To act as deterrent to potential exploitation of vulnerabilities.
- e) Layered approach to secure City Entry/Exit, zones and critical infrastructures.

- f) Street Level Security Solutions with Video Analytics, Aerial Surveillance, Traffic Management.
- g) To have District Command Room, Master Command center, Disaster recovery command center and Mobile command center.
- h) Intelligent infrastructure to command & control & gain rapid inputs from ground units.

Areas To Be Covered

- Dakbanglow Crossing
- Mithapur Bus Stand
- Maurya Complex
- Railway Station
- Railway Station Karbighya
- Mahavir Mandir
- Masjid
- Boring Road Crossing
- Hathua Market
- G.P.O Golmber
- Chraiyatar Overbridge
- Golghar Area
- Collectriate Area including DM Office
- Kargil Chowk
- Gandhi Maidan Area
- SKM Hall
- Dinkar Golamber
- Moccowell Golmber/ Rajendra Nagar Stadium
- Ashok Raj Path Road upto PMCH
- Exhibition Road Crossing
- Kotwali incliding Patna Museum
- Incom Tax Crossing upto High Court
- Biscomaun Tower

- Saguna More
- Airport
- Zero Mile
- Harmandir Sahib
- Gai Ghat
- IGIMS
- Raja Bazar
- R. Block

3.3.2 TECHNICAL SPECIFICATION OF EQUIPMENT

IP Based Network Camera Specification

3.3.2.1 PAN TILT ZOOM (PTZ) CAMERAS SPECIFICATION

Sr. No.	Features	Specifications
1	Imager	1/3 or 1/4 -type imager
2	Number of effective pixels	Min. 3 Mega pixels
3	Day/Night Support.	Yes with ICR Filter technology
4	Minimum illumination (at F1.6, 50 IRE, Shutter Speed 1/30):	Color (Day) : 1.8 Lux. B/W (Night) : 0.1 Lux (IR filter removed)
5	Optical Zoom & lens	Min. 30X Optical Zoom. Auto focus zoom lens.
6	PAN Range	Minimum -170 degree to +170 degree.
7	Tilt range	Minimum 110 degree.
8	PAN & TILT speed	Min. 240 degree per second
9	No. of presets	Minimum 200
10	Compression Codec	JPEG, MPEG4 & H.264
11	Video Streaming	The cameras should support user-selectable any combination of available video codec i.e JPEG, MPEG--4 & H.264 for dual streaming such as H.264 & H.264, H.264 & MPEG-4, MPEG-4 & MPEG-4, MPEG-4 & JPEG etc. Both the streams of chosen video codec shall be programmable for different frame rate per channel.
12	Video Resolution & frame rate:	Various image resolutions upto 1920 x 1080 from 320 x 192 at 30fps
13	Operating Temperature	0° to 50° C

14	Network Protocols	IPv4, IPv6, TCP, UDP, ARP, ICMP, IGMP, HTTP, HTTPS, FTP (client/server), SMTP, DHCP, DNS, NTP, RTP/RTCP, RTSP, SNMP.
15	On-board recording (card slot to be available)	Yes. Upto 4 hours
16	Electronic shutter :	1/50 to 1/10,000s
17	Ethernet 10Base-T/100Base-TX (RJ-45)	Yes
18	I / O ports:	Sensor in x1, Alarm out x1 minimum
19	Audio Support	Yes
20	Camera should have Web-Server for remote viewing / settings etc	Yes. Min. supported browsers should include Microsoft Internet Explorer version 8.0, Firefox Version 3.5, Safari version 4.0 and Google Chrome version 4.0. The camera on its Web GUI should provide facility to initiate video recording & audio recording (if activated) even without the VMS software.
21	Facility for Pre and Post Alarm Recording within IP camera.	Yes.
22	Image Enhancement	The camera should have distinct features to improve picture quality. This shall include, but not limited to, noise reduction function in low light, improve scene visibility and brightness, wide-dynamic range function, etc. A visible demonstration of this shall be expected from bidder.
23	Camera Tampering Detection Function	Yes. To include scenarios such as spraying on camera lens, covering with cloth etc.
24	Safety approvals	UL & EN
25	Proposed camera should support Date / Time Superimpose on Live image	Yes
26	Housing / Protection Enclosure	IP 66, NEMA 4 or better. With inbuilt heater & blower kit or better.
27	ONVIF (Open Network Video Interface Forum) Conformance.	Yes. Certificate by the camera manufacturer to be submitted

3.3.2.2 FIXED LENSE HIGH RESOLUTION CAMERAS SPECIFICATION

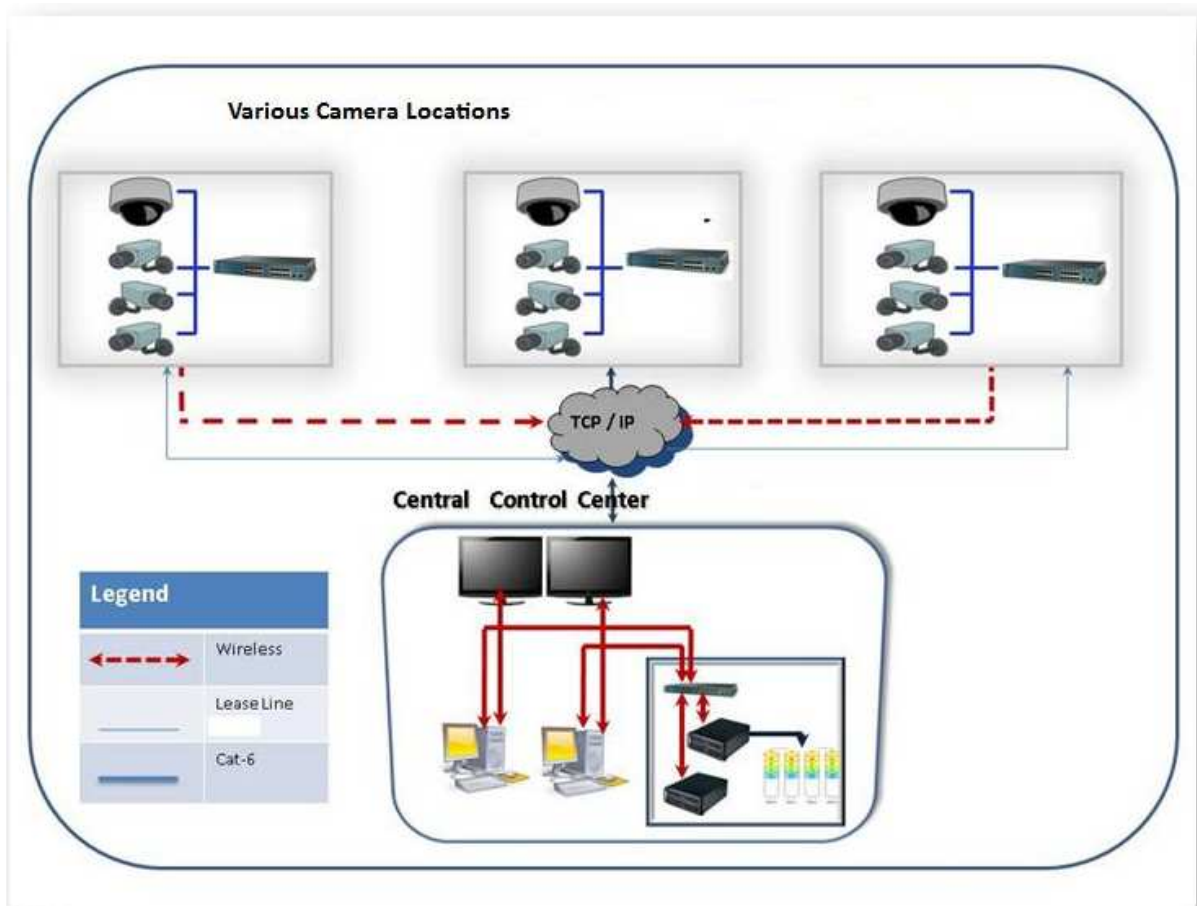
Sl. No.	Features	Specifications
1	Imager	1/3 or 1/4-type Imager
2	Number of effective pixels:	Min. 3 Mega pixels.
3	TV Line Output:	600 TV Lines or better through Analog Video Output
4	Lens	Vari-focal 2.6-6mm . Should provide wide horizontal view angle of upto 100°
5	Day/Night Support.	Yes

