# UJJAIN SMART CITY LIMITED, UJJAIN

**REQUEST FOR PROPOSAL**

**for**

# SELECTION OF AGENCY FOR INTEGRATED TRAFFIC MANAGEMENT SYSTEM (ITMS) IN THE CITY OF UJJAIN

**NIT No. 42**

**RFP Publication Date: 22-February-2018**

**NOTICE INVITING TENDER**

NIT No: USCL/42 Date: 22-February-2018

Ujjain Smart City Limited invites proposal from reputed organization for "Selection of Implementation Agency for Integrated Traffic Management System (ITMS) in the City of Ujjain". Interested firms may submit their proposals on e-procurement portal i.e. www.mpeproc.gov.in as per below mentioned details:

| | | |
|---|---|---|
| 1. | Tender document Fee | Rs. 50,000 (Rupees Fifty Thousand Only)<br>(through Online e-Tendering Payment Gateway only) |
| 2. | Earnest Money Deposit | Earnest Money Deposit of Rs. 25,00,000 (Rupees Twenty Five Lakhs only) |
| 3. | Last date to send in requests for clarifications on the tender | Pre-Bid Queries shall be sent to ujjainsmartcity@gmail.com as per format attached in *this RFP* before the pre-bid meeting date. |
| 4. | Time, Date and Venue for Pre- Bid Conference | 03:00 PM, 05-March-2018<br><br>Ujjain Smart City Limited<br>Simhastha MelaOffice, Kothi Road, Ujjain (M.P.) |
| 5. | Last date for Purchase of Tender | 23-March-2018 upto 17:00 |
| 6. | Bid (Technical and Commercial) Submission End Date(Online) | 23-March-2018 upto 17:30 |
| 7. | Technical Bid Submission End Date (Physical) | 24-March-2018 upto 17:00 Hrs |
| 8. | Technical bids opening time, date and Venue | 24-March-2018 after 17:00 Hrs<br><br>Ujjain Smart City Limited<br>Simhastha Mela Office, Kothi Road, Ujjain (M.P.) |
| 9. | Declaration of Technically Qualified Bidders for opening of commercial bid | To Be Declared Later |

**Executive Director**
**Ujjain Smart City Limited**

## DISCLAIMER

The information contained in this Request for Proposals document ("RFP") or subsequently provided to Applicants, whether verbally or in documentary or any other form by or on behalf of the Authority or any of its employees or advisers, is provided to Applicants on the terms and conditions set out in this RFP and such other terms and conditions subject to which such information is provided.

This RFP is not an agreement or an offer by the Authority to the prospective Applicants or any other person. The purpose of this RFP is to provide interested parties with information that may be useful to them in the formulation of their Proposals pursuant to this RFP. This RFP includes statements, which reflect various assumptions and assessments arrived at by the Authority in relation to the Consultancy. Such assumptions, assessments and statements do not purport to contain all the information that each Applicant may require. This RFP may not be appropriate for all persons, and it is not possible for the Authority, its employees or advisers to consider the objectives, technical expertise and particular needs of each party who reads or uses this RFP. The assumptions, assessments, statements and information contained in this RFP, may not be complete, accurate, adequate or correct. Each Applicant should, therefore, conduct its own investigations and analysis and should check the accuracy, adequacy, correctness, reliability and completeness of the assumptions, assessments and information contained in this RFP and obtain independent advice from appropriate sources.

Information provided in this RFP to the Applicants may be on a wide range of matters, some of which may depend upon interpretation of law. The information given is not intended to be an exhaustive account of statutory requirements and should not be regarded as a complete or authoritative statement of law. The Authority accepts no responsibility for the accuracy or otherwise for any interpretation or opinion on the law expressed herein.

The Authority, its employees and advisers make no representation or warranty and shall have no liability to any person including any Applicant under any law, statute, rules or regulations or tort, principles of restitution or unjust enrichment or otherwise for any loss, damages, cost or expense which may arise from or be incurred or suffered on account of anything contained in this RFP or otherwise, including the accuracy, adequacy, correctness, reliability or completeness of the RFP and any assessment, assumption, statement or information contained therein or deemed to form part of this RFP or arising in anyway in this Selection Process.

The Authority also accepts no liability of any nature whether resulting from negligence or otherwise, howsoever caused, arising from reliance of any Applicant upon the statements contained in this RFP.

The Authority may in its absolute discretion, but without being under any obligation to do so, update, amend or supplement the information, assessment or assumption contained in this RFP.

The issue of this RFP does not imply that the Authority is bound to select an Applicant or to appoint the Selected Applicant, as the case may be, for the Consultancy and the Authority reserves the right to reject all or any of the Proposals without assigning any reasons whatsoever.

The Applicant shall bear all its costs associated with or relating to the preparation and submission of its Proposal including but not limited to preparation, copying, postage, delivery fees, expenses associated with any demonstrations or presentations which may be required by the Authority or any other costs incurred in connection with or relating to its Proposal. All such costs and expenses will remain with the Applicant and the Authority shall not be liable in any manner whatsoever for the same or for any other costs or other expenses incurred by an Applicant in preparation or submission of the Proposal, regardless of the conduct or outcome of the Selection Process.

# 1 Glossary

| Terms | Meaning |
|---|---|
| ANPR | Automatic Number Plate Recognition |
| AMC | Annual Maintenance Contract |
| BOM | Bill of Material |
| BEC | Bidders Evaluation Committee |
| CAPEX | Capital Expenditure |
| CCTV | Closed Circuit Television |
| CEO | Chief Executive Officer |
| DD | Demand Draft |
| DC | Data Centre |
| ED | Executive Director |
| EMD | Earnest Money Deposit |
| INR | Indian Rupee |
| ITMS | Integrated Traffic Management System |
| ICCC | Integrated Command and Control Centre |
| ICT | Information and Communication Technology |
| IT | Information Technology |
| IP | Internet Protocol |
| LoI | Letter of Intent |
| MoU | Memorandum of Understanding |
| NPV | Net Present Value |
| NDA | Non-Disclosure Agreement |
| OEM | Original Equipment Manufacture |
| ONVIF | Open Network Video Interface Forum |
| O&M | Operations and Maintenance |
| OPEX | Operational Expenditure |
| PBG | Performance Bank Guarantee |
| PDD | Proposal Due Date |
| PoC | Proof of Concept |
| PQ | Pre-Qualification |
| PA | Public Address |
| PSU | Public Sector Undertaking |
| PTZ | Pan Tilt Zoom |
| RFP | Request for Proposal |
| RLVD | Red Light Violation Detection |
| SVD | Speed Violation Detection |
| SI | Implementing Agency |
| SLA | Service Level Agreement |
| TQ | Technical Qualification |
| UPS | Uninterrupted Power Supply |
| USCL | Ujjain Smart City Limited |
| VMS | Variable Message Sign |

## Table of Contents

**1 Glossary ..... 4**

**2 Introduction ..... 7**
*2.1 Background ..... 7*
*2.2 Request for Proposals ..... 7*
*2.3 Due diligence by Applicants ..... 7*
*2.4 Sale of RFP Document ..... 7*
*2.5 Validity of the Proposal ..... 7*
*2.6 Brief description of the Selection Process ..... 7*
*2.7 Schedule of Selection Process ..... 8*
*2.8 Pre-Proposal visit to the Site and inspection of data ..... 8*
*2.9 Pre-Proposal Conference ..... 8*

**3 Instruction to Bidders ..... 9**
*3.1 Advice to the bidders ..... 9*
*3.2 Procedure for Submission of Bids ..... 9*
*3.3 Clarifications in RFP Document ..... 10*
*3.4 Pre Bid Meeting ..... 10*
*3.5 Extension of Deadline for submission of Proposals ..... 11*
*3.6 Late Submission of Bid ..... 11*
*3.7 Earnest Money Deposit (EMD) ..... 11*
*3.8 Cross checking ..... 11*
*3.9 Absence of specifications ..... 11*
*3.10 Cost to Bid ..... 11*
*3.11 Language of Bids ..... 11*
*3.12 Documents Comprising the Bids ..... 12*
*3.13 Bid Prices ..... 12*
*3.14 Firm Prices ..... 12*
*3.15 Bidder Qualification ..... 12*
*3.16 Period of Validity of Bids ..... 12*
*3.17 Local / Site Conditions ..... 13*
*3.18 Modification and Withdrawal of Bids ..... 13*
*3.19 Opening of Technical Bids ..... 13*
*3.20 Evaluation of Bids ..... 13*
*3.21 Negotiations with the successful Bidder ..... 19*
*3.22 Post Qualification and Award Criteria ..... 19*
*3.23 Right to Vary Scope of Contract at the time of Award ..... 20*
*3.24 Right to Vary Timeline of Project Execution in Part or Whole ..... 20*
*3.25 Right to Accept Any Bid and to Reject Any or All Bids ..... 20*
*3.26 Notification of Award - Letter of Acceptance ..... 20*
*3.27 Forfeiture of Earnest Money Deposit ..... 20*
*3.28 Signing of Contract ..... 20*
*3.29 Performance Guarantee ..... 21*
*3.30 Contract Period ..... 21*
*3.31 Rejection Criteria ..... 21*
*3.32 Concessions permissible under statutes ..... 21*
*3.33 Intellectual Property Rights ..... 22*

**4 Scope of Work and Terms of Reference ..... 23**
*4.1 Overview ..... 23*
*4.2 Geographical Scope of services ..... 27*
*4.3 Assessment and Site Survey for finalization of detailed technical architecture and project plan ..... 27*
*4.4 Site Clearance obligations & other relevant permissions ..... 30*
*4.5 Design, Supply, Installation & Commissioning of the Field Equipment ..... 32*
*4.6 Design, Supply, Installation and Commissioning of Network & Backbone Connectivity for ITMS and City Surveillance system ..... 36*
*4.7 Hosting Services ..... 38*

*4.8 Design, Supply, Installation and Commissioning of IT Infrastructure at Police Command Centre and ICCC 38*
*4.9 Preparation and implementation of the Information security policy, including policies on backup .... 40*
*4.10 Capacity Building and Training ..... 40*
*4.11 Factory Testing ..... 41*
*4.12 Acceptance Testing ..... 41*
*4.13 System Documents and User Manuals ..... 42*
*4.14 Operations and Maintenance for a period of 3 years ..... 43*
*4.15 Hand-over of the system at the end of contractual period along with all documentation required to operate and maintain the system ..... 47*
*4.16 Other ..... 48*
*4.17 Location / Site Table ..... 49*
*4.18 Responsibility Matrix ..... 73*
*4.19 Technical Specifications / Functional Requirement Specifications ..... 75*
*4.20 Safety Measures ..... 160*
*4.21 Implementation Schedule, Deliverables and Payment Terms ..... 164*
*4.22 Service Level Agreement (SLA) ..... 168*

**5 Model Master Agreement ..... 178**

**6 Bid Forms ..... 207**
*6.1 Instructions to Bidders for Preparing the Bid Forms ..... 207*
*6.2 Bid Checklist ..... 207*
*6.3 Eligibility / Eligibility Bid / Proposal Forms ..... 209*
*6.4 Technical Bid / Proposal Forms ..... 213*
*6.5 Financial Bid Forms ..... 224*

**7 Miscellaneous ..... 229**
*7.1 Deed of Indemnity ..... 229*
*7.2 Non-Disclosure Agreement ..... 231*
*7.3 Format for Performance Bank Guarantee ..... 235*
*7.4 Format for Earnest Money Deposit Guarantee ..... 238*
*7.5 Draft Tripartite Services Agreement ..... 239*

# 2 Introduction

## 2.1 Background

Ujjain city has been selected in round-2 of smart cities challenge to implement the Smart Cities Mission (SCM). Ujjain Smart City Proposal (SCP) has secured third rank in second round cities. The area based development (ABD) proposal spreads across a total area of 1023 acres in Mahakal region, having a population of 87,766 which is almost 17% of the total population of Ujjain city. An area of about 756.7 acres is proposed to be retrofitted with smart features/infrastructure and 266.25 acres is proposed to be redeveloped with zonal/layout/building level smart features/infrastructure in accordance with SCP and SCM guidelines.

The pan-city proposal includes Ujjain City Management & Information Dissemination (UMID) System. UMID is a comprehensive ICT (Information Communication Technology) based system, which will incorporate smart and efficient management modules for traffic, waste, safety & security in initial phase. It will integrate existing deployed ICT modules & will aggregates all future ICT-enabled interventions to be implemented in a phased manner.

**As per the SCP, the estimated project cost for smart city projects is about Rs. 2318.1 crores (could be more or less during planning, design and implementation phase). The estimated project cost of ABD component and pan-city component is about Rs. 1868.9 crores and Rs 307.2 crores respectively; Rs 142 Cr for A&OE (Administrative and Office Expense) and Interest during construction period.** The Applicants are advised to carry out their own due diligence including but not limited to review of smart city proposal and field investigations.

For the purpose of implementing the Smart Cities project, Ujjain Smart City Limited (USCL) (the "Authority"), a Special Purpose Vehicle (SPV) for Ujjain Smart City Project has been incorporated as a company under the Companies Act, 2013. USCL would receive funds from Government of India and Government of Madhya Pradesh (GoMP) for the development of Ujjain as smart city. USCL intends to apply part of this fund for the said services as specified in this document.

## 2.2 Request for Proposals

The Authority invites proposals (the "Proposals") for Selection of Implementation Agency for Integrated Traffic Management System (ITMS) in the City of Ujjain in conformity with this RFP document and the Smart City Mission guidelines and to manage and maintain the same for a period of 3 years.

The Authority intends to select the Agency through an open competitive bidding process in accordance with the procedure set out herein.

## 2.3 Due diligence by Applicants

Applicants are encouraged to inform themselves fully about the assignment and the local conditions before submitting the Proposal by paying a visit to the Authority and the Project site, sending written queries to the Authority, and attending a Pre-Proposal Conference on the date and time specified.

## 2.4 Sale of RFP Document

RFP document can be downloaded from the website of www.mpeproc.gov.in. However, the bids of only those Applicant shall be considered for evaluation who have made online payment of the specified amount for the RFP document plus service & gateway charges, without the copy of acknowledgement of payment bids will not be accepted. The RFP Fee is to be paid by the bidder by making online payment only against this RFP.

## 2.5 Validity of the Proposal

The Proposal shall be valid for a period of not less than 180 days from the Proposal Due Date.

## 2.6 Brief description of the Selection Process

The Authority will adopted a two stage selection process (collectively the "**Selection Process**") for evaluating the Proposals comprising of technical bids and financial bids to be submitted by the Applicant. For avoidance of

doubt, the technical proposal shall be submitted in hard copy to the Authority Address and in soft copy online through e-procurement portal and the financial proposal shall be submitted only online through e-procurement. The selection will be done through Least Cost Selection process.

In the first stage, anEligibility and technical evaluation will be carried out. Based on this technical evaluation, a list of short-listed applicants shall be prepared. In the second stage, a financial evaluation will be carried out. The Applicant securing the lowest cost (the "**Selected Applicant**") shall be called for negotiation, if necessary, while the second ranked Applicant will be kept in reserve.

### 2.7 Schedule of Selection Process

The Authority would endeavour to adhere to the schedule as laid out in this document.

### 2.8 Pre-Proposal visit to the Site and inspection of data

Prospective Applicants may visit the Site and review the available data at any time prior to the proposal submission date. For this purpose, they will provide at least two days' notice to the nodal officer.

### 2.9 Pre-Proposal Conference

The date, time and venue of Pre-Proposal Conference shall be:

**Date and Time**: As mentioned in this document.
**Venue:** As mentioned in this document.

All communications including the submission of Proposal should be addressed to:

Executive Director,
Ujjain Smart City Limited
Address: Mela Office, Kothi Road, Ujjain,
Pin: 456010
Email: ujjainsmartcity@gmail.com

The **Official Website** of the Authority is: **http://www.mpeproc.gov.in**

All communications, including the envelopes, should contain the following information, to be marked at the top in bold letters:

**RFP NOTICE NO.** (*as per brief NIT)* –**RFP TITLE.**

# 3 Instruction to Bidders

## 3.1 Advice to the bidders

Bidders are advised to study this RFP document carefully before participating. It shall be deemed that submission of Bid by the bidder has been done after their careful study and examination of the RFP document with full understanding to its implications. The Bidder should sign and affix seal of the entity in each page of this RFP and submit along with the Eligibility Bid. In case of e-filing of the tender, a copy of the RFP should be uploaded and that shall be considered digitally signed and accepted by the Bidder.

## 3.2 Procedure for Submission of Bids

Complete bidding process will be online (e-Tendering) in two covers system. Submission of bids shall be in accordance to the instructions given in the Table below:

| **Particulars** | **Instructions** |
|---|---|
| Cover 1 | Proof of submission of RFP Document Fee and Scanned copy of EMD<br><br>The Eligibility Proposal shall be prepared in accordance with the requirements specified in this RFP and the formats are prescribed in this RFP<br><br>Eligibility Proposal should be submitted through online bid submission process and also in Hard Copy as per mentioned in the NIT.<br><br>The Technical Proposal shall be prepared in accordance with the requirements specified in this RFP and the formats are prescribed in this RFP<br><br>Technical Proposal should be submitted through online bid submission process and also in Hard Copy as per mentioned in the NIT. |
| Cover 2: Commercial Proposal | The Commercial Proposal shall be prepared in accordance with the requirements specified in this RFP and in the formats prescribed in this RFP.<br><br>Commercial Proposal should be submitted through online bid submission process only. |

USCL will conduct the bid evaluation based on documents submitted through online e-tendering portal.

The following points shall be considered for submission of bids:

- USCL shall not accept delivery of Bids in any manner other than that specified in this RFP. Bid delivered in any other manner shall be treated as defective, invalid and rejected.
- The Bidder is expected to price all the items and services sought in the RFP and proposed in the technical proposal. The Bid should be comprehensive and inclusive of all the services to be provided by the Bidder as per the scope of work and in accordance with the terms and conditions as set out in the Contract.
- USCL may seek clarifications from the Bidder on the technical proposal. Any of the clarifications by the Bidder on the technical proposal should not have any commercial implications. The Commercial Proposal submitted by the Bidder should be inclusive of all the items in the technical proposal and should incorporate all the clarifications provided by the Bidder on the technical proposal during the evaluation of the technical offer.
- Technical Proposal shall not contain any commercial information.
- If any Bidder does not qualify the Eligibility criteria stated in this RFP, the technical and commercial proposals of the Bidder shall not be opened. Similarly, if the Bidder does not meet the technical evaluation criteria, the commercial proposal of the Bidder shall be unopened in the e-Tendering system.

- It is required that the all the proposals submitted in response to this RFP should be unconditional in all respects, failing which USCL reserves the right to reject the proposal.

The tender should be a complete document and should be bound as a volume, bearing signature of the bidder and seal of the entity in each page of the document. The document should be serially page numbered and must contain the list of contents with page numbers.

Bidder must ensure that the information furnished by him online is identical to that submitted by them in the original paper bid document. In case of major differences between the hard copy and the soft copy, the tender is liable to be rejected.

The bid shall be typed in indelible ink and shall be signed by the Bidder or a person or persons duly authorized to bind the Bidder to the Contract. All pages of the bid, except for un-amended printed literature, shall be signed and stamped by the person or persons signing the bid.

The bid shall contain no interlineations, erasures or overwriting except as necessary to correct errors made by the Bidder, in which case such corrections shall be authenticated by the person or persons signing the bid. The Bidder shall duly sign and seal its bid with the exact name of the firm/company to whom the contract is to be issued.

Hard copies of the Bids submitted by hand should reach not later than the specified date and time in *NIT* of this RFP.

Telefax / Xerox / Photocopy bids will not be considered.

### 3.3 Clarifications in RFP Document

A prospective Bidder requiring any clarification on the Bidder Document may submit his queries, in writing, at the USCL address (E-Mail / Physical Mail) and as per schedule indicated in ***NIT*** of this RFP. The queries must be submitted only in the format mentioned to be considered for clarification.