6	Minimum illumination (at F1.2, 50 IRE, Shutter Speed 1/50):	Color (Day) : 0.5 Lux. B/W (Night) : 0.2 Lux (IR filter removed)
7	Compression Codec	JPEG, MPEG4 & H.264
8	Dual Streaming	The cameras should support user-selectable any combination of available video codec i.e JPEG, MPEG4 & H.264 for dual streaming such as H.264 & H.264, H.264 & MPEG4, MPEG4 & MPEG4, MPEG4 & JPEG etc. Both the streams of chosen video codec shall be programmable for different frame rate per channel.
9	Video Resolution & Frame rate:	Upto 1920 x 1080 on all available compression codec i.e. JPEG, MPEG4 & H.264 at 25fps
10	Operating Temperature	0° to 50° C
11	Network Protocols	IPv4, IPv6, TCP, UDP, ARP, ICMP, IGMP, HTTP, HTTPS, FTP (client/server), SMTP, DHCP, DNS, NTP, RTP/RTCP, RTSP, SNMP (MIB-2)
12	On-board recording (card slot to be available)	Yes. Upto 4 hours
13	Electronic shutter :	1/50 to 1/10,000s
14	On board Ethernet 10Base-T/100Base-TX (RJ-45)	Yes
15	I / O ports:	In x 1, Out x1 minimum
16	Audio Support	Yes.
17	Camera should have Web-Server for remote viewing / settings etc	Yes. Min. supported browsers should include Microsoft Internet Explorer version 8.0, Firefox Version 3.5, Safari version 4.0 and Google Chrome version 4.0. The camera on its Web GUI should provide facility to initiate video recording & audio recording (if activated) even without the VMS software.
18	Edge Analytics	The camera should have on-board Video Analytics filters which may be used for specific application. The following VA filters shall be available by default at camera level: a) Virtual Trip Wire b) Motion Detection c) Camera Tampering d) Audio Analytics
19	Power Over Ethernet	Yes
20	Camera should have Web-Server for remote viewing / settings etc	Yes
21	Facility for Pre and Post Alarm Recording within IP camera.	Yes
22	Safety approvals	UL & EN
23	Proposed camera should support Date / Time Superimpose on Live image	Yes
24	Housing / Protection Enclosure	IP 66, NEMA 4 or better. With inbuilt heater & blower kit or better.
25	ONVIF (Open Network Video Interface Forum) Conformance	Yes. Certificate by the camera manufacturer to be submitted

3.3.2.3 CCTV SOLUTION AND ARCHITECTURE

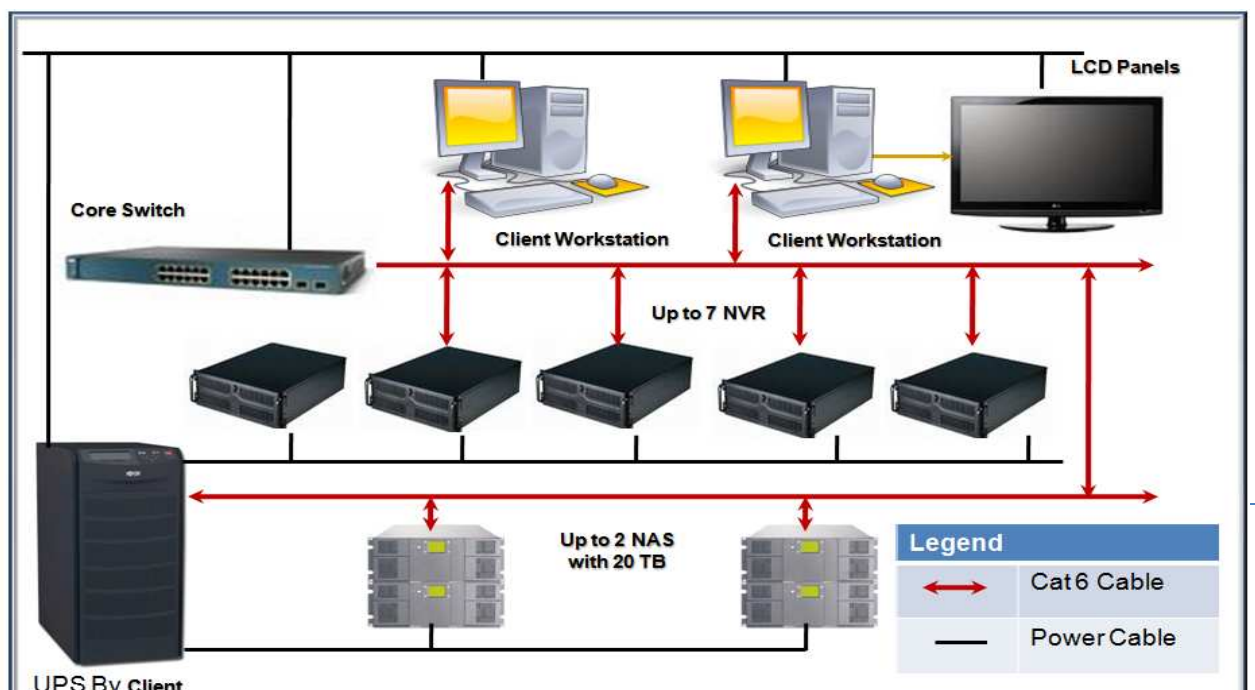
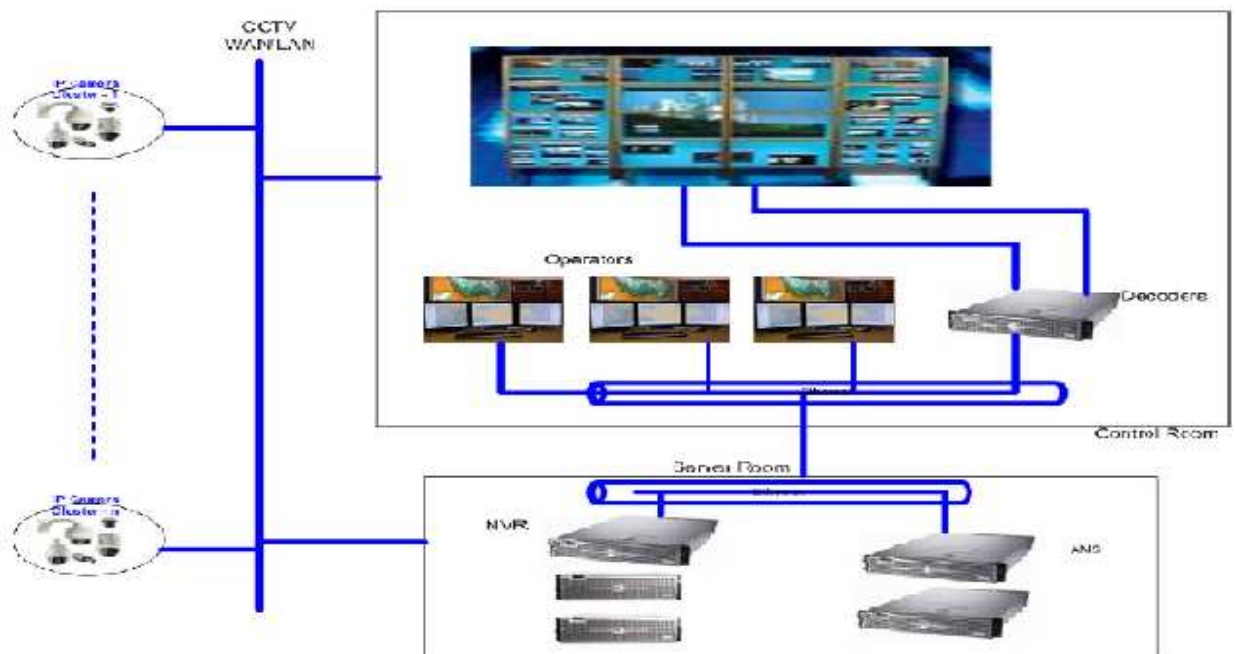
- The solution also provides the intelligence (Video Analytics) like Intelligent Motion Detection, People count, Object removed, Left-over object, Virtual Trip wire, Directional Motion filters etc.
- Integration with other Security Systems Possible using API's .
- Open Architecture based system.
- Future Expandability possible.
- Failover Management.
- Complete Command and Control operation.

3.3.2.4 CCTV SYSTEM ARCHITECTURE



As per above Architecture all cameras are connected to central command and control station via redundant network connectivity through Wireless /wired network, where complete recording of all the camera feeds are taking place with viewing at multiple locations across the city.

3.3.2.5 COMMAND AND CONTROL STATION ARCHITECTURE



The main servers and video management application will be placed at Main Control Room with a Core Switch connecting the main camera Network from sub-Control room to the Main server at Central Control Room. The Monitoring stations are connected to the network via switch and will be places at various stated viewing locations across the cities. The Viewing station will be directly/indirectly connected to the main server for retrieving the recording or viewing the live video. There will be a SAN storage connected to the Recording servers for recording storage, there will be multiple numbers of server through which the SAN device will be attached. All the devices will be connected to RAW power supply through a UPS placed at control stations provided by client. All the cameras at field will be connected to the same network via switch placed at field level further connecting to sub control station and to the servers at main control station.

3.3.2.6 WIRELESS SPECIFICATIONS

Network design Using Wavesight Radios

Band width requirement

- a) On an average a typical CCTV PTZ/ Fixed camera requires 2 Mbps bandwidth.
- b) Megapixel Camera requires 4 Mbps
- c) City of Patna is approximately 20 meter height.

Wireless Radio with Antenna Mast & Other Related Accessories	
1	System shall operate in Unlicensed band frequency spectrum of ISM-III - 5 GHz band.
2	The Wireless system shall be fit for outdoor use with supported integrated antenna. The system shall be based on state of art QoS IEEE 802.11 standards.

3	The System shall support centralized bandwidth management and authentication system for high security and QoS. The management application should be client server based system and not browser based, to ensure security of the network.
4	The system shall support remote maintenance of radio units. System shall be remotely configured, maintained, reset, monitored without compromising the security of the wireless network.
5	The system shall have the capabilities of upgrading the Software without interrupting the normal system service
6	The system shall have built in targeted coverage capability in point to point system designed specifically for Video streaming application. The system shall have latest software for managing various clusters of cameras.
7	Power transmitted should be less than or equal to 4W EIRP for outdoor frequency range, less than 200mW indoor frequency range. All definitions as per WPC requirements.
8	The system shall be scalable in terms of deployment for future expansion.
9	Wireless system shall be capable of easy and rapid deployment to avoid lengthy way-leave, access and legal agreements and operate in preapproved license free bands authorised by WPC.
10	All Wireless equipment should be WPC - ETA approved. The approval should be annexed with technical documents. Any submission without this approval shall render the disqualified technically.
11	The system shall support extensive networking modes including switching, VLAN tagging and classifications etc.
12	The system shall support high level of security mechanisms. AES, WEP 64/128/152, WEP 2, WPA, TKIP, 128 Bit, Access Control, SSID, Suppress and BRAID authentication etc for end-to-end connectivity to avoid any breaches due to Interference or hacking.
13	The system both in point to point and point to Multipoint mode shall support high level of interference mitigation techniques
14	The system shall support remote maintenance of radio units.
16	The radios shall support 2 x N type (f) antennas
17	Ethernet Interface - 10/100 Base T
18	VLAN - IEEE std. 802.1Q
19	Auto Frequency Mode - System must check automatically and select alternative channels, if required, due to frequency interference
20	Frequency & Power Control should be DFS based.
21	All necessary cables shall be included in the cost of wireless set.
22	Modulation should be on OFDM and 802.11a,b,g
23	The system equipment shall support 802.1x with Radius Authentication
24	The equipment shall be operational in environments where frequency jammers are deployed
25	Power Supply - 110 VAC - 240VAC, 47Hz to 63 Hz
26	Min IP 65 or above weather proof protection should be provided
27	The equipment should be able to withstand salt spray test for 24hrs. Test Certificate for enclosure required.
28	Operating temperature - (-)20degC to (+)50deg C
29	Signaling rate should be 108 Mbps for 40 MHz spectrum

User Interface should be simple, intuitive and easy to use without onerous need for training. The software should facilitate ease of installation from Control Room. Network management tool should be capable of viewing the complete system and choose the nodes for further actions.