### 3.4 Pre Bid Meeting

USCL shall hold a Pre-Bid Meeting (PBM) scheduled as per *NIT* of this RFP. In this PBM, USCL would address the clarifications sought by the prospective bidders with regard to the RFP document and the project. The bidders would be required to submit their queries to USCL by e-mail on or before schedule specified in as per *NIT* of this RFP.

Bidders who have downloaded the RFP document are invited to attend the PBM even they do not have any specific queries. These bidders would be required to register for the PBM at USCL.

The minutes of the PBM may be circulated to all the participants of the meeting who choose to share their e-mail addresses and also will be posted at the website.

The clarification offered at the Pre-Bid meeting will be recorded and the corrigendum/addendum issued will form part of the tender document.

| Pre-Bid Queries – Tender No – Tender Name: | | | | | |
|---|---|---|---|---|---|
| Bidder Name (Organization) and Address | | | | Mobile No. | |
| Representative Name | | | | e-mail ID | |
| | | | | | |
| S. No. | Page No. | Section No. | Clause No. | Actual Clause in the RFP | Clarification Sought / Amendment Requested |
| 1. | | | | | |

| Pre-Bid Queries – Tender No – Tender Name: | | | | | |
|---|---|---|---|---|---|
| 2. | | | | | |

The queries should also be submitted in an Excel / CSV file with one row containing exactly one query / suggestion complete in all respects, to the e-mail address provided. Bidders are requested to ensure that no sensitive information is transmitted to the Authority through the pre-bid queries and that the Authority may publish any or all of the queries received, in whichever format they may be.

The queries not adhering to the above mentioned format may not be responded to. USCL will respond to any request for clarification to queries on the Tender Document, received not later than the dates prescribed in *NIT* of this RFP. Bidders are requested not to communicate any sensitive information in the pre-bid queries as copies of the clarifications (including the query but without identifying the source of inquiry) will be sent to all prospective Bidders who have purchased the Tender Documents and will be uploaded in the website.

**Bidders are requested to carefully review the entire contents of this RFP and ensure that all their queries are submitted to the Ujjain Smart City Limited**.

### 3.5 Extension of Deadline for submission of Proposals

Proposals must be received by the USCL at the address specified in the RFP not later than scheduled date and time. USCL may, in exceptional circumstances and at its discretion, extend the deadline for submission of Proposals by issuing a Corrigendum

### 3.6 Late Submission of Bid

Any Bid received by the USCL after the deadline for submission of Proposals prescribed in RFP or Corrigendum will be returned unopened to the respective Bidder and the online bid shall not be accepted.

### 3.7 Earnest Money Deposit (EMD)

All bids must be accompanied by an EMD of the requisite value and in the requisite form.

The earnest money for the bidders will be refunded against a proper receipt within one month after signing of contract agreement between USCL and the successful bidder.

### 3.8 Cross checking

USCL reserves the right to contact and verify bidder's information, references and data submitted in the bid proposal without further reference to the bidder.

### 3.9 Absence of specifications

The absence of specifications details regarding any equipment to be supplied under this RFP implies that best general practices will prevail and that first quality material and workmanship will be applied as per the discretion of USCL. Certification standards, wherever available, for the to-be-installed equipment and materials, will prevail.

### 3.10 Cost to Bid

The Bidder shall bear all costs associated with the preparation and submission of its bid, including cost of presentation for the purposes of clarification of the bid, if so desired by the USCL. The USCL will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the Tendering process.

### 3.11 Language of Bids

The Bids prepared by the Bidder and all correspondence and documents relating to the bids exchanged by the Bidder and USCL, shall be written in English language, provided that any printed literature furnished by the

Bidder may be written in another language so long the same is accompanied by an English translation in which case, for purposes of interpretation of the bid, the English translation shall govern.

### 3.12 Documents Comprising the Bids

The bid prepared by the Bidder shall comprise of the following components as pre the formats specified.

A. Eligibility and Technical Bid
B. Commercial Bid

### 3.13 Bid Prices

The Bidder shall indicate in the Performa prescribed, the unit rates and total Bid Prices of the equipment / services, it proposes to provide under the Contract. Prices should be shown separately for each item as detailed in Tender Documents. In absence of above information as requested, a bid may be considered incomplete and be summarily rejected.

The Bidder shall prepare the bid based on details provided in the tender documents. It must be clearly understood that the Scope of Work is intended to give the Bidder an idea about the order and magnitude of the work and is not in any way exhaustive and guaranteed by USCL. The Bidder shall carry out all the tasks in accordance with the requirement of the tender documents & due diligence and it shall be the responsibility of the Bidder to fully meet all the requirements of the tender documents. If during the course of execution of the project any revisions to the work requirements like Technical specifications, Equipment sizing etc. is to be made to meet the goals of project. All such changes shall be carried out within the current price without any impact to USCL.

### 3.14 Firm Prices

Prices quoted in the bid must be firm and final and shall not be subject to any upward modifications, on any account whatsoever. However, USCL reserves the right to negotiate the prices quoted in the bid to effect downward modification. The Bid Prices shall be indicated in Indian Rupees (INR) only.

The Commercial bid should clearly indicate the price to be charged without any qualifications whatsoever and should include all taxes, duties, fees, levies, works contract tax and other charges as may be applicable in relation to the activities proposed to be carried out.

### 3.15 Bidder Qualification

A Bidder can apply for this RFP on its own.

The "Bidder" as used in the tender documents shall mean the one who has signed the Tender Form. The Bidder may be either the Principal Officer or his duly Authorized Representative, in either cases they shall submit a certificate of authority. All certificates and documents (including any clarifications sought and any subsequent correspondences) received hereby, shall be furnished and signed by the representative and the principal.

It is further clarified that the individual signing the tender or other documents in connection with the tender must certify whether he/she signs as the Constituted attorney of the firm, or a company.The authorization shall be indicated by written power-of-attorney accompanying the bid. The power or authorization and any other document consisting of adequate proof of the ability of the signatory to bind the Bidder shall be annexed to the bid.

Any change in the Principal Officer shall be intimated to USCL in advance.

### 3.16 Period of Validity of Bids

Bids shall remain valid for 180 days from the date of opening of Bids prescribed by USCL. A bid valid for a shorter period may be rejected as non-responsive.

USCL may request the Bidder(s) for an extension of the period of validity for completion of evaluation. The request and the responses thereto shall be made in writing. The validity of EMD shall also may be requested to

be suitably extended subject to Act and Rules framed by the Government of India and the Government of Madhya Pradesh.

### 3.17 Local / Site Conditions

It will be incumbent upon each Bidder to fully acquaint himself with the local conditions and other relevant factors at the proposed USCL sites which would have any effect on the performance of the contract and / or the cost. The Bidders are advised to visit the proposed locations (at its own cost) and due-diligence should be conducted before the pre-bid meeting/ bid-submission.

The Bidder is expected to make a site visit to the proposed sites to obtain for himself on his own responsibility all information that may be necessary for preparing the bid and entering into contract. Obtaining such information shall be at Bidder's own cost.

Failure to obtain the information necessary for preparing the bid and/or failure to perform activities that may be necessary for the providing services before entering into contract will in no way relieve the successful Bidder from performing any work in accordance with the Tender documents.

It will be imperative for each Bidder to fully inform themselves of all legal conditions and factors which may have any effect on the execution of the contract as described in the bidding documents. The USCL shall not entertain any request for clarification from the Bidder regarding such conditions.

It is the responsibility of the Bidder that such factors have properly been investigated and considered while submitting the bid proposals and that no claim whatsoever including those for financial adjustment to the contract awarded under the bidding documents will be entertained by USCL and that neither any change in the time schedule of the contract nor any financial adjustments arising thereof shall be permitted by USCL on account of failure of the Bidder to appraise themselves of local laws and site conditions.

### 3.18 Modification and Withdrawal of Bids

No bidder shall be allowed to withdraw or modify the bids after submitting the bid.

### 3.19 Opening of Technical Bids

USCL will open the hard copies of the Technical Bid, in the presence of one authorized representative of the Bidder who chooses to attend, at the time, date and place, as mentioned in *NIT* of this RFP. Opening of tenders in the online portal shall be done on or after the time mentioned in the NIT.

### 3.20 Evaluation of Bids

The evaluation process of the tender proposed to be adopted by the USCL is indicated under this clause. The purpose of this clause is only to provide the Bidders an idea of the evaluation process that the USCL may adopt. However, the USCL reserves the right to modify the evaluation process at any time during the Tender process, without assigning any reason, whatsoever.

#### *3.20.1 Preliminary Examination*

The USCL will examine the bids to determine whether they are complete, whether the bid format confirms to the Tender requirements, whether required EMD has been furnished, whether the documents have been properly signed, and whether the bids are generally in order.

A bid determined as not substantially responsive will be rejected by the USCL and may not subsequently be made responsive by the Bidder by correction of the nonconformity.

#### *3.20.2 Clarification*

When deemed necessary, during the tendering process, the USCL may seek clarifications or ask the Bidders to make Technical presentations on any aspect from any or all the Bidders. However, that would not entitle the Bidder to change or cause any change in the substance of the tender submitted or price quoted.

### *3.20.3 Evaluation of Bids*

Pursuant to the pre-qualification criterion bidders will be short-listed for technical bid.

At the stage of technical evaluation, USCL will assign points (quality of services score) to the pre-qualified bidders based on the technical evaluation criterion prescribed in this RFP. To qualify the technical evaluation stage, the bidder must score a minimum of 70 marks.

The commercial bids of the technically qualified bidders as specified above will then be opened and reviewed to determine whether the commercial bids are substantially responsive in respect of commercial considerations. The evaluation will be made on the basis of Least Cost or L1, the bidder with the lowest cost would be declared successful.

Additional information/clarification – USCL reserves the right to ask for any additional information, as it may deem necessary to evaluate the bid proposal. Bidders that fail to submit additional information or clarification as sought by evaluation committee within 7 days of date of letter requesting for such additional information and/or clarification from USCL, their bids will be evaluated based on the information furnished along with the bid proposal.

### *3.20.4 Eligibility Evaluation Criteria*

The biddermust possess the requisite experience, strength and capabilities in providing the services necessary to meet the requirements, as described in the tender document. The bidder must also possess the technical know-how and the financial wherewithal that would be required to successfully provide the services sought by the USCL for the entire period of the contract. The bids must be complete in all respect and should cover the entire scope of work as stipulated in the Tender document else the bids shall be summarily rejected.

The invitation to bid is open to all bidders who qualify the eligibility / Eligibility criteria as given below:

| **Sr. No.** | **Criteria** | **Specific Requirements** | **Documents Required** |
|---|---|---|---|
| 1. | Legal Entity | The Bidder should be "entity / entities" registered under an appropriate act of parliament or laws of state legislature in India. | A valid copy of "Certificate of Registration" from Government Authorities including "name change certificate" (if any). |
| 2. | GST Registration | The Biddershould hold valid GST Registration | Copy of the GST Registration Certificate. |
| 3. | Turnover | The Bidder should have average annual Turnover of  35 Crore for last 3 audited financial years. | Certificate from the Statutory Auditor / CA. |
| 4. | Positive Net worth | The biddermust have positive net worth as on the closing dates of each of the last three Financial Years viz., 31-Mar-2017, 31-Mar-2016 and 31-Mar-2015. | Certificate from the Statutory Auditor / CA. |
| 5. | Experience Part 1 | The Bidder should have experience of implementing any oneof the following scope:<br><br>Installation of Centralized Traffic Signals (at least 10 signals)<br><br>OR<br><br>City Surveillance system in India. (Including CCTV Cameras for public places or ANPR Cameras. The project should have at least 100 outdoor cameras.) | Copy of Contract / Work Order / Completion Certificate (if project is completed) or Certificate from CA / CS for the ongoing project |

| Sr. No. | Criteria | Specific Requirements | Documents Required |
|---|---|---|---|
| | | Such work should have been completed within the previous 7 years as on the date of submission of bids. | |
| 6. | Experience Part 2 | The Bidder should have experience of implementingfollowing scope in last 7 years(as on date of publication of bid)<br><br>Sensors for Traffic Law enforcement system like Speed detection / Red Light Violation Detection /ANPRsystems along with analytics software in India(The project should have 100 cameras/sensors.)<br><br>Such work should have been completed within the previous 7 years as on the date of submission of bids. | Copy of Contract / Work Order / Completion Certificate (if project is completed) orCertificate from CA / CS for the ongoing project. |
| 7. | Blacklisting | The Biddershould not have been blacklisted by Central/State Government/PSU entity in India for unsatisfactory past performance, corrupt, fraudulent or any other unethical business practices as on date of submission of the proposal. | Undertaking by the authorized signatory. (as part of the cover letter) |
| 8. | Project Office | The Bidder should establish Project office within 45 days of issuance of LoI/LoA in Ujjain City if not established earlier | Undertaking to open and / or maintain a Project Office for the entire duration of the project within Ujjain Municipal Limits. |

Bidders are required to meet ALL OF THE ELIGIBILITY CRITERIA and submit necessary proofs regarding the same.

### *3.20.5 Technical Evaluation Criteria*

The evaluation of the Technical Proposals will be carried out in the following manner:

- USCL will review the technical bids of the short-listed bidders to determine whether the technical proposals are substantially responsive. Bids that are not substantially responsive are liable to be disqualified at USCL's discretion.
- Bidders' technical solutions proposed in the bid document will be evaluated as per the requirements and guidelines specified in the RFP and technical evaluation criteria as mentioned below in this section of the RFP.
- Each Technical Proposal shall be assigned a technical score out of a maximum of 100 points.
- The Bidders are required to submit all required documentation for its competence in support of the evaluation criteria specified (e.g. Detailed Project citations along with Copy of Contract / Work Order / Completion Certificate (if project is completed) or Certificate from CA / CS for the project and client contact information for verification, and all others components) as required for technical evaluation.
- Projects implemented in India will only be considered for evaluation.
- At any time during the Bid evaluation process, USCL may seek oral / written clarifications from the Bidders. The Committee may seek inputs from their professional and technical experts in the evaluation process.
- USCL reserves the right to do a reference check of the past experience stated by the Bidder. Any feedback received during the reference check shall be taken into account during the technical evaluation process.
- The Commercial Proposals of Bidders who do not qualify technically shall be kept unopened in the e-Tendering system.
- USCL reserve the right to accept or reject any or all bids without giving any reasons thereof.
- USCL shall inform to the technically shortlisted Bidders about the date and venue of the opening of the commercial proposals.

The detailed criteria is as follows:

| Sr. No. | Criteria | Marks | Max. Marks |
|---|---|---|---|
| Bidder's Competence | | | |
| 1. | The bidder should have experience of implementing following scope in last 7 years(as on publication of bid):<br>City Surveillance system including Outdoor CCTV Cameras or ANPR for public areas<br>OR<br>Sensors for Speed detection / Red Light Violation Detection along with analytics software<br>The project should have minimum 100 cameras/sensors. | For Outdoor CCTV Cameras or ANPR or Sensors for Traffic Law enforcements system like Speed detection / Red Light Violation Detection along with analytics software<br>>2 citations = 15 marks<br>2 citations = 7.5 marks<br>1 citation = 5 marks. | 15 |
| 2. | The Bidder should have experience of implementing at least one project of Traffic enforcement / Management System in last 7 years (as on publication of bid) | >2 citations = 15 marks<br>2 citations = 7.5 marks<br>1 citation = 5 marks | 15 |
| 3. | The bidder should have experience of implementing following scope in last 7 years(as on publication of bid):<br>Implementation of Traffic Signals with Centralized Software system to manage Traffic Signals for Traffic Junctions (4 or 3Arm Junctions only), with complete infrastructure including Traffic Controllers, Signal Aspects, Poles, Cantilevers, Cables etc..<br>Projects having this implementation where control is possible from a central location will only be considered | More than 15 traffic signals at various types of junctions (3 Arm and 4 Arm) = 7.5 marks<br>Proportional marks for less number of traffic junctions. | 7.5 |
| 4. | Command and Control Centre installations | • If bidder has executed one project that entails operationalization of command and control centre (covering for surveillance/ traffic/ disaster management/ city operations functions) with minimum seating capacity of | 7.5 |

<table>
<tr><th>Sr. No.</th><th>Criteria</th><th>Marks</th><th>Max. Marks</th></tr>
<tr><td></td><td></td><td>4 operators<br><table><tr><th>Number of Projects</th><th>Marks</th></tr><tr><td>= >4</td><td>7.5</td></tr><tr><td>= 3</td><td>5</td></tr><tr><td>= 2</td><td>2.5</td></tr></table>Else 0 marks</td><td></td></tr>
<tr><td>5.</td><td>The Bidder should have demonstrable expertise and experience in Integration of Traffic enforcement systems (RLVD/SVD/any other traffic violation systems) with e-challan system and transport database (Vaahan, Sarathi or similar databases) in last 7 years (as on publication of bid).</td><td>>2 citations = 5 marks<br>2 citations = 4 marks<br>1 citation = 2 marks<br>Else 0 marks</td><td>5</td></tr>
<tr><td>6.</td><td>Public Address System Installations</td><td>=> 40 Public Address System Installations – Full Marks<br>• Else proportional Marks</td><td>5</td></tr>
<tr><td>7.</td><td>Variable MessageSignboards (VMS) systems Installations</td><td>=> 40 Variable Message Signboard Installations – Full Marks<br>• Else proportional Marks</td><td>5</td></tr>
<tr><td colspan="4">Approach and Methodology (20%)</td></tr>
<tr><td>8.</td><td>Approach & Methodology</td><td>Following parameters will be evaluated:<br>• Understanding of the project<br>• Proposed solution and network architecture of ITMS<br>• Strategy to ensureimplementation of project within stipulated timelines<br>• Approach towards the scalability, Interoperability and modularity features of the project considering future expansion and growth of vehicular population as well as new applications or systems that may be envisaged or developed in future.<br>• Identification of major risks and their</td><td>20</td></tr>
</table>

| Sr. No. | Criteria | Marks | Max. Marks |
|---|---|---|---|
| | | mitigation plan<br>• Approach and Measures for Information security of the complete solution from various threats including hacking attempts, internal threats, etc.<br>• Key learnings from similar projects and how do you propose to incorporate them in execution of this assignment<br>• Strategy to maintain all the SLAs and handling change requests<br>• Clarity and details provided in un-priced BOQ, make and model of the proposed component/solution and referencing of the qualifying functional/technical specification on the product/solution datasheet or literature. | |
| Proposed Project Team | | | |
| 9. | The proposed project team shall be full time employees defined as employees on the payroll of organization. | As per the Key Personnel Criteria.<br>• Project Manager: 5 Marks<br>• ITMS Expert and Business Analyst: 4 Marks<br>• Traffic Command Centre Expert: 2 mark<br>• Network and Security Expert: 2 mark<br>• Support Persons (2 numbers): 4 Marks<br>• Field Support Engineer: 1 marks<br>The personnel should meet the minimum educational qualifications and experience criteria as specified.<br>Marks will be provided on educational qualifications (30% marks), Overall Experience (10% marks) and Specific Experience (60% marks). | 20 |

Bidders are required to provided information and submit documents for all criteria where previous experience isaskedfor technical Evaluation. Client at its discretion may call the Bidders for a presentation / demonstration and finalize the marks awarded after the presentation.

Note: Authority reserves right to visit bidder's customer where such a similar project execution has taken place.

The Bidders who score 70 or more in the Technical Bid will be called as "**Technically Qualified Bidders**" and their proposals alone will be taken for further evaluation.

The technically qualified Bidders alone will be informed of the date of opening of the Commercial Bid. The Commercial Bids of technically qualified Bidders will alone be opened and evaluated. The decision of USCL will be final in this regard.