3.3.2.7 VIDEO MANAGEMENT SYSTEM (VMS)

GENERAL

1. SYSTEM DESCRIPTION

- a) The Video Management System (VMS) shall be open platform, a fully distributed solution, designed for multi-site and multiple server installations requiring 24/7 surveillance with support for devices from different OEM/ Vendors.
- b) The VMS shall allow for up to 64 cameras or other devices to be connected to each Recording Server and for an unlimited number of Recording Servers to be connected to a single master Recording Server across multiple sites. The system shall support any combination of master and slave servers to provide flexibility and scalability in the overall system configuration.
- c) The VMS shall support Microsoft Vista Business/Enterprise/Ultimate (32 bit or 64 bit running as a 32 bit application), Windows 2003 Server (32 bit or 64 bit running as a 32 bit application), Windows XP Professional (32 bit or 64 bit running as a 32 bit application), Windows 7 Professional/Enterprise/Ultimate (32 bit or 64 bit running as a 32 bit application) and Windows Server 2008 (32 bit or 64 bit running as a 32 bit application) with the latest patches and service packs installed. The system shall use Direct X and .Net.
- d) The VMS shall consist of the following major components:

Surveillance System Server, which further consists of the following add-on modules or services:

- Recording Server (a service).
- Administration application.
- Image Server (a service).
- PDA / Smartphone Server.
- Video client viewer.
- Web client viewer.
- Viewer – For Exported Video Recordings.
- Matrix Monitor.
- Central Alarm Management Module.
- PDA / Smartphone Client.

- e) The VMS shall incorporate fully integrated Matrix functionality for distributed viewing of any camera in the system from any computer with the Video Client Viewer or Matrix Monitor application installed.
- f) The VMS shall include support for a graphical Central Alarm Management application module. The alarm management module shall allow for the continuous monitoring of the operational status and event-triggered alarms from system servers, cameras and other external devices. The alarm management module shall support graphical displays with interactive icons to display the status of cameras and other inputs.
- g) The VMS shall include support for a Transaction Data Integration Module designed to integrate with Point of Sale (POS) or Automated Teller Machine (ATM) data and time-link video recordings with POS or ATM transactions.
- h) The VMS shall provide connectivity with third-party systems and devices using the OPC (Object-Linking and Embedding Process Control) Data Access set of communication standards. The supported third-party systems shall include industrial automation and SCADA (Supervisory Control and Data Acquisition) systems. The VMS shall support the following commands and interfaces:
 - Get configuration.
 - Get server CPU load.
 - Get camera status and frame rate.
 - Get camera and global events.
 - Set events.
 - Set Matrix Monitor live view and play back.
- i) The VMS shall include a stand-alone Viewer application to be included with video exported from the Video client viewer application. The Viewer application shall allow recipients of the video to browse and play back the exported video without installing separate software on their computers.
- j) The VMS shall include support for Active Directory to allow users to be added to the system. Use of Active Directory shall require that a server running Active Directory, acting as a domain controller, be available on the network.
- k) The VMS shall be designed to support each component on the same computer for efficiency in smaller systems or in a distributed architecture for large system deployments. VMS core components shall be installed on the same server.

- l) Video Device Drivers - Video device drivers are installable program components used for controlling / communicating with the cameras / devices connected to a Recording Server. Video device drivers for supported devices are automatically loaded during the initial installation of the system. Newly released device drivers may be downloaded from the VMS manufacturer's website if the user is connecting a device for which the driver is not already loaded.

PRODUCTS

2. SURVEILLANCE SYSTEM SERVER

- a) The Surveillance System Server shall support the assignment of any of the Image Servers (a service running on the Surveillance System Server) to function as a master, and any of the Image Servers to function as slaves, thus allowing the user to connect to all Image Servers in the system by connecting to only a master Image Server.
- b) The Surveillance System Server shall support the use of separate networks, VLANs or switches for connecting the cameras to the Recording Servers to provide physical network separation from the clients and facilitate the use of static IP addresses for the devices.
- c) The Surveillance System Server shall support H.264, MPEG-4 (both ASP and SP), and MJPEG compression formats for the video stream from all devices including analog cameras connected to encoders, DVRs, and IP cameras connected to the system. In addition, the system shall support the MxPEG video compression algorithm, which is unique to Mobotix. MxPEG encoding shall have the capability to maintain high image quality for megapixel cameras while dramatically decreasing bandwidth consumption.
- d) The Surveillance System Server shall have the option to record the native frame rate and resolution (NTSC, PAL, HD or Megapixel) supplied by the camera or as configured from the administration application.
- e) Multi-stream Support - The Surveillance System Server shall support H.264 / MPEG-4 / MJPEG bandwidth optimized multi-streaming. The system shall allow a single video stream from a device to be independently recorded at one specified frame rate by the Recording Server, and viewed by Video client viewers or Web client viewers using a different frame rate setting.
- f) The VMS shall support interoperability with IP camera standards including, at a minimum, the Physical Security Interoperability Alliance (PSIA) and the Open Network Video Interface Forum (ONVIF).
- g) The VMS recording servers shall support interface to cameras with universal serial bus (USB) communications.
- h) The system shall support specific devices, where the specific supported model numbers shall be listed for each manufacturer on an up-to-date on-line web-site.
- i) The Surveillance System Server shall support the PTZ protocols of the supported devices as listed in section 2, subsection 8 above. The Surveillance System Server shall support both Absolute positioning PTZ protocols to move the camera to a specific X, Y, and Z set of coordinates positions, as well as, Relative positioning PTZ protocols to move the camera a relative amount based on the camera's current position.

- j) The Surveillance System Server shall support full two-way audio between the Video client viewers and remote cameras/devices. Two-way audio integration shall support the following features and functions:
- Outgoing Audio - Microphone inputs to Video client viewers shall transmit audio streams to speakers attached to remote IP devices. Selectable options shall be one-to-one (send audio to a specific IP device), and one-to-all (broadcast to all IP devices).
 - Audio from remote IP devices equipped with microphones shall be transmitted to, and recorded by, the Recording Server. The audio shall be relayed to Video client viewers equipped with speakers.
 - Each speaker and microphone shall be assigned to a specific camera/device. The speaker and microphone shall have the capability to be assigned to other devices as well.

VIDEO CLIENT VIEWER

1.

- a) The Video client viewer shall allow users to connect to the Image Server for initial authorization. Upon authorization the Video client viewer will allow connection to the Recording Server(s) for access to video recordings.
- b) The Video client viewer shall provide users with a comprehensive suite of features including:
- Viewing live video from cameras on the surveillance system.
 - Playing back recordings from cameras on the surveillance system, with a selection of advanced navigation tools, including an intuitive timeline browser.
 - Creating and switching between an unlimited number of views, each able to display video from up to 100 cameras from multiple servers at a time. The system shall allow views to be created which are only accessible to the user or to groups of users.
 - Creating special views for widescreen monitors.
 - Using multiple screens as well as floating windows for displaying multiple views simultaneously.
 - Quickly substituting one or more of a view's cameras with other cameras.
 - Viewing a "slideshow" of images from several cameras in sequence in a single camera position view. This view of several cameras in sequences in a single view is called a carousel.
 - Viewing video from selected cameras in greater magnification and/or higher quality in a designated hotspot.
 - Receiving video triggered through the Matrix Monitor application including live video upon event.
 - Include HTML pages and static images (e. g. maps or photos) in views.
 - Controlling PTZ cameras.
 - Using digital zoom on live video, as well as, recorded video.
 - Activating manually triggered events.
 - Activating external outputs (e. g. lights and sirens)
 - Using sound notifications for attracting attention to detected motion or events.
 - Getting quick overview of sequences with detected motion.
 - Getting quick overviews of detected alerts or events.
 - Quickly searching selected areas of video recording for motion (also known as Smart Search).
 - Skipping gaps during playback of recordings.
 - Configuring and using several different joysticks.

- Printing images, with optional comments.
 - Copying images for subsequent pasting into word processors, email, etc.
 - Exporting recording (e.g. for use as evidence) in AVI or MJPEG database formats.
 - Using pre-configured as well as customizable keyboard shortcuts to speed up common actions.
 - Selecting between a number of language versions, independent of language used on main surveillance system via the download of language packages.
 - Communicating with remote audio devices, including microphones and speakers via a local microphone and speaker.
 - Wiping and washing of supported PTZ cameras using assigned keyboard shortcuts or joystick buttons.
 - Navigating images from fisheye 360-degree panoramic cameras.
- c) The Video client viewer shall have the ability to adjust the display parameters for the video images from the Recording Server to optimize bandwidth utilization.
 - d) The Video client viewer shall have the capability to serve as a host to third-party applications through the use of a plug-in component.
 - e) The Video client viewer shall be installed on remote user's computers.
 - f) The Video client viewer shall provide a Graphical User Interface (GUI) and feature Live, Browse and Setup tabs for the convenient access of live and recorded video as well as camera properties and display quality.
 - g) The Video client viewer shall support a minimum of two languages Hindi and English.
 - h) The Video client viewer shall by default, support English with a fully localized help system in Arabic, Danish, Dutch, French, German, Italian, Japanese, Polish, Russian and Spanish.
 - i) The Video client viewer shall support the use of standard PTZ controllers or three-axis USB joysticks for the control of pan, tilt, zoom and auxiliary camera functions.
 - j) For the efficient review of recorded video, the Video client viewer shall support the use of multimedia control devices that are capable of emulating keystrokes.
 - k) The Video client viewer shall support the use of keyboard shortcuts for control of standard features.
 - l) The Video client viewer shall have the following two-way audio functions:
 - The Video client viewer shall allow an operator to play live audio from a camera's microphone and play back recorded audio.
 - The Video client viewer shall allow an operator to export incoming audio from a camera's microphone together with video in the native database format or as an AVI file.
 - The operator shall have a "press to talk" option which shall send the microphone input from the operator out to one IP device enabled speaker, or to all of them.
 - Each camera view item shall use the default assigned microphone and speaker, but the operator shall have the ability to select other audio devices or to let the same speaker follow the operator when choosing other views.
 - m) The operator shall have the ability to use digital zoom where the zooming is performed in the image only. This functionality shall be the default for fixed cameras.
 - n) The Video client viewer shall be equipped with a context-sensitive help system that covers the full Video client viewer functionality for operators to instantly get help on a certain topic.

- o) The Live tab shall allow the user to trigger manual events, control outputs, select audio inputs, and control PTZ cameras.
- p) The Video client viewer shall support the following multiple viewing options:
 - Floating Window – Allows the selected view to be duplicated as a new floating view which may be moved to other connected monitors by dragging the image.
 - Send view to a primary monitor (a full-screen view on a PC’s main monitor), or secondary monitor (a full-screen view on another monitor).
 - Create views of up to 100 cameras
 - Carousel – The Carousel feature shall allow the sequencing display of cameras in a view window. Multiple carousels may be defined to allow all view windows to display sequences of cameras. The operator shall have the ability to select the default display time or to enter a custom display time for each camera in the carousel. From inside the camera view the operator shall have the option to manually switch to the next or previous camera in the carousel camera list as well as pausing at the current camera. When switching from one camera to the next the transition phase shall be completely smooth without any delay.
 - Static Image – The Static Image feature shall allow any position of a view to be used for displaying maps or other images of interest to the user.
 - Matrix Window – A window that is used to display cameras on demand or by an external event.
 - Dynamic Actions – The operator shall be able to assign outputs, PTZ presets, events, and views as actions to joystick buttons and as keyboard shortcuts. The actions shall be ordered in categories to optimize the ease of use.
- a. HTML Page – The HTML Page feature shall allow for several navigation functions within the Video client viewer including.
 - 1) Allow web pages to be opened in Video client viewer views.
 - 2) Switching between views by clicking on a text description of the view in the HTML Page. For example; “Go to Shared Group 1 View 1”
 - 3) Switching between different views by clicking on an interactive map area. For example; a site or building floor plan with interactive colored zones inserted as a HTML page would allow the user to switch views to a camera displaying images of the specific part of the site or building.
 - 4) Allowing maps to be created from standard image files (MJPEG, GIF, TIF, etc.).
 - 5) Allowing HTML scripting for use in creating buttons for view navigation.
- 2. The Video client viewer shall allow the user to select events and manually trigger the selected event to occur. The event window shall list all events grouped by server and camera/device that the event is associated with.
- 3. The Video client viewer shall allow actions to be taken with a specific camera by right-clicking on the camera’s live video window. The actions for a specific camera shall be:

- a. Start/stop recording for a predefined period in minutes – This action shall force the system to record, or stop recording live video, regardless of settings. The predefined period to start/stop recording shall be configurable by the Administrator.
 - b. Copy – This action will copy a current live image from the camera to the PC clipboard.
 - c. Camera – This action will present a menu of available cameras and will allow the user to select a different camera for the given live view position in the live view user interface.
 - d. Sound Notification – This action will allow the toggling of <mute> and <unmute> of a sound notification upon an event or detected motion.
 - e. PTZ Presets – This action will allow the selection of a preset from a list of presets assigned to the specific camera.
 - f. Matrix – This action will force a manual trigger of the live video feed to a Matrix Monitor recipient.
 - g. Send Camera – This action will send the camera’s video to a specific position within the live view user interface.
4. The Video client viewer shall feature an Output Control user interface to allow the user to manually activate an external output port on a device. The user interface shall list all selectable outputs grouped by server and camera/device that the output is attached to.
5. The Video client viewer shall allow the user to control a PTZ camera within each displayed view, provided that the user has been granted the proper privileges by the Administrator. Depending on camera capabilities / camera model the typical method for controlling the PTZ functions is as follows: when the mouse cursor is placed on the video image the cursor pointer shall automatically change to a crosshair indicating the camera has PTZ capabilities. Re-centering the camera’s field-of-view shall be accomplished by left clicking the crosshair on the area of interest within the image. Controlling the zoom function shall be accomplished by holding down the left mouse button and selecting a percent zoom from a scale of 0% to 100% or by use of the mouse wheel.
- a. Additional control feature for Sony and other PTZ cameras (device dependent) includes the ability to draw a rectangle around the area of interest to zoom the camera in for closer examination. The size of the rectangle shall be proportionate to the level of zoom, i.e., the smaller the rectangle the greater the zoom level achieved.
6. The Video client viewer shall feature a PTZ controls rendered on the user interface that provides eight directional and home positions.
- a. The PTZ controls shall provide a digital zoom feature for the user to digitally zoom in on the displayed image without affecting the recording or the display of the camera on other Video client viewer applications.
 - b. An overview image in the view shall display the normal field-of-view and the digital zoom area in a highlighted box to provide the user with spatial awareness.
 - c. The PTZ control window shall allow the user to select pre-defined presets for PTZ cameras and thus move the selected camera to the preset.