#### *3.20.6 Evaluation of Commercial Bids*

The Commercial Bid evaluation will be carried out as stated below:

- Commercial Proposals for the technically qualified bidders will be opened on the notified date and time and reviewed to determine whether the commercial proposals are substantially responsive. Bids that are not substantially responsive are liable to be disqualified at USCL's discretion and shall be intimated before the opening of the commercial bids.
- Total Cost of Bid (TCB) shall be calculated based on the commercial format given in the RFP.
- If there is a discrepancy between words and figures, the amount in words shall prevail. For any other calculation/ summation error etc. the bid may be liable to be rejected.

#### *3.20.7 Eligible Goods and Services, and OEMCriteria*

The Bidder shall quote only one specific make and model from only one specific OEM, for each of the goods. Providing more than one option shall not be allowed. All goods quoted by the Bidder must be associated with item code and names and with printed literature describing configuration and functionality. Any deviation from the printed specifications should be clearly mentioned in the offer document by the Bidder.

The OEM for each products or technology quoted should be in the business of that product or solution or technology for at least 3 (Three) years as on the date of release of the RFP. For any camera based solution, the solution should have been implemented in at least 200 outdoor locations.

All the OEMs should have authorized presence in India as on the date of release of RFP.

The OEM for all active components should give a declaration that products or technology quoted are neither end-of-sale nor end-of-life as on the date of installation and commissioning and are not end-of-support till the successful completion of O&M period of the project.

The bidder's proposed OEM should not have been blacklisted by any State /Central Government Department or Central /State PSUs as on bid submission date.

Adequate supporting documents pertaining to the above points, along with a summary compliance table, should be submitted in the proposal by the Bidder.

### 3.21 Negotiations with the successful Bidder

As per the evaluation criteria specified above in this Tender Document, selection of the Successful Bidder will be made and such Bidder will be called for negotiations for improvement of scope of work and commercial terms. USCL reserves the right to negotiate with the Bidder.

While negotiating the following aspects are to be considered:

- To improve the Service Level Agreement (SLA) and the Quality of Services (QoS).
- Further reduction in the offer submitted.
- Advancing the commissioning schedule.
- To improve the quantity.
- Scope of training offered.
- Others as may be brought out to the notice of USCL.

### 3.22 Post Qualification and Award Criteria

An affirmative determination will be a prerequisite for award of the Contract to the Bidder. A negative determination will result in rejection of the Bidder's bid, in which event; the USCL will proceed to the next best evaluated bid to make a similar determination of that Bidder's capabilities to perform satisfactorily.

The Contract will be awarded to the successful bidder with the Lowest (L1) VALUE OF COMMERCIAL BID

### 3.23 Right to Vary Scope of Contract at the time of Award

The USCL may at any time, by a written order given to the Bidder, make changes to the scope of the Contract as specified on mutually agreeable basis.

If any such change causes an increase or decrease in the cost of, or the time required for the Bidder's performance of any part of the work under the Contract, whether changed or not changed by the order, an equitable adjustment shall be made in the Contract Value or time schedule, or both, and the Contract shall accordingly be amended. Any claims by the Bidder for adjustment under this Clause must be asserted within thirty (30) days from the date of the Bidder's receipt of the USCL changed order.

### 3.24 Right to Vary Timeline of Project Execution in Part or Whole

The USCL may at any time, at its discretion, vary the timelines of execution of works, including the field works, in part of in whole, considering other ongoing projects in the city on which this project may have a dependency.

*Bidders are expected to consider that two major projects may affect the execution timelines:*

*a. Underground Drainage works*
*b. Junction Improvement works*

Hence the timelines of the project may be significantly impacted and the Bidders are expected to consider the same while preparing for and responding to the RFP. In case of delays because of these, appropriate time extensions (and no cost extensions) shall be provided.

### 3.25 Right to Accept Any Bid and to Reject Any or All Bids

The USCL reserves the right to accept any bid, and to annul the Tender process and reject all bids at any time prior to award of Contract, without thereby incurring any liability to the affected Bidders or any obligation to inform the affected Bidders of the grounds for the USCL action.

The USCL reserves the right to negotiate the commercials with the selected Bidder.

### 3.26 Notification of Award - Letter of Acceptance

Prior to the expiration of the period of bid validity, the USCL will notify the successful Bidder in writing by sending a Letter of Acceptance (LOA) using registered letter or by fax/e-mail, to be confirmed in writing by registered letter, that its bid has been accepted.

The Implementation Schedule will commence from the date of issue of LOA.The notification of award will constitute the formation of the Contract.

### 3.27 Forfeiture of Earnest Money Deposit

If the Successful Bidder fails to act according to the tender conditions or backs out after his tender has been accepted, his Earnest Money Deposit will be forfeited to USCL.

### 3.28 Signing of Contract

At the same time as the USCL notifies the successful Bidder that its bid has been accepted, the USCL will send the Bidder the Pro-forma for Contract provided in the Tender Document, incorporating all agreements between the parties.

Within 7 days of receipt of the Contract, the successful Bidder shall sign and date the Contract and return it to the USCL. If the same is not executed within seven working days, the Earnest Money Deposit (EMD) of the Bidder may be forfeited and their tender may be held as non – responsive and liable for rejection as per the discretion of USCL.

### 3.29 Performance Guarantee

Within 15 days of the receipt of LOA from the USCL, the successful Bidder shall furnish the performance security in accordance with the Terms & Conditions of Contract, in the form of Bank Guarantee of 10% of the total contract value in prescribed format.

Failure of the successful Bidder to comply with the requirement of this Clause shall constitute sufficient grounds for the annulment of the award and forfeiture of the EMD.

### 3.30 Contract Period

The Contract will be initially valid during the implementation period till Go-Live and the operation and maintenance period for three years after Go-Live.

### 3.31 Rejection Criteria

The right of final acceptance of the tender is entirely vested with the USCL who reserves the right to accept or reject any or all of the tenders in full or in parts without assigning any reason whatsoever. After acceptance of the tender by USCL, the Bidder should have no right to withdraw his tender, or claim higher price. The tender approving authority may also reject all the tenders for reasons such as change in scope of work, new technologies, and lack of anticipated financial resources, court orders, accidents or calamities and other unforeseen circumstances.

#### *3.31.1 General Rejection Criteria*

- Bids submitted without EMD or with inadequate EMD
- Conditional Bids
- If the information provided by the Bidder is found to be incorrect / misleading at any stage / time during the Tendering Process
- Any effort on the part of a Bidder to influence the bid evaluation, bid comparison or contract award decisions
- Bids received by the USCL, after the last date prescribed for receipt of bids.
- Bids without signature of person (s) duly authorized on crucial documents of the bids. Crucial documents will include the Letters, Certificates, Declarations, etc. The determination whether the document is crucial or not shall be performed by the USCL.
- Bids without power of authorization and any other document consisting of adequate proof of the ability of the signatory to bind the Bidder.

#### *3.31.2 Technical Rejection Criteria*

- Technical Bid containing commercial bid details.
- Revelation of Prices in any form or by any reason before opening the Commercial Bid
- Failure to furnish all information required by the Tender Document or submission of a bid not substantially responsive to the Tender Document in every respect.
- Bidders not quoting for the complete scope of Work as indicated in the Tender documents, addendum (if any) and any subsequent information given to the Bidder.
- Bidders not complying with the Technical and General Terms and conditions as stated in the Tender Documents.
- The Bidder not confirming unconditional acceptance of full responsibility of providing services in accordance with the Scope of work and Service Level Agreements of this tender.
- If the bid does not confirm to the timelines indicated in the bid.

#### *3.31.3 Commercial Rejection Criteria*

- Incomplete Commercial Bid.
- Commercial Bids that do not confirm to the Tender's Commercial Bid format.

### 3.32 Concessions permissible under statutes

Bidder, while quoting against this tender, must take cognizance of all concessions permissible under the statutes, failing which it will have to bear extra cost where Bidder does not avail concessional rates of levies like customs

duty, excise duty, sales tax, etc. USCL will not take responsibility towards this. However, USCL may provide necessary assistance, wherever possible, in this regard.

Income tax liability

The bidder will have to bear all Income Tax liability both corporate, service and personal tax.

### 3.33 Intellectual Property Rights

The bidder/Implementing Agency shall identify USCL against all third party claims of infringement of patent, copyright, trademark and trade designs arising from use of the goods or any part thereof in India.

The Bidder shall indemnify the USCL against all third-party claims of infringement of patent, trademark or industrial design and intellectual property rights arising from the use of the Goods or any part thereof.

# 4 Scope of Work and Terms of Reference

As part of smart city initiatives, Ujjain Smart City Limited (USCL) has taken up project for Smart traffic management - Integrated Traffic Management System (ITMS) which aim to provide greater information to the authorities to proactively manage the ongoing traffic situation, enhance traffic discipline through effective enforcements and increase road safety by preventing accidents and allow citizens to make informed travel choices. With ITMS, the overall burden of traffic on the roads is expected to reduce, and will result in enhanced reliability for the citizens and local businesses improving overall productivity levels.

USCL along with Ujjain Traffic Police are considering the appointment of an agency to set up priority initiatives identified under the Smart City mission which will include Traffic enforcement systems such as e-challan, red light violations detection systems, speed violation detection system, variable message sign and information boards and traffic control room etc. For this purpose, bids are invited from competent bidders for the supply of equipment, installation, training and maintenance of the complete project.

## 4.1 Overview

The System Integrator should ensure the successful implementation of the proposed Integrated Traffic Management System (ITMS) and provide capacity building support to city authorities as per the scope of services described below. Any functionality not expressly stated in this document but required to meet the needs of the Ujjain Smart City Limited to ensure successful operations of the system shall essentially be under the scope of the System Integrator and for that no extra charges shall be admissible. System Integrator shall implement and deliver the following systems and capabilities linked with traffic command centre.

1. Traffic Control System (TCS)
2. Surveillance Cameras
3. Automatic Number Plate Recognition (ANPR) System
4. Red Light Violation Detection (RLVD) System
5. Speed Violation Detection (SVD) System
6. Variable Message Sign boards
7. Public Address (PA)
8. Emergency Call Box (ECB) System
9. Operationalizing a Traffic Command Centre
10. eChallan

The schematic diagram below shows the systems envisaged under ITMS System and the information flow across the systems to be integrated.

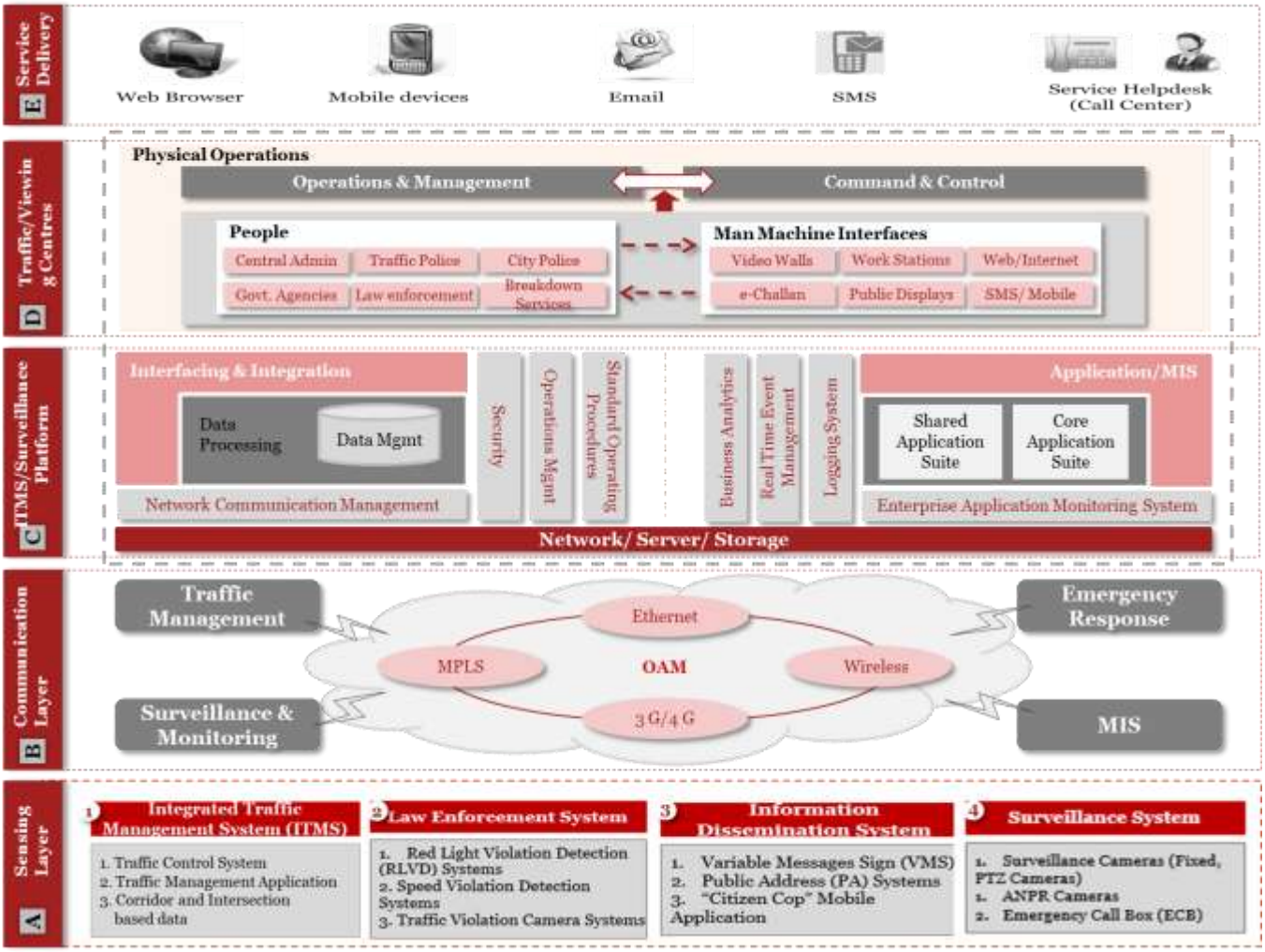



Figure 1: Logical Architecture of ITMS & City Surveillance System Solution

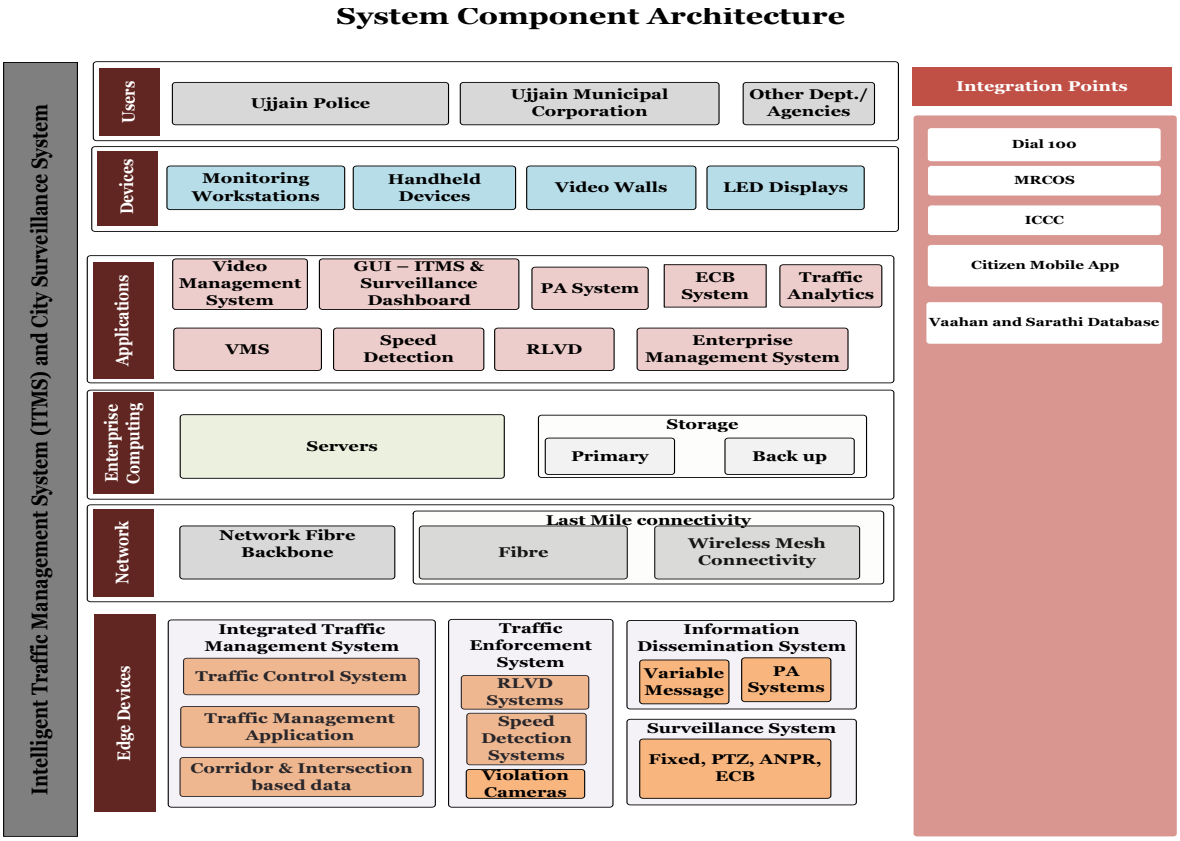



Figure 2: System Component Architecture of ITMS & City Surveillance System Solution

The System Integrator's scope of work shall include but will not be limited to the following broad areas. Details of each of these broad areas have also been outlined in subsequent sections of this document:

1. Assessment and Site Survey: Conduct a detailed assessment, site survey and develop a comprehensive project plan, including:

    a. Assess the existing infrastructure of traffic junctions, traffic management systems, applications. etc. including traffic signalling systems and junction management

    b. Conduct the site surveys to finalize the location of traffic signal controller, number of traffic signal aspects, Camera distribution systems, locations and height of poles, cantilever, junction box, and cable routing etc.

    c. Finalization of detailed technical architecture, gap analysis and project plan

    d. Develop traffic management plans for individual signal controls and groups of signal controllers along with pre-planned intervention strategies for special scenarios

    e. Obtain site Clearance obligations & other relevant permissions

2. Design, Supply, Installation and Commissioning of Field Equipment which includes the following components:

    a. Traffic Control System (TCS)

    b. Surveillance Cameras

    c. Automatic Number Plate Recognition (ANPR) System

d. Red Light Violation Detection (RLVD) System

e. Speed Violation Detection System

f. Traffic Violation Cameras

g. Variable Message Sign boards

h. Public Address (PA)

i. Emergency Call Box (ECB) System

3. Provisioning Network Connectivity which includes design, supply, and installation and commissioning of network backbone connectivity for ITMS and City Surveillance system.

   a. Procurement of network bandwidth services for ITMS and City Surveillance system for three years operations which may be extended by Ujjain Smart City Limited if required.

   b. Integrating live data streams withICCC,Police Command Centre and Integrated Command and Control Centre, and other Viewing Centres (data streams may be provided via IP)

   c. Integration and migration onto the city fibre network backbone envisaged as future Smart Solution Projects under Ujjain Smart City initiatives.

   d. Hosting of Hardware and Software Infrastructure which includes design, supply, and installation and commissioning of IT Infrastructure for Police Command Centre and Integrated Command and Control Centre.

   e. ICCCIT Infrastructure including server, storage, other required hardware, application portfolio, licenses.

   f. Establishment of LAN and WAN connectivity at Viewing Centres,Police Command Centre and ICCC limited to scope of infrastructure procured for the project

   g. Application integration services with control centres of Ujjain ICCC and Dial 100.

4. Capacity Building for Ujjain Police, Ujjain Smart City Limited, and UMC which includes preparation of operational manuals, training documents and capacity building support, including:

   a. Training of the city authorities, Ujjain Police personnel and Police Command Centre operators on operationalization of the system

   b. Support during execution of acceptance testing

   c. Preparation and implementation of the information security policy, including policies on backup and redundancy plan

   d. Preparation of revised traffic signal control plans, alternate signal control plans, KPIs for performance monitoring of transport network, dashboards for MIS

   e. Developing standard operating procedures for operations management and other technical services to be rendered by Police Command Centre

   f. Preparation of system documents, user manuals, performance manuals, etc.