7. The system shall allow for live or playback video to switch to full quality for a selected camera when the camera's view is maximized unless "Keep when maximized" is selected and the stored camera settings are not set to full quality settings. If "Keep when maximized" is selected, the quality settings for the camera that are stored in the system will be used.
8. The Browse tab shall display motion activated sequences for the selected camera in a drop down menu. Each sequence shall be represented by a line with the date, start time and duration. A drop down preview screen shall allow the user to view the recorded sequence.
9. The Browse tab shall display Alerts defined as bookmarked events in the System Manager.

Central Alarm Management Module

- a) The alarm management module shall allow for continuous monitoring of the operational status and event-triggered alarms from servers, cameras and other devices. The alarm management module shall provide a real-time overview of alarm status or technical problems while allowing for immediate visual verification and troubleshooting.
- b) The alarm management module shall provide interface and navigational tools through the client including:
 - Graphical overview of the operational status and alarms from servers, network cameras and external devices including motion detectors and access control systems.
 - Intuitive navigation using a map-based, hierarchical structure with hyperlinks to other maps, servers and devices or through a tree-view format.

3.3.2.8 SPECIFICATION OF THE SERVERS FOR VIDEO MANAGEMENT & ANALYTICS

Components	Specifications
Processor	Intel Xeon 5600 series 2.53 Ghz, 6 core processor
No of Processor	1 nos.
Front Side Bus	1333MHz
L2 Cache	12 MB Full Speed Cache
RAM	4 GB x 2 PC3-10600 CL9 ECC DDR3 1333MHz LP RDIMM
DIMM Slots	16 Memory slots
RAM Expandability	48 GB
Slots	Minimum 4 PCI Slots
HDD Bays	Should support upto 16 Hot Swap SAS/SATA HDD bays
RAID Controller	Integrated RAID 5
Hard Disks	3*300GB SAS 15000 rpm HotSwap HDD
I/O Ports	4 USB, 2 serial, 1 Parallel, Keyboard, Mouse, 2 Ethernet (RJ-45), Monitor, microphone-in, line-in(stereo), line-out(stereo).
CDROM	48 X DVD Rom
Graphics Memory	16MB SDRAM

NIC	Integrated 2 ports, plus 2 ports optional Gigabit Ethernet
Keyboard	To be Supplied with the machine
Pre-Failure Notification	Pre-Failure Warranty covering processor, memory, HDD, Power Supply
Mouse	To be Supplied with the machine
Form Factor	Rack
Power Supply	Redundant hot swappable Power Supply needed
Redundant Fans	Redundant hot swappable Fans needed
Remote Connectivity	Remote Management Module to enable remote management needed
Diagnostics	LEDs to identify failed components within the subsystem needed
System Management Software	OEM server management software to be provided
Power management	OEM power management software to measure and define the use of electricity by the server
Monitor	To be offered only if necessary, depending on the solution proposed (Offering of Plasma Display is mandatory). If offered should be minimum 21" Flat / TFT Monitors

3.3.2.9 SPECIFICATION OF STORAGE

Components	Min. Specifications
Operating System	Microkernel based; should not be based on general purpose operating system like Windows, Unix/Linux etc.
RAID controller	Dual active, hot-swappable controllers
Cache	1 GB cache per controller with 2 GB upgrade (battery-backed)
Host interface	At least 8 x FC ports
Drive interface	Two 6 Gb SAS drive ports
Supported drives	6 Gbps SAS 3.5" drives: 300 GB 15k rpm, 450 GB 15k rpm, 600 GB 15k rpm 1 TB 7.2k rpm Nearline, 2 TB 7.2k rpm Nearline 600 GB 15k rpm SED 6 Gbps SAS 2.5" drives: 146 GB 15k rpm 300 GB 10k rpm 600 GB 10k rpm 500 GB 7.2k rpm Nearline 300 GB 10k rpm SED 1 TB 7.2k rpm
RAID levels	0, 1, 3, 5/6
Storage partitions	Support for up to 128 storage partitions (levels: 4 standard with upgrades to 8, 16, 32, 64, 128)
Maximum drives supported	Up to 192 drives—high performance SAS drives, nearline SAS drives, and SED SAS drives
Raw disk Scalability	50 TB usable capacity using SATA drives

Fans and power supplies	Dual redundant, hot-swappable
Rack support	2U, 19-inch, industry-standard rack
Management software	OEM Storage Manager
SAN support	Supported FC switches and directors, and IP switches

3.3.2.10 WORKSTATION

- Intel Core i5 or better
- 4 GB Dual Channel DDR3 SDRAM at 1333Mhz
- 1024 Mb dedicated graphics
- 16X DVD-ROM
- 10/100/1000 Ethernet
- 2 x 250 GB HDD
- Genuine Windows 7 and Anti Virus
- USB: 8 external USB Ports (4 front, 4 back); 2 USB 3.0 via add-on cards
- Audio: Six back-panel connectors: microphone-in, line-in, and 4 line-out to support 7.1 audio jack; two front-panel connectors for headphone-output and microphone-in
- Other Features: HDMI, VGA port, S/PDIF connector, eSATA, RJ-45 (10/100/1000 Ethernet)
- 22" LED TFT Monitor

3.3.2.11 CORE SWITCH

Port Density and Redundancy
Layer-3 Switch. 19" Rack Mountable with stackable. Min. 24 Nos. 10/100/1000BaseT ports and Min.12 Nos. free mini SFP/GBIC slot to accommodate 1000BaseSx/1000BaseLx Ports ,upgradable to any combination of 24 ports of fiber or copper gigabit ports.Modular support for adding two 10G ports if required in future. All ports should be switched ports.
1+1 Redundant and hot swappable, load sharing Power supply
Two core switches will be connected in 100% redundancy, master/slave mode using industry standard VRRP protocol to avoid single point of failure in network
Both the core switch will connect to each other on a high speed stacking cable that should be supplied along with the switch.
Each VMS Server will have dual NIC cards to connect to both the Core switches, and incase of failure of one core switch other should take over, without loss of connection between VMS & cameras.
Performance
Min. 165Gbps switching fabric, Min. 110Mpps forwarding rate. Should be wire speed switching and routing capabilities and non blocking architecture, Supports 10KB Jumbo frame size