5. Warranty and Annual Maintenance which includes periodic maintenance services for the software, hardware and other IT infrastructure installed as part of ITMS and. Project Implementation period is of 5 months.

### 4.2 Geographical Scope of services

The Indicative list of locations to be covered under this project are provided in Location / Site Table.

### 4.3 Assessment and Site Survey for finalization of detailed technical architecture and project plan

After signing of contract, the Systems Integrator needs to deploy local team (based out of Ujjain) proposed for the project and ensure that a Project Inception Report is submitted to Ujjain Smart City Limited which should cover following aspects:

1. Names of the Project Team members, their roles and responsibilities
2. Approach and methodology to be adopted to implement the Project (which should be in line with what has been proposed during bidding stage, but may have value additions / learning in the interest of the project).
3. Responsibility matrix for all stakeholders
4. Risks the System Integrator anticipates and the plans they have towards their mitigation
5. Detailed project plan specifying dependencies between various project activities / sub-activities and their timelines
6. Installation locations geo mapped preferably on google earth to visually identify the geographical area

The System Integrator shall conduct a comprehensive As-Is study of the existing infrastructure of traffic junctions/intersections (identified for ITMS) during various time periods of day including peak and non-peak hours to establish the key performance indicators(KPI) for the project. The KPIs of the study shall be included in the survey. The following minimum parameters should be captured during the comprehensive study

1. Volumes of vehicles moving in the road network within the area identified for ITMS implementation
2. Vehicle type distribution
3. Directional distribution
4. Physical and visual characteristics of the area
5. Travel times, delays between different points of the network
6. Additional dependencies with respect to the available infrastructure and geometry at the junctions
7. Any other relevant data which the System Integrator anticipates will assist in establishing the benchmarks for the project

The report shall also include the expected measurable improvements against each KPI as detailed out in the above ‘As-Is’ study after implementation of ITMS & City Surveillance project. The benchmarking data should also be developed to track current situation and desired state.

The System Integrator shall study the existing business processes, functionalities, existing traffic management systems and applications including MIS reporting requirements.

The System Integrator will be responsible to propose transition strategy for dismantling of existing signal, and setting up of new signals and field components. The proposed strategy should clearly provide approach and plan for implementing the new signals and field components while ensuring minimum disturbance to the road traffic and shall use appropriate static signage designating the work in progress status.

Additionally, the System Integrator should provide a detailed To-Be designs (Junction layout plans) specifying the following:

1. High Level Design (including but not limited to) Application architecture, Logical and physical database design, Data dictionary and data definitions, ER diagrams and other data modelling documents and Physical infrastructure design for devices on the field

2. Application component design including component deployment views, control flows, etc.

3. Low Level Design (including but not limited to) Application flows and logic including pseudo code, GUI design (screen design, navigation, etc.), Database architecture, including defining data structure, data dictionary as per standards laid-down by Government of India/ Government of Madhya Pradesh

4. Location of all field systems and components proposed at the junctions, (KML /KMZ file plotted on GIS platform like google earth etc.)

5. Height and foundation of Cameras, Traffic Signals and Standard Poles for Pedestrian signals, Height and foundation of Poles, cantilevers, gantry and other mounting structures for other field devices

6. Location of Junction Box

7. Location of Network Provider's Point of Presence (PoP)

8. Design of Cables, Ducts routing, digging and trenching

9. Electrical power provisioning

The System Integrator shall also identify the customizations/ workaround that would be required for successful implementation and operation of the project. The report should take into consideration following guiding principles:

1. Scalability - Important technical components of the architecture must support scalability to provide continuous growth to meet the growing demand of the Ujjain city. The system should also support vertical and horizontal scalability so that depending on changing requirements from time to time, the system may be scaled upwards. There must not be any system imposed restrictions on the upward scalability in number of field devices. Main technological components requiring scalability are storage, bandwidth, computing performance (IT Infrastructure), and software / application performance. In quantitative terms, there may not be major change in number of Command Centres.

2. Availability - Components of the architecture must provide redundancy and ensure that are no single point of failures in the key project components. Considering the high sensitivity of the system, design should be in such a way as to be resilient to technological sabotage. To take care of remote failure, the systems need to be configured to mask and recover with minimum outage. The System Integrator shall make the provision for high availability for all the services of the system.

3. Security - The architecture must adopt an end-to-end security model that protects data and the infrastructure from malicious attacks, theft, natural disasters etc. System Integrator must make provisions for security of field equipment as well as protection of the software system from

hackers and other threats. Using Firewalls and Intrusion detection systems such attacks and theft should be controlled and well supported (and implemented) with the security policy. The virus and worms attacks should be well defended with gateway level Anti-virus system, along with workstation level anti-virus mechanism. Furthermore, all the system logs should be properly stored & archived for future analysis and forensics whenever desired. Ujjain Smart City Limited may carry out the Security Audit of the entire system post acceptance / operationalization through a Third Party Auditor (TPA) if required. The following guidelines need to be observed for security:

a. Build a complete audit trail of all activities and operations using log reports, so that errors in system – intentional or otherwise – can be traced and corrected.

b. Access controls must be provided to ensure that the system is not tampered or modified by the system operators.

c. Implement data security to allow for changes in technology and business needs.

d. The security of the field devices must be ensured with system architecture designed in a way to secure the field devices in terms of physical damage & unauthorized access.

4. Manageability - Ease of configuration, ongoing health monitoring, and failure detection are vital to the goals of scalability, availability, and security and must be able to match the scalability of the system

5. Interoperability - The system should have capability to take inputs from other third party systems as per situational requirements

6. Open Standards - System should use open standards and protocols to the extent possible without compromising on the security

7. Convergence - Ujjain Smart City Limited has already initiated many projects which have state of the art infrastructure at field locations deployed under them. The ITMS & City Surveillance Infrastructure should be made scalable for future convergence needs. Under the smart city program, Ujjain Smart City Limited has envisaged to create a state of the art infrastructure and services for the citizens of Ujjain, hence it is imperative that all infrastructure created under the project shall be leveraged for maximum utilization. Hence the System Integrator is required to ensure that such infrastructure will allow for accommodation of equipment's being procured under other smart city projects. Equipment like Junction Boxes and poles deployed under the ITMS & City Surveillance project at the field locations will be utilized to accommodate field equipment's created under the other projects of Ujjain Smart City Limited. The procedure for utilization of the infrastructure will be mutually agreed between the Ujjain Smart City Limited and System Integrator

Sub-contracting / Outsourcing shall be allowed only for the work which is allowed as mentioned in the clause with prior written approval of Ujjain Smart City Limited. However, even if the work is sub-contracted / outsourced, the sole responsibility of the work shall lie with the System Integrator. The System Integrator shall be held responsible for any delay/error/non-compliance etc. of its sub-contracted vendor. The details of the sub-contracting agreements (if any) between both the parties would be required to be submitted to Ujjain Smart City Limited. Sub-contracting / outsourcing would be allowed only for work such as:

1. Passive Networking & Civil Work during implementation,

2. FMS staff for non- IT support during post-implementation

3. Services of professional architect for design of traffic command / viewing centres

## 4.4 Site Clearance obligations & other relevant permissions

### *4.4.1 Survey and Commencement of Works*

Prior to starting the site clearance, the System Integrator shall carry out survey of field locations as specified in Annexure I, for buildings, structures, fences, trees, existing installations, etc. The Ujjain Smart City Limited shall be fully informed of the results of the survey and the amount and extent of the demolition and site clearance shall then be agreed with the Ujjain Smart City Limited.

### *4.4.2 Existing Traffic Signal system*

The infrastructure of existing traffic signal systems including the aspects, controllers etc. will be dismantled and replaced with the new systems which are proposed and required under the scope of the ITMS & City Surveillance project. The dismantled infrastructure shall be delivered at the Ujjain Smart City Limited designated location without damage at no extra cost.

### *4.4.3 Road signs*

All existing road signs which are likely to be effected by the works are to be carefully taken down and stored. Signs to be re-commissioned shall be cleaned, provided with new fixings where necessary and the posts re-painted in accordance with Ujjain Smart City Limited guidelines. Road signs, street name plate, etc. damaged by the System Integrator during their operation shall be repaired or replaced by System Integrator at no additional cost.

### *4.4.4 Electrical works and power supply*

The System Integrator shall directly interact with electricity boards for provision of mains power supply at all desired locations for ITMS and Surveillance field solution. The System Integrator shall be responsible to submit the electricity bill including connection charge, meter charge, recurring charges etc. to the electricity board directly. System Integrator shall have to submit the challan of bill submission to Ujjain Smart City Limited. Ujjain Smart City Limited will reimburse the amount submitted to the System Integrator after verification in next billing cycle.

### *4.4.5 Lightning-proof measures*

The System Integrator shall comply with lightning-protection and anti –interference measures for system structure, equipment type selection, equipment earthing, power, signal cables laying. The System Integrator shall describe the planned lightning-protection and anti –interference measures in the As-Is report. Corresponding lightning arrester shall be erected for the entrance cables of power line, video line, data transmission cables. All crates shall have firm, durable shell. Shell shall have dustproof, antifouling, waterproof function & should capable to bear certain mechanical external force. Signal separation of low and high frequency; equipment's protective field shall be connected with its own public equal power bodies; small size/equipment signal lightning arrester shall be erected before the earthling. The Internal Surge Protection Device for Data Line Protection shall be selected as per zone of protection described in IEC 62305, 61643-11/12/21, 60364-4/5. Data line protection shall be used for security system, server data path and other communication equipment. Data line protection shall be installed as per zone defined in IEC 62305.Type 1 device shall be installed between zone 0B and zone 1. Type 2 devices shall be installed before the equipment in zone 2 and 3.

### *4.4.6 Earthing System*

All electrical components are to be earthen by connecting two earth tapes from the frame of the component ring and will be connected via several earth electrodes. The cable arm will be earthen through the cable glands. The entire applicable IT infrastructure i.e. signal junction or command centre shall have adequate earthing. Further, earthling should be done as per Local state national standard in relevance with IS standard.

1. Earthing should be done for the entire power system and provisioning should be there to earth UPS systems, Power distribution units, AC units, etc. so as to avoid a ground differential. Ujjain Smart City Limited shall provide the necessary space required to prepare the earthing pits.

2. All metallic objects on the premises that are likely to be energized by electric currents should be effectively grounded.

3. There should be enough space between data and power cabling and there should not be any cross wiring of the two, in order to avoid any interference, or corruption of data.

4. The earth connections shall be properly made.

5. A complete copper mesh earthing grid needs to be installed for the server farm area, every rack need to be connected to this earthing grid. A separate earthing pit needs to be in place for this copper mesh.

6. Provide separate Earthing pits for Servers, & UPS as per the standards.

### *4.4.7 Junction Box, Poles and Cantilever*

1. The System Integrator shall provide the Junction Boxes, poles and cantilever to mount the field sensors like the cameras, traffic sensors, and traffic light aspects, active network components, controller and UPS at all field locations, as per the specifications given in the RFP.

2. The Junction Box needs to be appropriately sized in-order to accommodate the systems envisaged at the Junctions, and the System Integrator should design the Junction box for 1.5 times the actual size the System Integrator requires for utilization under the ITMS & City Surveillance project.

3. The Additional 50% space in the Junction Box shall be utilized by Ujjain Smart City Limited to accommodate any future requirements under other projects

4. The Junction Box for UPS with Battery bank needs to be considered separately

5. It should be noted that the System Integrator would have designed the Junction box keeping in mind the scalability requirements of ITMS & City Surveillance project, and the additional 50%volume needs to considered over and above such requirement

6. The junction box should be designed in a way that, separate compartment will be available for separate system (i.e. ITMS Controller, Mini server, Active component, etc.). Each compartment shall have lock & key facility. There should be provision made to integrate the systems if required.

### *4.4.8 Cabling Infrastructure*

1. The System Integrator shall provide standardized cabling for all devices and subsystems in the field, Viewing Centres and Traffic Command Centre.

2. System Integrator shall ensure the installation of all necessary cables and connectors between the field sensors /devices assembly, outstation junction box, for pole mounted field sensors /devices the cables shall be routed down the inside of the pole and through underground duct to the outstation cabinet.

3. All cables shall be clearly labelled with indelible indications that can clearly be identified by maintenance personnel. The proposed cables shall meet the valid directives and standards.

4. Cabling must be carried out per relevant BIS standards. All cabling shall be documented in a cable plan by the System Integrator.

### 4.5 Design, Supply, Installation & Commissioning of the Field Equipment

The Scope includes Supply, Installation, commissioning and Customization (as required) of various field systems which include Traffic Control System (TCS) at Traffic Junctions, Surveillance Cameras, ANPR Cameras, PA System, ECB System, Variable Message Signs, Red Light Violation Detection system, Speed Violation Detection System, Traffic Violation cameras, and other IT infrastructure required for successful operation of the ITMS and City Surveillance modules.

Based on the approved Survey report, the System Integrator will undertake the system configuration and customization in line with the changed, improved or specific requirements of Ujjain Police and Ujjain Smart City Limited including:

1. The implementation methodology and approach must be based on the global best practices in-order to meet the defined Service Levels during the operation.

2. Best efforts have been made to define major functionalities for each sub- system of ITMS and City Surveillance system. However, System Integrator should not limit its offerings to the functionalities proposed in this RFP and is suggested to propose any functionality over and above what has already been given in this tender.

3. The System Integrator shall design the field level equipment architecture to ensure maximum optimization of network equipment, poles, cantilever, mounting infrastructures, power supply equipment including, electric meters and junction box.

4. Finally approved/accepted solution for each component of ITMS & Surveillance systems shall be accompanied with "System Configuration" document and the same should be referenced for installation of ITMS and Surveillance systems at Junctions that are identified within the scope of this project.

5. The system integrator shall be required to submit a detailed installation report post installation of all the equipment at approved locations. The report shall be utilized during the acceptance testing period of the project to verify the actual quantity of the equipment supplied and commissioned under the project.

6. The System Integrator shall be responsible for obtaining all permits and approvals necessary to install the ITMS and Surveillance systems components as per the approved design.

The sub-components included as part of the project for which field equipment needs to be deployed and integrated are given in the subsequent sections.

#### *4.5.1 Traffic Control System (TCS)*

The broad scope of work to be covered under TCS sub module will include the following, but is not limited to:

1. Preparation of Solution Architecture as per project blueprint to develop a final BOQ for installation traffic signalling systems.

2. Installation of vehicle detectors, controllers, Traffic light aspects, poles, cantilevers, Junction Box and other required accessories at 39 traffic junctions for successful operation of the TCS for Ujjain Smart City Limited and Ujjain Traffic Police

3. Integration of TCS field infrastructures with the proposed TCS software application

4. Configuration of traffic signal at each of the junction along with development of signal control plan for individual operations, coordinated signal plan for the junction in sync with the area wide signal plan for different operating conditions. The operating conditions may include different peak and off-peak conditions, special events, contingency plans etc.

5. The System Integrator may design and propose energy saving signalling system by using solar powered signals or other advanced technologies.

6. For more details on technical and functional specifications of TCS, System Integrator should refer to Annexure II and Annexure III for Functional and Technical specifications respectively.

*4.5.2 Surveillance System*

The broad scope of work to be covered under this sub module will include the following, but is not limited to:

1. The System Integrator shall install Surveillance Cameras for CCTV monitoring and management at specified locations across the Ujjain city.

2. The System Integrator shall undertake due diligence for selection and placement of surveillance cameras to ensure the optimized coverage of the traffic junction and location along with all associated junction arms, accuracy of the information captured on the field and for rugged operations.

3. The System Integrator shall design, supply, and install the surveillance cameras as defined in the RFP; all wiring connections for the system shall be installed by the System Integrator. The System Integrator shall supply all of the necessary equipment for the camera operations including camera housings and mountings, camera poles, switches, cabling, and shall make the final connections to the junction box.

4. The System Integrator shall be responsible for providing the entire necessary IT infrastructure for monitoring, recording, storage & retrieval of the video streams at Viewing Centres, Police Command Centre or any other location as specified in the RFP.

5. For more details on technical and functional specifications of Surveillance Cameras, System Integrator should refer to Annexure II and Annexure III for Functional and Technical specifications respectively.

*4.5.3 ANPR Cameras*

The broad scope of work to be covered under this sub module will include the following, but is not limited to:

1. The System Integrator shall install the ANPR Cameras at the specified junctions/locations across the city. This system shall automatically capture the license number plate of the vehicle at these junctions.

2. The System Integrator shall design, supply, and install the ANPR camera system as defined in the RFPs, all camera accessories such as IR Illuminators, camera housing and mounting shall be installed by the System Integrator. The System Integrator shall supply all of the necessary equipment for the camera and local processing system, including but not limited to: computers,

local storage, and ancillary camera equipment, camera poles, warning signs and shall make the final connections to the camera.

3. The System Integrator shall be responsible for providing all the necessary IT infrastructure for detection, analysis, storage & retrieval of the number plate information at Police Command Centre or any other location as specified in the RFP.

   For more details on technical and functional specifications of ANPR Cameras, System Integrator should refer to Annexure II, and Annexure III for Functional and Technical specifications respectively.

*4.5.4 Red Light Violation Detection (RLVD) System*

The broad scope of work to be covered under this sub module will include the following, but is not limited to:

1. The System Integrator shall install the RLVD Systems at specified traffic junctions across the city. This system shall capture the infractions of Red light and stop line violations at these junctions.

2. The System Integrator shall design, supply, and install the RLVD system as defined in the RFPs, all wiring connections to the traffic signal controllers and to the camera platforms shall be installed by the System Integrator. The System Integrator shall supply all of the necessary equipment for the camera and detection system, including but not limited to: computers, ancillary camera equipment, camera housings, camera poles, warning signs and shall make the final connections to the camera.

3. The solution proposed by the System Integrator shall seamlessly integrate with the E-Challan system proposed under the scope of this project. Ujjain Smart City Limited shall facilitate to get access to the Vaahan and Sarathi database. Bidder shall be required to access the same through use of appropriate APIs.

4. The System Integrator shall be responsible for providing all the necessary IT infrastructure for analysis, storage & retrieval of the infraction information at Police Command Centre or any other location as specified in the RFP.

5. For more details on technical and functional specifications of Red Light Violation Detection (RLVD) system, System Integrator should refer to Annexure II, and Annexure III for Functional and Technical specifications respectively.

*4.5.5 Speed Violation Detection System*

The broad scope of work to be covered under this sub module will include the following, but is not limited to:

1. The System Integrator shall install the Speed Violation Detection Systems at the specified locations across the city. This system shall capture the infractions of speed violations at these locations.

2. The System Integrator shall design, supply, and install the speed violation detection system as defined in the RFPs, all wiring connections for the system shall be installed by the System Integrator. The System Integrator shall supply all of the necessary equipment for the camera and detection system, including but not limited to: sensors, computers, ancillary camera equipment, camera housings, camera poles, warning signs and shall make the final connections to the camera.

3. The solution proposed by the System Integrator shall seamlessly integrate with the E-Challan system proposed under the scope of this project.

4. The System Integrator shall be responsible for providing all the necessary IT infrastructure for analysis, storage & retrieval of the infraction information at Police Command Centre or any other location as specified in the RFP.

5. For more details on technical and functional specifications of Speed Violation Detection system, System Integrator should refer to Annexure II, and Annexure III for Functional and Technical specifications respectively.

*4.5.6 Traffic Violation cameras*

The broad scope of work to be covered under this sub module will include the following, but is not limited to:

1. The System Integrator shall install additional fixed cameras with ANPR capability for detection of violations of wrong side vehicle movements at specified locations across the city.