Support Up to 256K IPv4 routes, 16K MAC, 4K layer 3 interfaces , Up to 1K layer 3 IPv4 multicast groups and IPv6 routing option
VLAN support
Supports 4096 VLANs
Support Private VLANs, VLAN double tagging (Q-in-Q), IEEE 802.3ac VLAN tagging
IEEE 802.1Q Virtual LANs, IEEE 802.1v VLAN classification by protocol & port
Routing Protocol
IP routing and RIPv1 and RIPv2, OSPF, DVMRP, HSRP/VRRP(Optional), UDP, ICMP, TCP, ARP. Should support IPv6 for future upgrades.
Hitless upgrade of the IOS, capability to store multiple configuration files, Date, day, time based event sensitivity and dynamic auto re-configuration capability
Security
Access control list, TACACS, TACACS+, SSH, RADIUS, SSLv3, MAC-based authentication
Dynamic VLAN assignment, NAC, BPDU Protection, Guest VLAN support, Web-based Authentication
Transport Layer Security (TLS) Extensions, PPP Extensible Authentication Protocol and IEEE 802.1x Multi Supplicant authentication
IEEE 802.1x Authentication protocols (TLS, TTLS, PEAP & MD5), SSH Remote Login
Quality of Service
Policy based QoS features, 8 QoS queues per port, IEEE 802.1p Priority Tagging
Highly configurable traffic classification Mixed scheduling, to support complex traffic queuing requirements
TCP-IP bandwidth limiting performance and bandwidth resolution down to 1Kbps
RFC 2474 DiffServ Precedence for 8 queues/port, RFC 2475 DiffServ Architecture, RFC 2597 DiffServ Assured Forwarding (AF) and RFC 3246 DiffServ Expedited Forwarding (EF)
Redundancy features
Link Aggregation (802.3ad LACP), Dynamic Link Failover, STP Root Guard
Loop Protection - Loop Detection and Loop Protection - Thrash Limiting
IEEE 802.1D Spanning Tree Protocol (STP) - MAC Bridges, IEEE 802.1s Multiple Spanning Tree Protocol (MSTP)
IEEE 802.1t - 2001 802.1D maintenance and IEEE 802.1w - 2001 Rapid Spanning Tree Protocol (RSTP)
Multicast Supports
Bootstrap Router for PIM-SM, IGMP Proxy, IGMP Snooping, MLD Snooping (v1 and v2), RFC 1112 Host extensions for IP multicasting, RFC 3376 IGMPv3
RFC 2236 Internet Group Management Protocol v2 (IGMPv2), RFC 2715 Interoperability Rules for Multicast Routing Protocols, PIM-SM & PIM-DM
Management
SNMPV3, Web based, Telnet, RMON (4 groups) and command Line Interface.
Out of band 10/100/1000 Ethernet management port , Console management port
An SD memory card socket on the front panel, allowing switch firmware, configurations to be stored for backup and distribution to other switches
SSH and SNMPv3 for secure management, Support RFC 2741 Agent Extensibility (AgentX) Protocol
RFC 2575 View-based Access Control Model (VACM) for SNMP

RFC 2574 User-based Security Model (USM) for SNMPv3, RFC 1212 Concise MIB definitions
RFC 1212 Concise MIB definitions, RFC 3164 Syslog Protocol, Diagnostic Tools ,BIST (Built-In Self Test)
Electrical Approvals and Compliances
EMC: EN55022 class A, FCC class A, VCCI class A
Certification: UL, cUL, TUV
Safety :UL60950-1, CAN/CSA-C22.2 No. 60950-1-03,EN60950-1, EN60825-1, AS/NZS 60950.1
RoHS Compliant
Power Consumption
110 Watts (375 BTU/hr)
Environmental Specifications
Operating Temperature Range: 0°C to 40°C
Storage Temperature Range: -30°C to 70°C

3.3.2.12 DISTRIBUTION SWITCH

Port Density
Layer-2 Switch. 19” Rack Mountable. Min. 24-port stackable 10/100/1000TX Copper Port
Should Have 4 standby SFP bays
2 Nos. 1G Stack port on rear
Performance
Min. 88Gbps switching fabric, Min. 50Mpps forwarding rate. Support 8K MAC address
Wirespeed switching on all Ethernet ports for all packet sizes including jumbo frames up to 10Kbytes
VLAN support
Supports up to 4094 VLAN IDs and 256 active VLANs
Support Port based , MAC Based and Tagged based VLANs, GARP
General Features
Support Storm Control : Broadcast, multicast ,IGMP snooping v3, Across Stack Link Aggregation, Stack VLAN configuration, Stack Port Mirroring, Trunking across stack, Single IP address Stack management, 20Gig Resilient Ring Stacking Architecture, Dual-stack IPv4/IPv6 protocol
Support Spanning-Tree Protocol , Rapid Spanning-Tree, Multiple Spanning Tree, 802.3ad LACP link aggregation ,Trunk can support up to eight members per group, LLDP-MED
RFC 2461 IPv6 neighbor discovery, RFC 2463 ICMPv6: Internet Control Message , Protocol version 6
RFC 1981 Path MTU discovery, IPv6 Tunnelling over IPv4
Support Dual software images, Port mirroring, DHCP, IGMPv3 & IGMP querier
Security

Guest VLAN, SSHv2 for Telnet management, SSLv3 for WEB management ,RFC 1492 TACACS+, RFC 2138 RADIUS Authentication, IEEE 802.1x Port-based and MAC network access control, Access Control Lists, MAC Acls, IPv4 as well IPv6 ACLs, service-ACL, SNTP, 1.10.13.1. Layer 2 and Layer 3 Access Control Lists (ACL), Broadcast Storm Control
Quality of Service
Support IEEE 802.1p QoS, Eight priority queues and Strict priority and weighted round robin, DSCP (Diffserv) for Layer 3 QoS, Traffic prioritization using 802.1p, ToS, DSCP Fields, 802.1p to DSCP remarking traffic
Management
SNMPV3, Secure encrypted Web based and Command Line Interfate with SSH v2 and SSL, Telnet, RMON (4 groups) and TFTP , Two levels access privileges User EXEC mode, Privileged EXEC mode, Global Configuration mode, and Interface Configuration mod
IPv6 Network management, IPv6 Applications: WEB/SSL Telnet server/SSH, AAA/Radius, Management ACLs, SNTP, PING, TFTP/Copy, Syslog
Electrical Approvals and Compliances
Safety UL 1950 (UL/cUL), EN60950 (TUV), EMI FCC Class A, EN55022 Class A, VCCI Class A, C-Tick, EN61000-3-2, EN61000-3-3, Immunity EN55024 ,RoHS compliant
Power Specifications
Voltage input 100- 240VAC, Max Power consumption 39.6W, Heat Dissipation 135.1 BTU/hour
Environmental Specifications
Operating Temp 0°C to 45°C (32F to 113F)
Storage Temp -25°C to 70°C (-13F to 158F)
Operating humidity 5% to 80% non-condensing

3.3.2.12 EDGE SWITCH – INDUSTRY GRADE

Port Density
Port Connector 10/100TX: RJ-45 x 4/8
SFP Combo: RJ-45 x 2 OR 100/1000 SFPx 2
Console port : RJ45 x 1
Performance
Switching capacity 5.6Gbps, Throughput 4.2Mpps ,Packet Buffer - 1Mbits, Mac Address 8K, Flash ROM 4Mbytes ,DRAM 32Mbytes
General Features
VLAN IEEE 802.1Q, GVRP, Port-based VLAN Redundancy using X-Ring, Dual Homing and Couple Ring, IEEE 802.1d STP and IEEE 802.1w RSTP IP Access security, port security, DHCP Server, IP Binding per Port, IEEE 802.1x IGMP Snooping/ Query for multicast Port trunking, Static IEEE 802.1p QoS/CoS/ToS/DSCP priority queuing 802.3x flow control Port Mirroring, LLDP, Real-time trace
Sanderd Support
IEEE 802.3, IEEE 802.3u, IEEE 802.3AB, IEEE 802.3z, IEEE 802.3x, IEEE 802.3ad, IEEE 802.1d, IEEE 802.1p, IEEE 802.1Q, IEEE 802.1x