2. The System Integrator shall design, supply, and install the traffic violation cameras as defined in the RFPs, all wiring connections for the system shall be installed by the System Integrator. The System Integrator shall supply all of the necessary equipment for the camera and detection system, including but not limited to: computers, ancillary camera equipment, camera housings, camera poles, warning signs and shall make the final connections to the camera.

3. The solution proposed by the System Integrator shall seamlessly integrate with the E-Challan system proposed under the scope of this project.

4. The System Integrator shall be responsible for providing all the necessary IT infrastructure for analysis, storage & retrieval of the infraction information at Police Command Centre or any other location as specified in the RFP.

5. For more details on technical and functional specifications of Traffic Violation Detection system, System Integrator should refer to Annexure II, and Annexure III for Functional and Technical specifications respectively.

*4.5.7 Variable Message Sign (VMS) Boards*

The broad scope of work to be covered under this sub module will include the following, but is not limited to:

1. The System Integrator shall install IP based VMS boards on approximate specified locations across city of Ujjain. These VMS boards shall have different characteristics depending upon the location and purpose of installation. VMS board displays are to be controlled by Ujjain Traffic Police personnel from the Police Command Centre. The purpose of the VMS boards is to provide the commuters with information about traffic conditions and alternate routes in case of high traffic on roads.

2. The System Integrator, in consultation with Traffic Police can propose alternate locations apart from the locations mentioned in this RFP for installing the VMS boards where their effectiveness in communicating information about traffic conditions in Ujjain will be maximized.

3. Ujjain Traffic Police shall review and approve the proposed locations. The System Integrator shall install the VMS boards on the approved locations.

4. For more details on technical and functional specifications of VMS boards, the System Integrator should refer to Annexure II and Annexure III for functional requirements and technical specifications

*4.5.8 Public Address (PA) System & Emergency Call Box (ECB) System*

The broad scope of work to be covered under this sub module will include the following, but is not limited to:

1. The System Integrator shall install IP based Public Address System as part of the information dissemination system at the specified locations in the city. These systems shall be deployed at identified junction to make public interest announcements. The system deployed shall be IP based and have the capability to be managed and controlled from the Police Command Centre

2. The System Integrator shall also install Emergency Call Box/Panic buttons at 63 locations in the city. These systems shall be deployed at identified junction for ease of access by citizens of Ujjain city.

3. The System Integrator, in consultation with Traffic Police can propose alternate locations apart from the locations mentioned in this RFP for installing the PA system & ECB system where their effectiveness in communicating information about traffic conditions in Ujjain will be maximized.

4. Ujjain Traffic Police shall review and approve the proposed locations. The System Integrator shall install the PA & ECB system on the approved locations.

5. For more details on technical and functional specifications of IP based PA system and ECB system, the System Integrator should refer to the functional requirements and technical specifications

### 4.6 Design, Supply, Installation and Commissioning of Network & Backbone Connectivity for ITMS and City Surveillance system

1. Network & Backbone Connectivity is an important components of the project and needs very careful attention in assessment, planning and implementation. It is important not only to ensure that the required connectivity is provisioned within the required timelines but also ensure that it is reliable, secure and supports the required SLA parameters of Latency, Jitter, Packet Loss and Performance.

2. It is proposed that the System Integrator shall procure bandwidth as a service for the project duration in order to meet the requirements as defined within the service level agreement.

3. It is also envisaged that the ITMS & City Surveillance system shall leverage the City Network Backbone infrastructure that will be implemented as one of the smart solution projects under smart city initiatives in future.

4. It will be the responsibility of the System Integrator to migrate the ITMS and City Surveillance systems onto the City Network backbone once implemented.

5. The provisioning of the PoPs for the City Network Backbone at the Junction and other field locations will be mutually agreed upon by the Ujjain Smart City Limited and the System Integrator for the ITMS & City Surveillance project.

6. The System Integrator should provide a detailed network architecture of the overall system, incorporating findings of site survey exercise. The network so envisaged should be able to provide real time data streams to the ICCC. All the components of the technical network architecture should be of industry best standard and assist System Integrator in ensuring that all the connectivity SLAs are adhered to during the operational phase.

7. The System Integrator is also responsible for providing network services for integration for below connectivity requirements:

    a. Between Police Command Centre and ICCC

    b. Between ICCCand Viewing centres

8. The network connectivity between ICCC and Police Command Centre will be provided by System Integrator.

9. The System Integrator shall prepare the overall network connectivity plan for this project. The plan shall comprise of deployment of network equipment at the junctions to be connected over network, any clearances required from other government departments for setting up of the entire network. The network architecture proposed should be scalable and in adherence to network security standards. It is necessary that at least 80% of the proposed last mile connectivity should be wired.

Last Mile to be defined as "the access link from the service provider's PoP – (as per Telco Standards) to the field device".

10. The System Integrator shall also provide network architecture for integration & migration of ITMS & City Surveillance system with City Backbone Network.

11. All cameras procured and installed under this contract shall be integrated with the Safe Cities Project operational under the Police Command Centre and should be seamlessly viewable from the Control Room setup and ICCC.

12. System Integrators are also required to do the estimation of bandwidth requirements considering following benchmark parameters:

| # | ITMS & City Surveillance components | Consideration |
|---|---|---|
| 1 | Traffic Control System | • Minimum 1 Mbps per controller |
| 2 | Variable Message Sign Boards | • Minimum 1 Mbps for each location |
| 3 | Surveillance Cameras | • Resolution: 1920x1080<br>• Frame Rate: 25 fps |
| 4 | Traffic Violation Cameras | • Resolution: 1920x1080<br>• Frame Rate: 25 fps |
| 5 | PA System & ECB System | • Minimum 1 Mbps for each location |
| 6 | RLVD | • Video footage of incident (t-5 seconds to t+5 seconds, where it is time of incident) at required high resolution<br>• Minimum 4 Images of violating vehicle along with Number plate |
| 7 | Speed Violation | • Minimum 4 Images of violating vehicle along with Number plate |

13. The actual bandwidth requirement to cater the above mentioned bandwidth parameters and to meet SLAs would be calculated by the System Integrator and the same shall be clearly proposed in the technical proposal with detail calculations. Ujjain Smart City Limited also requires the System Integrator to meet the parameters of video feed quality, security & performance and thus System Integrators should factor the same while designing the solution. Ujjain Smart City Limited reserves its right to ask the Systems Integrator to increase the bandwidth if the provided bandwidth is not sufficient to give the functionality of the system mentioned in the RFP and adhere to the SLAs.

14. In case the Telecommunication guidelines of Government of India require the purchaser to place Purchase Order to the Service Provider for bandwidth, Ujjain Smart City Limited shall do so. However, Systems Integrator shall sign a contract with Telecom Service Provider(s) and ensure the performance. Ujjain Smart City Limited shall make payments to the Systems Integrator.

15. The system integrator shall be required to submit a detailed installation report post installation of all the equipment at approved locations. The report shall be utilized during the acceptance testing period of the project to verify the actual quantity of the equipment supplied and commissioned under the project.

16. The System Integrator shall develop a migration plan to switch the ITMS & City Surveillance system to the City Network Backbone and implement the migration procedure within one month of operationalization of the envisaged project.

17. The system integrator shall be required to submit a detailed migration report post switching of all the field equipment.

### 4.7 Hosting Services

1. The infrastructure of ICCC for ITMS and City Surveillance system shall be hosted in ICCC / Police Control Room or any other location as the client may so desire.

    a. Internet Bandwidth

    b. Hosting Space

    c. Power & Cooling

    d. Secured Data Centre Environment

2. The System Integrator shall bear the charges (if required) for hosting data centre services.

3. The System Integrator need to do the sizing of rack space required at facilities based on its capacity planning and sizing for the entire duration of the contract with adequate space for future expansion.

4. The System Integrator need to provide all the IT equipment required at ICCC such as storage, Smart Rack with Precision Cooling system, servers etc.

5. .

### 4.8 Design, Supply, Installation and Commissioning of IT Infrastructure at Police Command Centre andICCC

1. It is proposed that the System Integrator shall provide the IT hardware infrastructure either at the ICCC or Police Command Centre for successful operations of the systems. The Police Command Centre has been envisaged to be Police Headquarters, Ujjain. System Integrator has to ensure that redundancy is provided for all the key components to ensure that no single point of failure affects the performance of the overall system. It will be System Integrator's responsibility to:

    a. Supply, Install and Commission of IT Infrastructure including site preparation in Police Command Centre. A secured data centre environment will be provided to the System Integrator at the SDC.

    b. Supply Smart Network Rack, Network Switches, and required accessories at viewing centres. The envisaged locations for viewing centres will either be one of the locations mentioned below:-

        - Police Command Centre, Civil Lines, Ujjain.
        - Office of Ujjain Smart City

    c. Establish LAN and WAN connectivity at Viewing Centres and Police Command Centre.

2. Along with Police Command Centre the following systems shall also be available for monitoring at the viewing centres:

a. Video feeds from field CCTV cameras

b. Live report on the status of Junctions and traffic signals

3. Network and server racks for hosting ICCC Infrastructure

4. ICCC developed by System Integrator should be as per Telecommunications Infrastructure Standard for ICCCs

5. The System Integrator shall provide system integration services to customize and integrate the applications procured through the project. The ITMS and surveillance system applications proposed by the System Integrator should have open APIs and should be able to integrate and share the data with other third party systems already available or coming up in the near future

6. As part of preparing the final bill of material for the data centre, the successful System Integrator will be required to list all passive & active components required in the data centre.

7. The bill of material proposed by the successful System Integrator will be approved by Ujjain Smart City Limited for its supply and installation. Indicative IT Infrastructure to be commissioned as part of the ITMS and City Surveillance System project at ICCC are as under:

   a. Servers (inclusive of OS) - Application Servers, Database Server, Video Recording Server, Video Management Server, Enterprise Backup Server, Domain Controller, Failover Servers for application and Recording Servers

   b. Application & System Software (with necessary customization) – Traffic Control System application, Video Management System application, ANPR application, Red Light Violation Detection application, Speed Violation Detection application, Variable message Sign Board application, PA System application, ECB System application, Traffic Violation cameras application, and E-Challan application.

   c. RDBMS (if required)

   d. Anti-virus Software

   e. EMS software

   f. Primary Storage Solution

   g. Storage Management Solution

   h. Switches

   i. KVM Switches

   j. Firewall

   k. Racks

   l. All required Passive Components

   m. Any other Server required to the cater to the scope of work mentioned in this

8. The above are only indicative requirements of IT & Non-IT Infrastructure requirements at DC. The exact quantity and requirement shall be proposed as part of the technical proposal of the System Integrator.

9. The System Integrator shall prepare the overall data centre hosting & their operational plan for this project. The plan shall comprise of deployment of all the equipment required under the project. The implementation roll-out plan for hosting of the data centre shall be approved by Ujjain Smart City Limited. The detailed plan shall be also comprise of the scalability, expandability and security that such data centre will implement under this project.

10. The system integrator shall be required to submit a detailed installation report post installation of all the equipment at approved locations. The report shall be utilized during the acceptance testing period of the project to verify the actual quantity of the equipment supplied and commissioned under the project.

### 4.9 Preparation and implementation of the Information security policy, including policies on backup

The System Integrator shall prepare the Information Security Policy for the overall Project and the same would be reviewed and then finalized by Ujjain Smart City Limited & its authorized committees. The Security policy needs to be submitted by the System Integrator within 1st quarter of the successful Final Acceptance Tests.

### 4.10 Capacity Building and Training

Capacity Building is an important aspect of this Project, the Ujjain Smart City Limited and Ujjain Police expects the System Integrator to undertake it in a very professional manner. System Integrator has to conduct a proper training need analysis of all the concerned staff and draw up a systematic training plan in line with the overall Project plan. For all these training programs the System Integrator has to provide necessary course material and reference manuals (user/maintenance/ administration) along with training schedules for all phases. The training shall held at various office/department locations as finalised by Ujjain Smart City Limited and Ujjain Police Department.

Trainings would be of three types for different phases of the Project:

1. Functional Training: This training would focus on the use of the software of the various ITMS and City Surveillance system components at Traffic Command Centre, so that the users are aware of all the operations of the ITMS and city surveillance system project and are able to implement the overall process defined by the Ujjain Smart City Limited/Ujjain Police for optimum use of the system. Broad training requirement defined for the purpose of calculation of effort is as follows:

    a. Training program of 1 batch (of 20 personnel) of 3 days every 2 months

    b. Expected training time of 24 hours (3 days of 8 hours each)

2. Administrative Training: This training would focus on the administration of ITMS and City Surveillance solution and server infrastructure and would be imparted to about 8 – 10 staff identified by the Ujjain Smart City Limited/Ujjain Police department. System Integrator shall also provide additional training programme of 1 batch (of 8 - 10 personnel) of 5 days every 6 months. Expected training time would be 40 hrs (5 days of 8 hrs each).

3. Senior Management Training: This training would focus on how to use the ITMS & City Surveillance system for day-to-day monitoring by the Sr. Management and access various exception reports. Broad training requirement defined for the purpose of calculation of effort is as follows:

    a. Initial Training of approx. 40 persons (i.e. about 4 batches of 10 officers each)

    b. Additional training programme of 1 batch (of 10 personnel) of 1 day every 3 months

    c. Expected training time of 8 hrs

4. Note: Additional Training requirements will be assessed by Ujjain Smart City Limited and Police Department along with System Integrator when such requirements arise.

5. Other requirements to be fulfilled by the System Integrator with respect to training are as follows:

    a. Prepare the training material in consultation with Police Department & its authorized committees. Detailed training manuals would be prepared by the System Integrator prior to the start of the training. Master copies of all training material should be submitted to the Authority for approval.

    b. One Hard Copy & One Soft Copy of the training material shall be given by the System Integrator to all the trainees. The location for the Administrative & Sr. Management Training would be decided subsequently.

    c. Successful System Integrator should ensure that the knowledge transfer to the Police Department staff happens effectively post training.

### 4.11 Factory Testing

Success System Integrator shall have to submit Factory Test Certificate for the below mentioned materials before the actual supply of the items.

1. Cable
2. Pole
3. Signal Aspects

Authorized representative from Ujjain Smart City Limited will visit the manufacturing plant of the product subject to present in India. Authorized representative will check the testing process.

### 4.12 Acceptance Testing

The Ujjain Smart City Limited and Ujjain Police shall review and finalize the detailed acceptance test plan proposed by the System Integrator. The Ujjain Smart City Limited and Ujjain Police would also conduct audit of the process, plan and results of the Acceptance Test carried out by the System Integrator for both IT & non-IT components. The Ujjain Smart City Limited and Ujjain Police would issue certification of completion for which Ujjain Smart City Limited and Traffic Police shall verify availability of all the defined services as per the contract signed between the System Integrator and Ujjain Smart City Limited. The System Integrator shall be required to demonstrate all the services, features, functionalities as mentioned in the agreement.

All acceptance testing, project review and monitoring shall be enabled through a Project Management Unit (PMU) nominated by Ujjain Smart City Limited and Ujjain Police prior to certification by Ujjain Smart City Limited and Ujjain Police.

Commissioning shall involve the completion of the site preparation, supply and installation of the required components and making the Project available to the Ujjain Smart City Limited and Ujjain Police for carrying out live Operations and getting the acceptance of the same from the Ujjain Smart City Limited and Ujjain Police. Testing and Commissioning shall be carried out before the commencement of Operations.

#### *4.12.1 Partial Acceptance Testing*

Partial Acceptance Test shall involve scrutiny of documents for various IT / Non-IT components to verify if the specifications conform to the technical and functional requirements mentioned in the Tender and subsequent corrigendum. Ujjain Smart City Limited reserves right to conduct physical inspection of the equipment delivered to ensure that they arrive at the sites in good condition and are free from physical damage and incomplete shipments and shall return the products to the supplier at the supplier's expenses if required quality is not maintained. Physical inspection of hardware will also include physical checking and counting of the delivered equipment in presence of the Successful System Integrator. This equipment will only be acceptable as correct when each received item corresponds with the checklist that will be prepared by the Successful System Integrator

prior to shipment. Any shortfalls in terms of number of items received may render the delivered equipment incomplete.

*4.12.2 Final Acceptance Testing*

The final acceptance shall cover 100% of the Ujjain ITMS and City Surveillance Project, after successful testing by the Ujjain Smart City Limited and Ujjain Police or its PMU; a Final Acceptance Test Certificate (FAT) shall be issued by the Ujjain Smart City Limited and Ujjain Police to the System Integrator.

Prerequisite for Carrying out FAT activity:

1. Detailed test plan shall be developed by the System Integrator and approved by Ujjain Smart City Limited. This shall be submitted by System Integrator before FAT activity to be carried out.

2. All documentation related to Ujjain ITMS & City Surveillance project and relevant acceptance test document (including IT Components, Non IT Components etc.) should be completed & submitted before the final acceptance test to the Ujjain Smart City Limited and Ujjain Police.

3. The training requirements as mentioned should be completed before the final acceptance test.

4. Successful hosting of Application, NMS and MIS Software.

5. For both IT & Non-IT equipment's / software manuals / brochures / Data Sheets / CD / DVD / media for all the Ujjain ITMS & City Surveillance Project supplied components.

The FAT shall include the following:

1. All hardware and software items must be installed at respective sites as per the specification.

2. Availability of all the defined services shall be verified.

3. The System Integrator shall be required to demonstrate all the features / facilities / functionalities as mentioned in the RFP.

4. The System Integrator shall arrange the test equipment required for performance verification, and will also provide documented test results.

5. The System Integrator shall be responsible for the security audit (if any) of the established ITMS & City Surveillance system to be carried out by a certified third party as agreed by Ujjain Smart City Limited and Ujjain Police.

Any delay by the System Integrator in the Final Acceptance Testing shall render him liable to the imposition of appropriate Penalties. However, delays identified beyond the control of System Integrator shall be considered appropriately and as per mutual agreement between Ujjain Smart City Limited and System Integrator. In the event the System Integrator is not able to complete the installation due to non-availability of bandwidth from the bandwidth service providers, the Supplier and Ujjain Smart City Limited may mutually agree to redefine the Network so the System Integrator can complete installation and conduct the Final Acceptance Test within the specified time.

### 4.13 System Documents and User Manuals

The System Integrator shall provide documentation, which follows the ITIL (Information Technology Infrastructure Library) standards or IEEE/ISO Acceptable Documentation Standards. This documentation should be submitted as the project undergoes various stages of implementation and provide all traceability documentation on changes done on the IT components during the course of the implementation of the solution. Indicative list of documents include:

1. Project Commencement: Project Plan should provide micro level activities with milestones & deadlines.

2. Delivery of Material: Original Manuals from OEMs.

3. Training: Training Material will be provided which will include the presentations used for trainings and also the required relevant documents for the topics being covered.

4. Process Documentation: The System Integrator shall be responsible for preparing process documentation related to the operation and maintenance of each and every component of the ITMS & City Surveillance Project. The prepared process document shall be formally signed off by Ujjain Smart City Limited and Ujjain Police before completion of final acceptance test.

    a. The System Integrator shall document all the installation and commissioning procedures and provide the same to the Ujjain Smart City Limited within one week of the commissioning of the project.

    b. The System Integrator shall submit a complete set of Single Line diagram, a complete cabling system layout (as installed), including cable routing, telecommunication closets and telecommunication outlet/ connector designations. The layout shall detail locations of all components and indicate all wiring pathways.

    c. Manuals for configuring of switches, routers, etc. shall be provided by the selected System Integrator.

The System Integrator shall be responsible for documenting configuration of all devices and keeping back up of all configuration files, so as to enable quick recovery in case of failure of devices.

### 4.14 Operations and Maintenance for a period of 3 years

Success of the Project would lie on how professionally and methodically the entire Project is managed once the implementation is completed. From the System Integrator perspective too this is a critical phase since the quarterly payments are linked to the SLA's in the post implementation phases. System Integrator thus is required to depute a dedicated team of professionals to manage the Project and ensure adherence to the required SLAs. System Integrator shall provide operations and maintenance services for the software, hardware and other IT and Non-IT infrastructure installed as part of ITMS & City Surveillance project for a period of 3 Years. Warranty period of the product supplied under ITMS & City Surveillance project i.e. hardware, software, IT/Non-IT etc., will be considered after phase wise Go-Live.

The scope of work for the Operations & Maintenance Phase can be categorized under the following service categories.

#### *4.14.1 Project Management & Facilities Management Services*

The System Integrator will be required to provide facilities management services to support the Ujjain Smart City Limited and Ujjain Police Department officials in performing their day-to-day functions related to this system.

System Integrator is required to depute a dedicated, centralised project management and technical team (except for Project Director) for the overall Project management and interaction with Ujjain Smart City Limited and Police Department. Indicative resource requirement for this centralised administration of the Project is as follows. The Project Director shall visit and conduct the review meeting with Ujjain Smart City Limited and other stakeholder once in a month till completion the Project duration.

| # | Role | Shifts | | | | | |
|---|---|---|---|---|---|---|---|
| | | Total number of Manpower | 1 | 2 | 3 | Deployment Implementation | Deployment O&M |
| 1. | Project Director | 1 | √ | | | 50% | 30% |

| # | Role | Shifts | | | | | |
|---|---|---|---|---|---|---|---|
| | | Total number of Manpower | 1 | 2 | 3 | Deployment Implementation | Deployment O&M |
| 2. | Project Manager | 1 | √ | | | 100% | 100% |
| 3. | Traffic Command Centre Expert | 1 | √ | | | 50% | 100% |
| 4. | Integrated Traffic Management System Expert | 1 | √ | | | 100% | 100% |
| 5. | Solution Architect | 1 | √ | | | 100% | - |
| 6. | Technical Expert – Network & Security | 1 | | √ | | 100% | 100% |
| 7. | Technical Expert for Server, Storage and software applications like video management system, EMS etc. | 1 | √ | | | 100% | 100% |
| 8. | Field Implementation Expert | 1 | √ | | | 100% | 100% |
| 9. | Police Command Centre / ICCC Operators | 2 | √ | √ | √ When required | | 100% |

The above-mentioned manpower requirement is minimum and if the System Integrator believes that to meet the SLAs, additional resources are required, the same may be provided by the System Integrator.

*4.14.2 Provision of the Operational Manpower to view the feeds at Traffic Command Centre*

The System Integrator is required to provide suitable manpower to support monitoring of the data feeds at Traffic Command Centre and support Ujjain Smart City Limited and Ujjain Police Department in operationalisation of the ITMS & City Surveillance project. System Integrator shall be required to provide such manpower meeting following requirements:

1. All such manpower shall be minimum graduate pass
2. All such manpower shall be without any criminal background / record.
3. Ujjain Smart City Limited reserves the right to carry out background check of the personnel proposed on the Project for verification of criminal record, at the beginning of deployment or during deployment.
4. System Integrator shall have to replace any person, if not found suitable for the job.
5. All the manpower shall have to undergo training from the System Integrator for at least 15 working days on the working of ITMS & City Surveillance project and Traffic Command Centre. Training should also cover dos & don'ts and will have few sessions from Ujjain Smart City Limited and Ujjain Police Department officers on right approaches for monitoring the feeds & providing

feedback to Ujjain Smart City Limited, Ujjain Police Personnel and other associated government agencies.

6. Each person shall have to undergo compulsory 1 day training every month

7. Operational Manpower shall work in 3 shifts, with no person being made to see the feeds for more than 8 hours at a stretch.

Detail operational guideline document shall be prepared during implementation which shall specify detail responsibilities of these resources and their do's & don'ts.

The Current estimation of the man-power required from the System Integrator for viewing of the data feeds is as follows:

| # | Description | Quantity |
|---|---|---|
| 1. | Operational Manpower at Traffic Command Centre | 2 |

The supervisors required for operationalization of the ITMS & City Surveillance project will be provided by Ujjain Smart City Limited, and Ujjain Police department as per requirements.

*4.14.3 Basic Infrastructure Services*

Following services shall be provided by the System Integrator under the basic infrastructure services:

1. Ensure availability of the ITMS & City Surveillance infrastructure (both physical and IT) including but not limited to Racks, Storage and other peripheral equipment installed at the time of Project commissioning as per the SLAs.

2. Ensure scalability in terms of availability of racks and supporting infrastructure.

3. Proactive and reactive maintenance, repair and replacement of defective components (physical and other peripheral IT infrastructure) installed for the Project through this RFP. The cost for repair and replacement shall be borne by the System Integrator.

4. Any component (Physical & IT installed at the time of Project commissioning) that is reported to be faulty / non-functional on a given date should be either fully repaired or replaced by temporary substitute (of equivalent configuration) within the time frame agreed upon in the Service Level Agreement (SLA).

5. Proactive monitoring of the entire basic infrastructure installed.

6. System Integrator shall maintain records of the maintenance of the basic infrastructure and shall maintain a logbook on-site that may be inspected by the Ujjain Smart City Limited and Ujjain Police at any time.

*4.14.4 Network Monitoring Services*

The activities shall include:

1. System Integrator shall provide services for management of Ujjain ITMS & City Surveillance Project to maintain performance at optimum levels on a 24 x 7 basis.

2. System Integrator shall monitor and administer the network.

3. System Integrator shall create and modify VLAN, assignment of ports to appropriate applications and segmentation of traffic.

4. System Integrator shall carry out break fix maintenance of the LAN cabling or maintenance work requiring civil work.

*4.14.5 Integration Testing*

This shall be a black-box testing role primarily to ensure that the application to be deployed does not disrupt the Ujjain ITMS & City Surveillance operations and affect other Ujjain ITMS & City Surveillance infrastructure in terms of performance and security. The technical tasks to be carried out shall be as follows:

1. Functional Testing: Ensuring that the application functionality as described by the Ujjain Smart City Limited and Ujjain Police works adequately. The functional testing of application will necessarily be minimal as this is a core responsibility of the Supplier.

2. Performance Testing: Ensuring that the application meets expressed performance requirements on the Ujjain ITMS & Surveillance servers by using performance test tools and performance monitoring tools.

3. Security Testing: Testing for exploitable application security weaknesses that undermine the application security or the security of the infrastructure.

*4.14.6 Vendor Management Services*

The activities shall include:

1. Coordination with all the project stakeholders to ensure that all project activities are carried out in a timely manner.

2. System Integrator shall coordinate and follow-up with all the relevant vendors to ensure that the issues are resolved in accordance with the SLAs agreed upon with them.

3. System Integrator shall also ensure that unresolved issues are escalated to respective departments.

4. System Integrator shall maintain database of the various vendors with details like contact person, telephone nos., escalation matrix, response time and resolution time commitments etc.

5. System Integrator shall draw a consolidated quarterly SLA performance report across vendors for consideration of the Ujjain Smart City Limited and Ujjain Police.

*4.14.7 Network Management*

The objective of this service is to ensure continuous operation and upkeep of the LAN & WAN infrastructure of the project including all active and passive components. The selected System Integrator shall be responsible to coordinate with Network Service Provider for network related issues between Viewing Centres, DC, and Traffic Junctions. The services to be provided for Network Management include:

1. Ensuring that the network is available 24x7x365 as per the prescribed SLAs for the 3 year of operations

2. Attending to and resolving network failures and snags.

3. Support and maintain the overall network infrastructure including but not limited to LAN passive components, switches etc.

4. Configuration and backup of network devices including documentation of all configurations.

5. 24x7x365 monitoring of the network to spot the problems immediately.

6. Provide information on performance of Ethernet segments, including capacity utilization and error statistics for the segment and the top-contributing hosts, WAN links and routers.

7. Ensuring timely information to the Ujjain Smart City Limited and Ujjain police pertaining to issues of City Network Backbone.

*4.14.8 Physical Infrastructure Management and Maintenance Services*

All the devices that will be installed in the project as part of the physical infrastructure should be SNMP enabled and shall be centrally and remotely monitored and managed on a 24x7x365 basis. Industry leading infrastructure management solution should be deployed to facilitate monitoring and management of the ITMS & Surveillance Infrastructure on one integrated console. The physical infrastructure management and maintenance services shall include:

1. Proactive and reactive maintenance, repair and replacement of defective components (IT and Non-IT/ Hardware and Software). The cost for repair and replacement shall be borne by the System Integrator.

2. The System Integrator shall have to stock and provide adequate onsite and offsite spare parts and spare component to ensure that the uptime commitment as per SLA is met. To provide this service it is important for the System Integrator to have back to back arrangement with the OEMs. The System Integrator needs to provide a copy of the service level agreement signed with the respective OEMs.

3. Component that is reported to be down on a given date should be either fully repaired or replaced by temporary substitute (of equivalent configuration) within the time frame indicated in the Service Level Agreement (SLA). In case the selected System Integrator fails to meet the above standards of maintenance, there will be a penalty as specified in the SLA.

4. The selected System Integrator shall also maintain records of all maintenance of the system and shall maintain a logbook on-site that may be inspected by the Ujjain Smart City Limited and Ujjain Police at any time.

*4.14.9 License Metering / Management*

The System Integrator shall track software usage throughout the IT setup so as to effectively manage the risk of unauthorized usage or under-licensing of software installed at the Police Command Centre, and DC. This may be carried out through the use of standard license metering tools.

### 4.15 Hand-over of the system at the end of contractual period along with all documentation required to operate and maintain the system

System Integrator will supply to the Ujjain Smart City Limited and Ujjain Police Department the following before the expiry of the contract:

1. Information relating to the current services rendered and data relating to the performance of the services; Entire documentation relating to various components of the Project, any other data and confidential information related to the Project;

2. All other information (including but not limited to documents, records and agreements) relating to the products & services related to the project to enable Police Department and its nominated agencies, or its replacing Successful System Integrator to carry out due diligence in order to transition the provision of the Project Services to Police Department or its nominated agencies, or its replacing Successful System Integrator (as the case may be).

3. The System Integrator shall provide the Ujjain Smart City Limited or its nominated agency with a recommended exit management plan ("Exit Management Plan").

4. Promptly during exit on reasonable request by the Ujjain Smart City Limited the System Integrator shall provide access to and copies of all information held or controlled by them which they have prepared or maintained in accordance with this agreement relating to any material aspect of the services (whether provided by the System integrator or sub-contractors appointed by the System Integrator). The Ujjain Smart City Limited shall be entitled to copy of all such information. Such information shall include details pertaining to the services rendered and other performance data. The System Integrator shall permit the Ujjain Smart City Limited or its nominated agencies to have reasonable access to its employees and facilities, to understand the methods of delivery of the services employed by the System Integrator and to assist appropriate knowledge transfer

**4.16 Other**

1. System Integrator to ensure that for operation and maintenance team has the uniform with the identity card, safety shoes, helmet, Neon Jackets etc.

2. System Integrator will have to carry his own four-wheeler and a ladder of 15 feet length for carry out implementation and maintenance work (including transportation of items required for Project) during the Contract Period. All the expenses pertaining to four wheeler such as driver's expense, fuel, lubricants, maintenance, etc. will have to be borne by the System Integrator. The System Integrator will have to keep minimum 1 number of loaded 4 wheeler for maintenance & minimum 1 number of 4 wheeler for supervision. Ujjain Smart City Limited may ask bidder to arrange additional vehicle if required. The vehicle & related accessories should follow RTO norms of Government of Madhya Pradesh.

3. System Integrator will pay the charges related to Electric Meter and recurring electricity charges. These charges will be then reimbursed by Ujjain Smart City Limited.

4. System Integrator will implement the Biometric attendance system for the attendance of Project team proposed in this document. The System Integrator will share the attendance report with the Client at the end of the month. The quarterly payment will be disbursed as per the SLA clauses.

### 4.17 Location / Site Table

| Sr. No. | Location | Details | | | | | | Intelligent Traffic Signal Required | ANPR Lane Cameras | RLVD Evidence Camera | Fixed Surveillance Cameras | PTZ Surveillance Cameras | Camera based Vehicle Sensor/Detector for Intelligent/Adaptive Traffic Signals | Public Address System | ECB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | No. of Arms | Lanes in Arm 1 | Lanes in Arm 2 | Lanes in Arm 3 | Lanes in Arm 4 | Total No. of Lanes (All Arms) | (Yes/No) | | Per Traffic Junction | | | Per Junction | | |
| A | | Central Locations | | | | | | | | | | | | | |
| 1. | | Traffic Command Centre / Control Room - S.P. Office. | | | | | | | | | | | | | |
| 2. | | Integrated Command and Control Centre | | | | | | | | | | | | | |
| 3. | | Ujjain Smart City Limited | | | | | | | | | | | | | |
| B | | 4 Arm / 3 Arm Junctions | | | | | | | | | | | | | |
| 1 | Bharatpuri Turning Tiraha | 3 | 4 | 4 | 4 | - | 12 | Yes | 12 | 3 | 3 | 1 | 3 | 3 | 3 |
| 2 | Bima Hospital Chauraha | 4 | 4 | 2 | 4 | 2 | 12 | Yes | 12 | 4 | 4 | 1 | 4 | 4 | 4 |
| 3 | Chamunda Mata Chauraha | 4 | 4 | 4 | 4 | 2 | 14 | Yes | 14 | 4 | 4 | 1 | 4 | 4 | 4 |
| 4 | Daulatgunj Chouraha | 4 | 2 | 2 | 2 | 2 | 8 | Yes | 8 | 4 | 4 | 1 | 4 | 4 | 4 |
| 5 | Dewas Gate Chauraha | 4 | 4 | 4 | 4 | 2 | 14 | Yes | 14 | 4 | 4 | 1 | 4 | 4 | 4 |
| 6 | Engineering College Tiraha | 3 | 4 | 4 | 4 | - | 12 | Yes | 12 | 3 | 3 | 1 | 3 | 3 | 3 |
| 7 | Gail Chauraha / Nanakheda | 4 | 4 | 4 | 4 | 4 | 16 | Yes | 16 | 4 | 4 | 1 | 4 | 4 | 4 |
| 8 | Khak Chouraha | 4 | 3 | 4 | 3 | 2 | 12 | Yes | 12 | 4 | 4 | 1 | 4 | 4 | 4 |

| Sr. No. | Location | Details | | | | | | Intelligent Traffic Signal Required | ANPR Lane Cameras | RLVD Evidence Camera | Fixed Surveillance Cameras | PTZ Surveillance Cameras | Camera based Vehicle Sensor/Detector for Intelligent/Adaptive Traffic Signals | Public Address System | ECB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | No. of Arms | Lanes in Arm 1 | Lanes in Arm 2 | Lanes in Arm 3 | Lanes in Arm 4 | Total No. of Lanes (All Arms) | (Yes/No) | | Per Traffic Junction | | | Per Junction | | |
| 9 | Koyala Phatak Chauraha | 4 | 4 | 2 | 4 | 2 | 12 | Yes | 12 | 4 | 4 | 1 | 4 | 4 | 4 |
| 10 | Mahamrutyunjay Chouraha | 4 | 4 | 2 | 4 | - | 10 | Yes | 10 | 4 | 4 | 1 | 4 | 4 | 4 |
| 11 | Maksi Road Depot Chouraha | 4 | 4 | 4 | 4 | 4 | 16 | Yes | 16 | 4 | 4 | 1 | 4 | 4 | 4 |
| 12 | Pipe Factory Chouraha | 4 | 4 | 4 | 4 | 4 | 16 | Yes | 16 | 4 | 4 | 1 | 4 | 4 | 4 |
| 13 | Sai Mandir Chouraha, Indore Road | 4 | 4 | 4 | 4 | 2 | 14 | Yes | 14 | 4 | 4 | 1 | 4 | 4 | 4 |
| 14 | Shanti Palace Hotel Tiraha | 3 | 6 | 4 | 6 | - | 16 | Yes | 16 | 3 | 3 | 1 | 3 | 3 | 3 |
| 15 | Teen Batti Chauraha | 4 | 3 | 4 | 4 | 4 | 15 | Yes | 15 | 4 | 4 | 1 | 4 | 4 | 4 |
| 16 | Veer Sawarkar Chouraha | 4 | 2 | 2 | 2 | 2 | 8 | Yes | 8 | 4 | 4 | 1 | 4 | 4 | 4 |
| C | Entry / Exit Points | | | | | | | | | | | | | | |
| 1. | Dewas Route, near Shafi Petrol Pump | 1 | - | - | - | - | 2 | No | 2 | | 2 | 1 | - | - | 2 |
| 2. | Prashanti Dham | 1 | - | - | - | - | 4 | No | 4 | | 2 | 1 | - | - | 2 |
| 3. | Badnagar Route, | 1 | - | - | - | - | 2 | No | 2 | | 2 | 1 | - | - | 2 |

| Sr. No. | Location | Details | | | | | | Intelligent Traffic Signal Required | ANPR Lane Cameras | RLVD Evidence Camera | Fixed Surveillance Cameras | PTZ Surveillance Cameras | Camera based Vehicle Sensor/Detector for Intelligent/Adaptive Traffic Signals | Public Address System | ECB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | No. of Arms | Lanes in Arm 1 | Lanes in Arm 2 | Lanes in Arm 3 | Lanes in Arm 4 | Total No. of Lanes (All Arms) | (Yes/No) | | Per Traffic Junction | | | Per Junction | | |
| | Mullapura | | | | | | | | | | | | | | |
| 4. | Agar Naka | 1 | - | - | - | - | 2 | No | 2 | | 2 | 1 | - | - | 2 |
| 5. | Unhel Naka | 1 | - | - | - | - | 2 | No | 2 | | 2 | 1 | - | - | 2 |
| 6. | PTS Chouraha (Near Synthetic Chouraha) | 1 | - | - | - | - | 2 | No | 2 | | 2 | 1 | - | - | 2 |
| 7. | Jawasia, Chintaman Ganesh, towards Badnagar | 1 | - | - | - | - | 2 | No | 2 | | 2 | 1 | - | - | 2 |
| **TOTAL** | | **68** | **-** | **-** | **-** | **-** | **223** | **16** | **223** | **61** | **75** | **23** | **61** | **61** | **75** |

There is no requirement to install traffic signals at Entry / Exit points.

The quantities mentioned above are liable to be changed.

The Location / Site Table for Speeding Detection System is provided below:

| Sl. No. | Location |
|---|---|
| 1 | Dewas Road - Pipe Factory to Engineering College |
| 2 | Engineering College Road |
| 3 | From Engineering College to Nanakheda |
| 4 | Mahamrutyunjay Dwar to Hari Phatak |
| 5 | Badnagar Road - Bridge to Shankaracharya Road |
| 6 | Juna Somwariya Road |
| 7 | Mangalnath Road |
| 8 | Makodiyaam to Chamunda |
| 9 | Pipe Factory to Vikarmpura Station Road |
| 10 | Pandyakhedi to Sri Synthetic / PTS |
| 11 | Krishi Mandi to Pandyakhedi |
| 12 | Chintaman Road |

The actual points where speeding detection system is to be installed will be ground marked with the System Integrator.