Physical
Enclosure IP30, Metal with aluminum shell Installation DIN-rail/Wall Mount Design
Management
TFTP firmware update, system configure, restore and backup SNMP v1/v2c/v3, Web, Telnet, CLI Statistic, MAC Address Table, SNTP, Syslog, E-mail Alert, SNMP Trap, RMON
Power
Power consumption less than 10 Watts Max. Power Input 12~48VDC, Redundant power Power Connector 6 poles terminal block x 1 Relay Output 1A @ 24VDC
Environment
Operating Temperature -10 ~ 60oC Storage Temperature -40 ~ 85oC Storage Humidity 5 ~ 95% (non-condensing)
Certification
Safety UL/cUL60950-1, EMC CE, FCC Class A EN61000-6-4, EN61000-6-2 ,EN61000-4-2 (ESD), EN61000-4-3 (Radiated RFI) EN6100-4-4 (Burst), EN61000-4-5 (Surge), EN61000-4-6 (Induced RFI) ,EN61000-4-8 (Magnetic Field) Shock IEC60068-2-27 Freefall IEC60068-2-32 Vibration IEC60068-2-6

3.3.2.13 NETWORK MANAGEMENT SOFTWARE (NMS)

1. General features
 - 1.1. Secure SNMP v3 support
 - 1.2. Scalable, distributed architecture, with management support for multiple distributed domains, each nms should be able to import the map of one or more remote servers. With support for both local and remote access.
 - 1.3. Remote console component
 - 1.4. Remote console and JAVA access
 - 1.5. Email /Pager event notification
 - 1.6. Real-time MIB displays
 - 1.7. Multi-vendor graphical device views
 - 1.8. Web and printed trend reports
2. Monitoring and Alerts
 - 2.1. Should automatically discovers and polls
 - 2.1.1. SNMP/ICMP
 - 2.1.2. WEB
 - 2.1.3. FTP
 - 2.1.4. SMTP
 - 2.1.5. TELNET services
 - 2.2. Along with real-time service status
 - 2.3. Should support Web-based availability reports.
3. Trend Reporting

- 3.1. Should be capable of automatically generating daily, weekly, and monthly statistical reports. Report formats include graph, bar chart, distribution, and summary.
- 3.2. Exported reports to a variety of destinations, including
 - 3.2.1. Printers
 - 3.2.2. Files
 - 3.2.3. Web server
 - 3.2.4. ODBC databases.
- 3.3. Customized reports.
4. Console Options
 - 4.1. Remote console:
 - 4.1.1. Should enable local user access in the nms station via remote console
 - 4.1.2. Run the remote console application from any Windows workstation using TCP/IP connection
5. SNMP Protocols
 - 5.1. v1, v2c, v3 with SHA/MD5 authentication and DES encryption.
6. Device Discovery
 - 6.1. Automatically discovers and polls SNMP and ICMP (Ping) devices.
7. Service Discovery
 - 7.1. Performs service discovery on device, including
 - 7.1.1. SNMP
 - 7.1.2. ICMP
 - 7.1.3. Telnet
 - 7.1.4. FTP
 - 7.1.5. HTTP
 - 7.1.6. SMTP
8. Service Polling
 - 8.1. Up to 16 user-defined TCP ports per icon, each with configurable send/reply string.
 - 8.2. External polling with custom applications.
9. Topology Layout
 - 9.1. Multiple level hierarchies, segmented by polling agent.
 - 9.2. Tree, ring, or snaked bus networks.
10. Event Notification
 - 10.1. Ignore,
 - 10.2. Ignore duplicates
 - 10.3. forward e-mail
 - 10.4. page
 - 10.5. display alarm box
 - 10.6. execute application
11. Reporting
 - 11.1. Graph
 - 11.2. Bar chart
 - 11.3. Distribution
 - 11.4. Summary—with print
 - 11.5. Web export.
12. Backup
 - 12.1. Live/standby server support with automated failover.
13. External Interfaces
 - 13.1. ODBC
 - 13.2. Text export
 - 13.3. Event forwarding using SNMP Traps
14. Customization
 - 14.1. Private MIB import,

- 14.2. Custom tables, expressions, and menus
- 14.3. Execute application from map double-click, on event reception, and during custom polling.
- 15. Programming Interfaces
 - 15.1. Proprietary object-oriented interface for C/C++ applications
 - 15.2. SNMPc v4.0 DDE Interface
 - 15.3. WinSNMP de-facto standard interface
 - 15.4. Utilities for Scripting language support

3.4 BILL OF MATERIAL (BOM) FOR PART TWO

Surveillance System

Sr. No.	Description	Qty.	Unit	Unit price (INR) for three years	Total price (INR) (Inclusive of all taxes and expenditures) for Three years
A	CCTV System (IP Based CCTV System)				
1	IP based Fixed lense high resolution camera	40	Nos		
2	IP based PTZ surveillance camera	30	Nos.		
3	Vandal proof housing for camera	70	Nos.		
4	Video Management Software (VMS) with Video Analytics Features enabled	70	Nos		
5	Server	4	Nos		
6	SAN Storage Device	1	Nos		
7	Monitoring Workstation	4	Nos		
8	VMS - Monitoring Client License	1	Nos		
9	56" LCD TV - View Live Video feed	4	Nos		
10	PTZ Keyboard control	1	Nos		
11	Cost of end to end connectivity on Fiber/ Radio network	On actual	Nos		
12	Surge Processor for protection with Power Surges	On actual	Nos		
13	Automatic Number Plate Recognition System	32	Nos		
B	LAN Infrastructure & Accessories for CCTV System				
14	Core LAN Switch	2	Nos		
15	Distribution Switch	2	Nos		
16	Edge Switch – Industry Grade	35	Nos		
17	Network Management Software	1	Nos		
18	Weather Proof Small Box (Holds Power adapter, Network Switch, LIU and patch cords)	35	Nos		
19	Passive Componenets and	1	Lot		

	terminations				
20	CAT 6 UTP Cable	3000	Mtrs		
21	Power cable - 3 core 2.5 sq mm armoured	6000	Mtrs		
22	Optical Fibe Cable – Armod 24 Core with all accssories	10000	Mtrs		
23	Power Supply Unit 12 V DC, 1.5 A	107	Nos		
24	Online UPS 1kva, 30 mins backup	35	Nos		
25	Online UPS 10 KVA, 30 mins backup	2	Nos		
26	Server Rack 42U, 19" with 15.2" Monitor, Keyboard, mouse and KVM	1	No		
	42 U Floor Standing Communication Rack	1	No		
D	Civil Works				
27	HARD SOIL: Excavation of ground to a depth of 3' level width of 1' and refilling etc. for laying the PVC piping. Extra earth after re-filling to be levelled in low lying area	On actual	Mtr.		
Total amount for three years (INR)					

3.5 COMMERCIAL QUOTE

Sr. No.	Description	Total Project Cost for Three Years (INR) (Inclusive of all taxes and expenditures)	Optional: AMC cost of project for Two Years
1	Amount for Part One		
2	Amount for Part Two		
	Total Amount (Rs.)		

3.6 AWARD OF PROJECT

The bidder who will quote the lowest price (L1) will be considered as a selected vendor for the execution and running of Project for Three (03) Years. Cost of 2 Years AMC after Warranty will not be considered for deciding lowest price L1.

Note: *The Project will be awarded to the L1 bidder.*