The location / site table for Variable Message Sign-Board is provided as follows:

| Sl. No. | Location |
|---|---|
| 1 | Chamunda Mata Square |
| 2 | Nikas - K.D. Gate to Bima Chouraha |
| 3 | Krishi Mandi Chouraha |
| 4 | Pandyakhedi Chouraha |
| 5 | Pipe Factory |
| 6 | Engineering College Tiraha |
| 7 | Prashanti Dham |
| 8 | Hari Phatak |
| 9 | Hari Phatak Bridge at Junction |
| 10 | Indore Gate |
| 11 | Teliwada |
| 12 | Kanthal |
| 13 | Koyla Phatak |
| 14 | Bima Hospital |
| 15 | Chandi Pari (Freegunj) |
| 16 | Grand Hotel |
| 17 | Teen Batti Chouraha / C P Shah Petrol Pump |
| 18 | Shanti Palace |
| 19 | Nana Kheda Chouraha |
| 20 | Moongi Chowk (Apna Sweets) |
| 21 | Dani Gate |
| 22 | Shankaracharya Chowk |
| 23 | Mullapura |
| 24 | Unhel Naka |
| 25 | Agar Naka |
| 26 | Mata Saduki Bawdi at Unhel Road |
| 27 | Maruti Showroom |

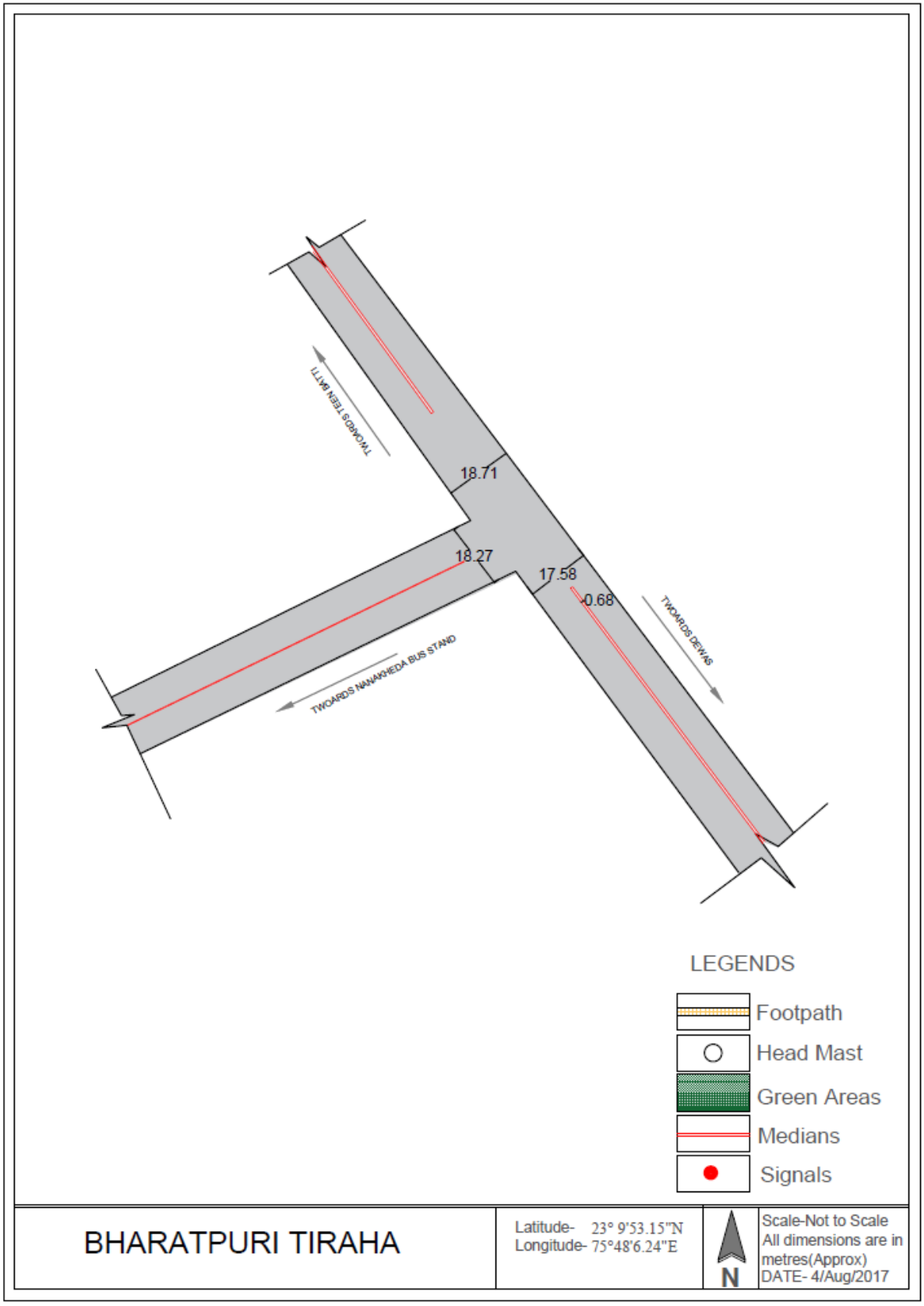
| Sl. No. | Location |
|---|---|
| 28 | Priyadarshini Chowk |
| 29 | Sethi Building |
| 30 | Interpretation Centre |
| 31 | Harsiddhi Chowk |
| 32 | Harsiddhi Bal |
| 33 | Narsingh Ghat Tiraha |
| 34 | Lal Pul Tiraha |
| 35 | Jantar Mantar |
| 36 | Court Mohalla |
| 37 | Gopal Mandir |
| 38 | Kamani Marg |
| 39 | K D Gate |
| 40 | Juna Somwariya |

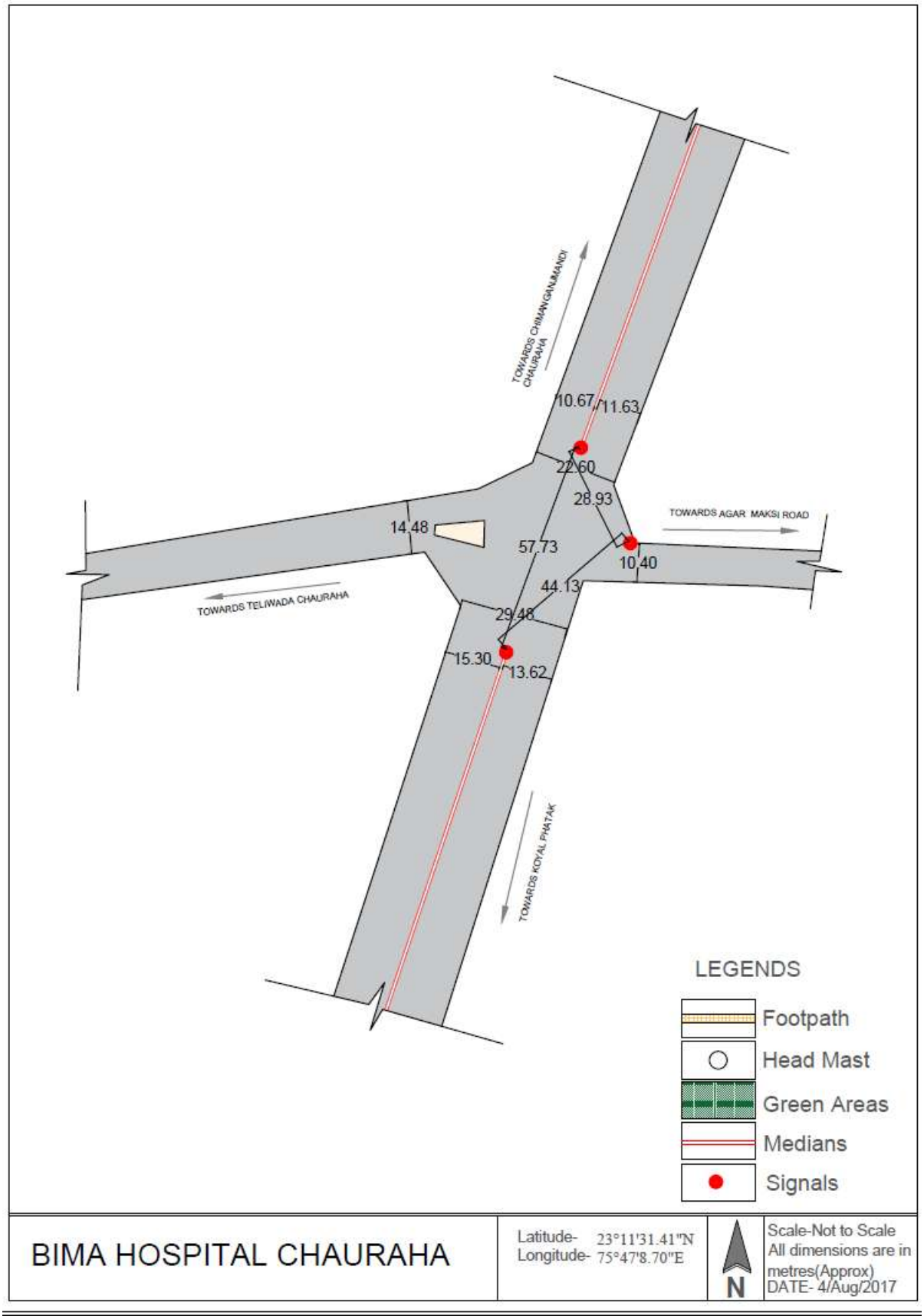
The actual points where the Variable Message Signboard is to be installed will be ground marked with the System Integrator.

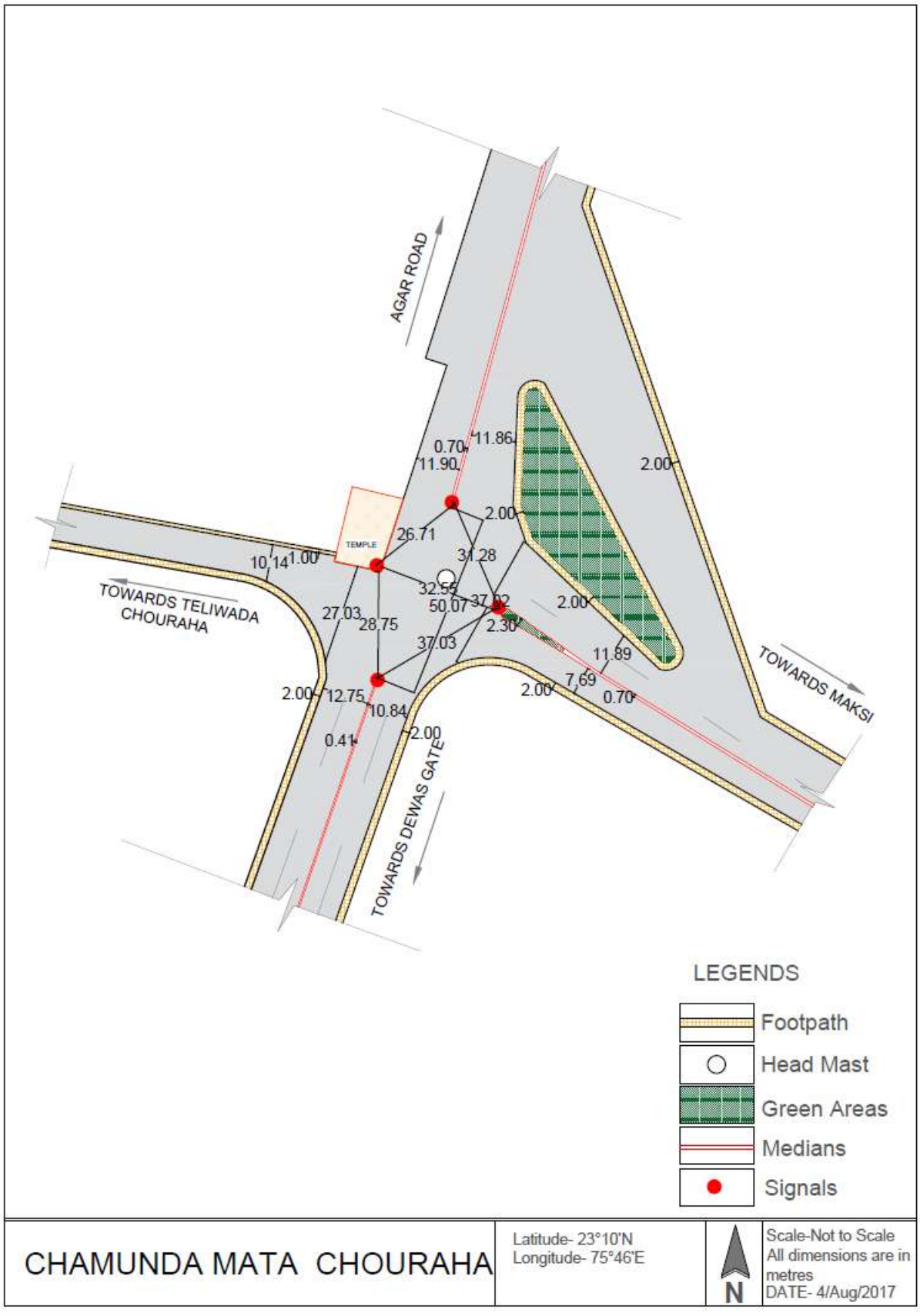
The number of lanes above and quantities are indicative and may change basis road design or other considerations. The quantities are open to variation.

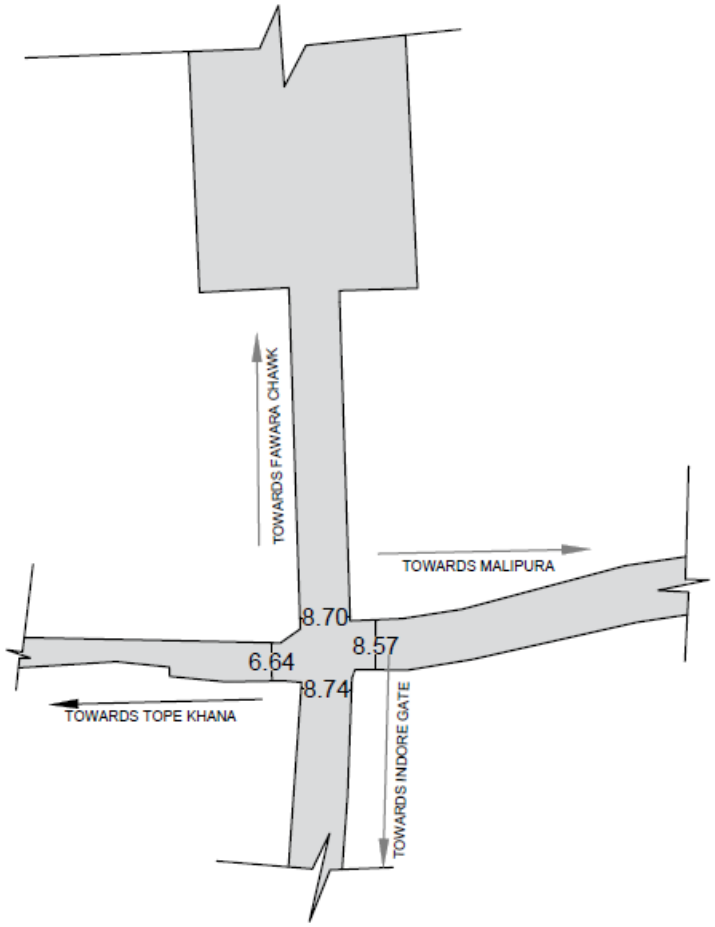
A representative (not to scale) map for 4 Arm and 3 Arm junctions are provided. Bidders are required to perform their own due diligence and surveys, etc. and confirm the works to be done under this assignment.

Bidders are required to note that civil works relating to re-design and beautification of the mentioned squares shall also be carried out by means of a separate tender and they are required to co-ordinate with the Vendor on-board for such civil works to ensure minimum issues in both the projects.


TWOARDS TEEN BATTI
18.71
18.27
17.58
0.68
TWOARDS DEWAS
TWOARDS NANAKHEDA BUS STAND
LEGENDS
Footpath
Head Mast
Green Areas
Medians
Signals
BHARATPURI TIRAHA
Latitude- 23° 9'53.15"N
Longitude- 75°48'6.24"E
N
Scale-Not to Scale
All dimensions are in metres(Approx)
DATE- 4/Aug/2017


TOWARDS CHIMANGANJMANDI CHAURAHA
10.67
11.63
22.60
28.93
TOWARDS AGAR MAKSI ROAD
14.48
57.73
10.40
44.13
TOWARDS TELIWADA CHAURAHA
29.48
15.30
13.62
TOWARDS KOYAL PHATAK
LEGENDS
Footpath
Head Mast
Green Areas
Medians
Signals
BIMA HOSPITAL CHAURAHA
Latitude- 23°11'31.41"N
Longitude- 75°47'8.70"E
N
Scale-Not to Scale
All dimensions are in metres(Approx)
DATE- 4/Aug/2017


AGAR ROAD
TOWARDS TELIWADA CHOURAHA
TOWARDS DEWAS GATE
TOWARDS MAKSI
TEMPLE
0.70
11.86
11.90
2.00
2.00
26.71
31.28
10.14
1.00
32.56
50.07
37.02
2.00
27.03
28.75
2.30
37.03
11.89
7.69
2.00
0.70
2.00
12.75
10.84
2.00
0.41
LEGENDS
Footpath
Head Mast
Green Areas
Medians
Signals
CHAMUNDA MATA CHOURAHA
Latitude- 23°10'N
Longitude- 75°46'E
N
Scale-Not to Scale
All dimensions are in metres
DATE- 4/Aug/2017




LEGENDS

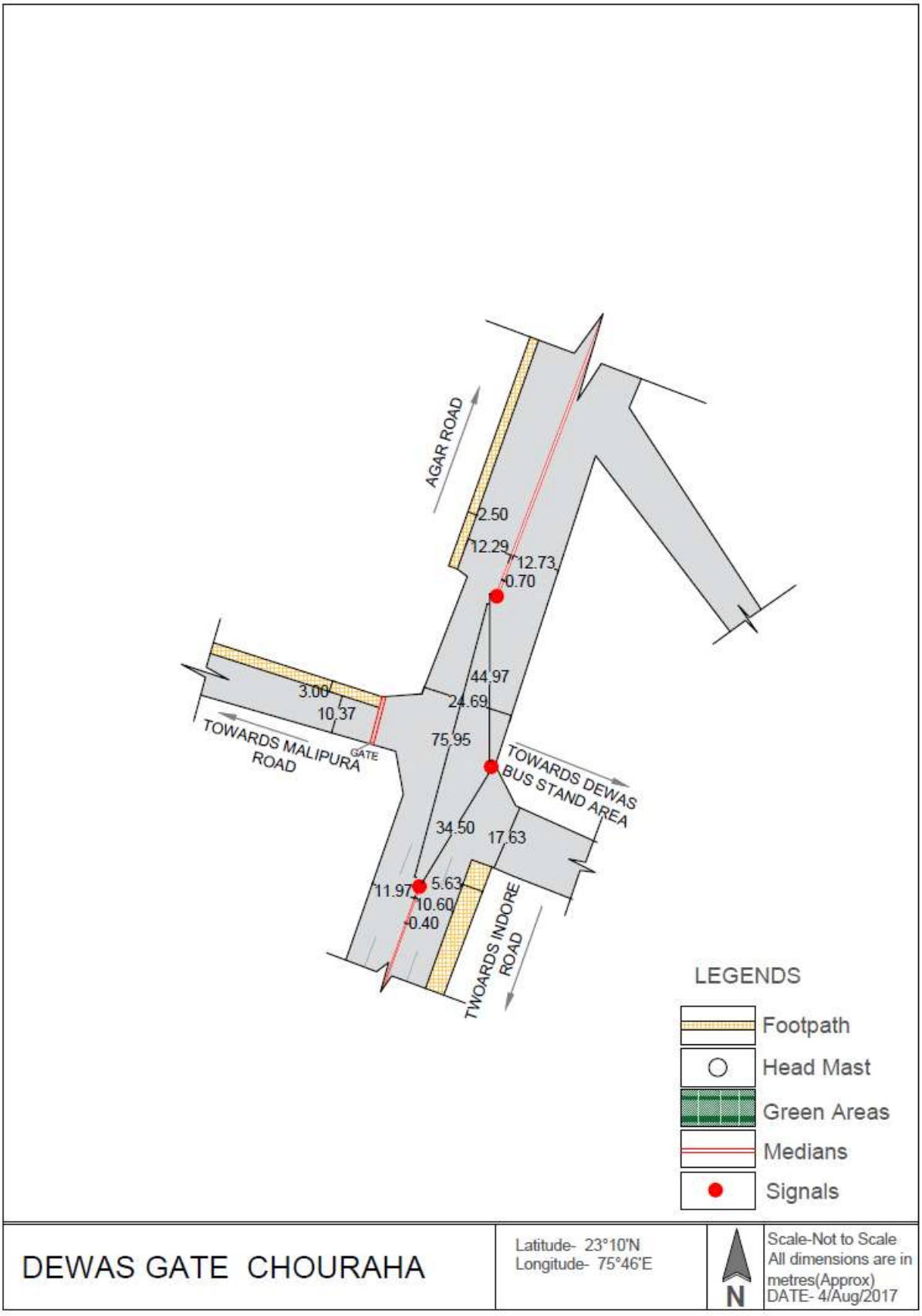
- Footpath
- Head Mast
- Green Areas
- Medians
- Signals

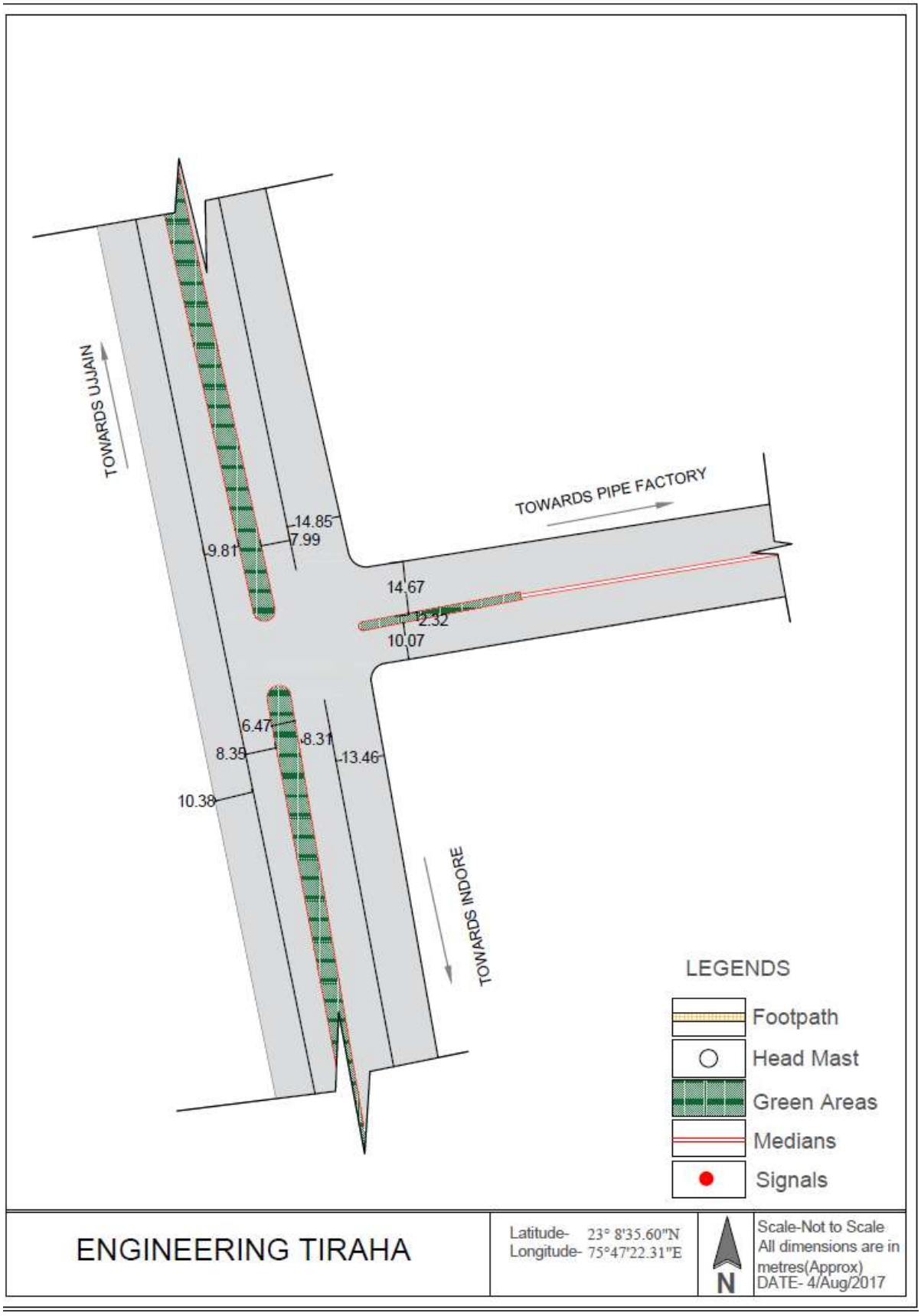
DAULATGANJ CHOURAHA

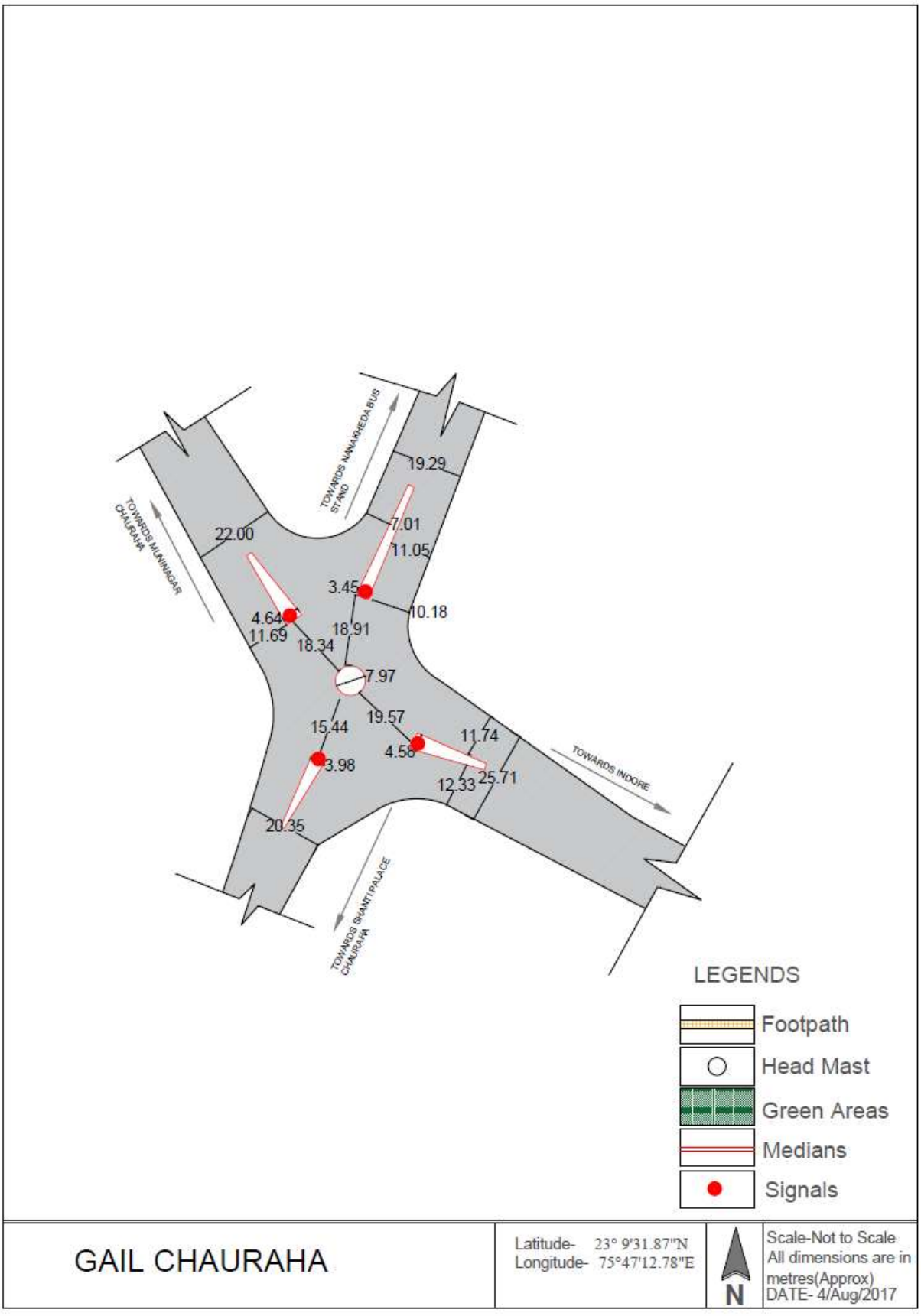
Latitude- 23°10'53.86"N
Longitude- 75°46'38.08"E

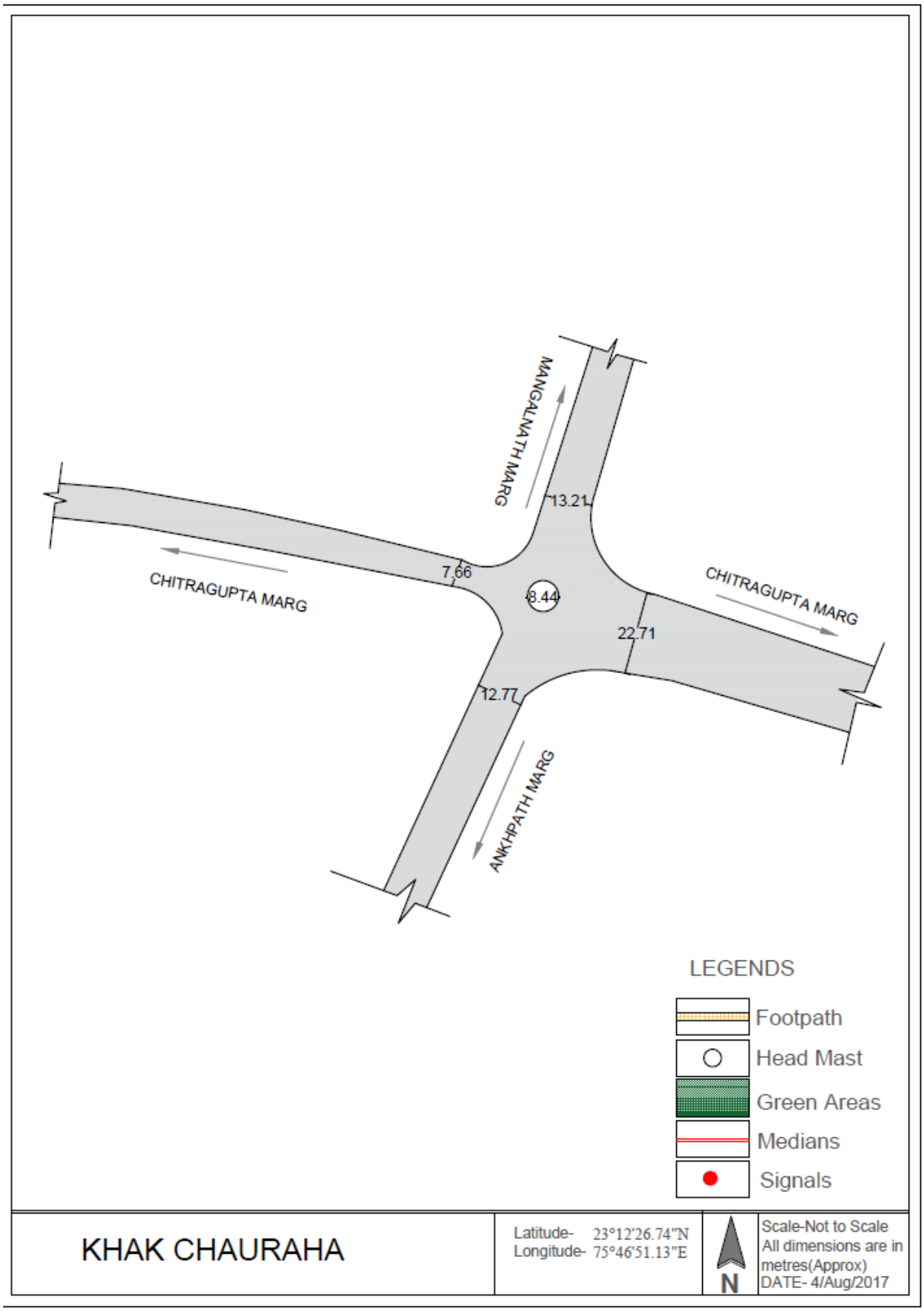
N

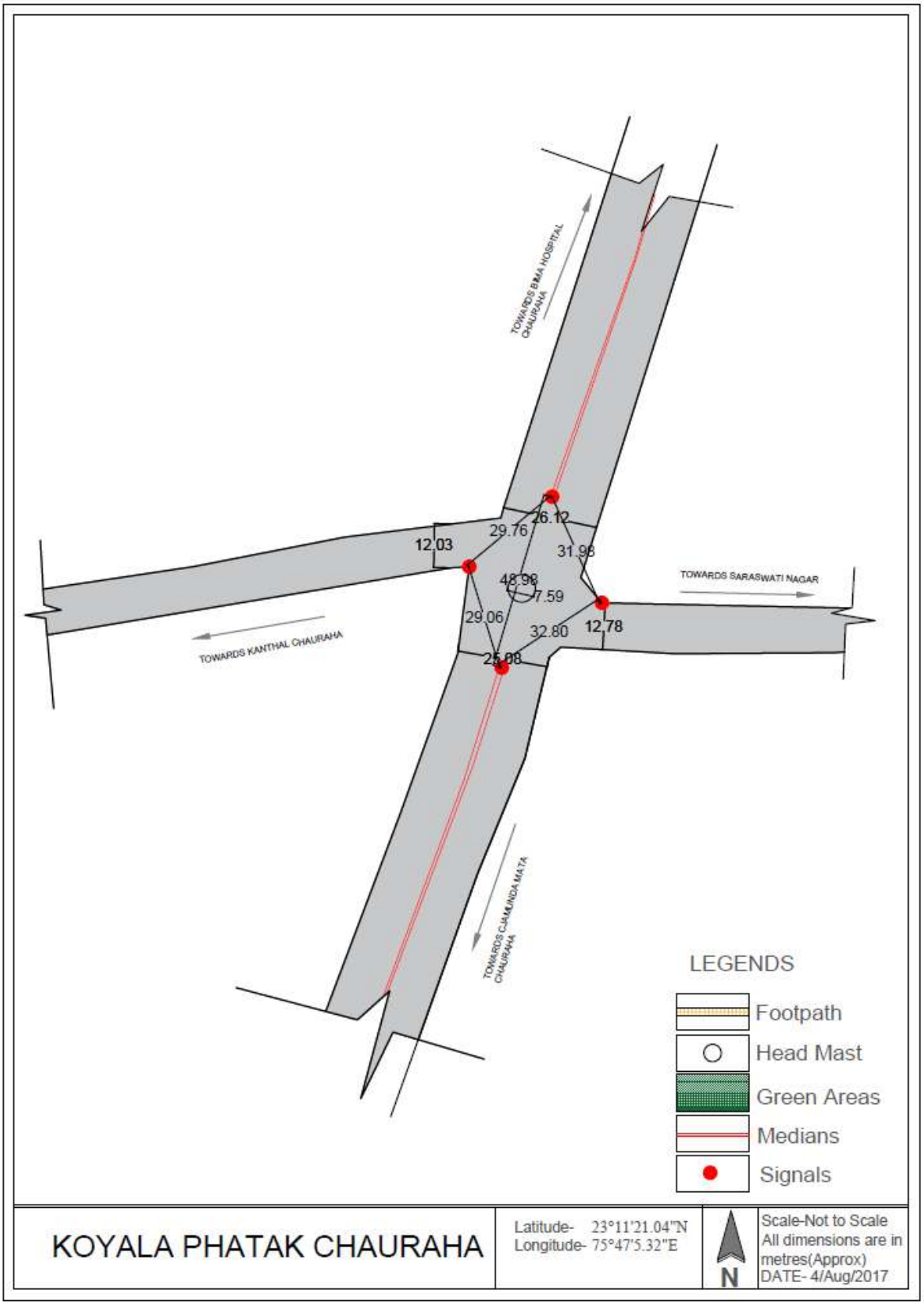
Scale-Not to Scale
All dimensions are in metres(Approx)
DATE- 4/Aug/2017

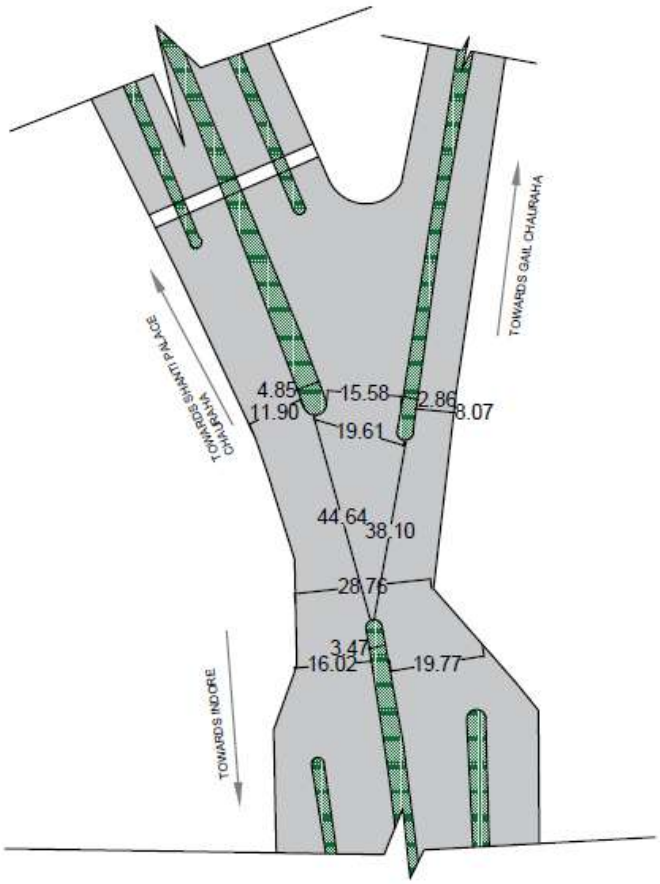

AGAR ROAD
2.50
12.29
12.73
0.70
44.97
3.00
10.37
24.69
TOWARDS MALIPURA ROAD
GATE
75.95
TOWARDS DEWAS BUS STAND AREA
34.50
17.63
11.97
5.63
10.60
0.40
TWOARDS INDORE ROAD
LEGENDS
Footpath
Head Mast
Green Areas
Medians
Signals
DEWAS GATE CHOURAHA
Latitude- 23°10'N
Longitude- 75°46'E
N
Scale-Not to Scale
All dimensions are in metres(Approx)
DATE- 4/Aug/2017


TOWARDS UJJAIN
TOWARDS PIPE FACTORY
TOWARDS INDORE
14.85
7.99
9.81
14.67
12.32
10.07
6.47
8.31
8.35
13.46
10.38
LEGENDS
Footpath
Head Mast
Green Areas
Medians
Signals
ENGINEERING TIRAHA
Latitude- 23° 8'35.60"N
Longitude- 75°47'22.31"E
N
Scale-Not to Scale
All dimensions are in metres(Approx)
DATE- 4/Aug/2017


TOWARDS NANAKHEDA BUS STAND
TOWARDS MUNNAGAR CHAURAHA
TOWARDS INDORE
TOWARDS SHANTI PALACE CHAURAHA
19.29
7.01
11.05
22.00
3.45
10.18
4.64
11.69
18.34
18.91
7.97
19.57
15.44
11.74
4.58
3.98
12.33
25.71
20.35
LEGENDS
Footpath
Head Mast
Green Areas
Medians
Signals
GAIL CHAURAHA
Latitude- 23° 9'31.87"N
Longitude- 75°47'12.78"E
N
Scale-Not to Scale
All dimensions are in metres(Approx)
DATE- 4/Aug/2017


MANGALNATH MARG
13.21
CHITRAGUPTA MARG
7.66
8.44
CHITRAGUPTA MARG
22.71
12.77
ANKHPATH MARG
LEGENDS
Footpath
Head Mast
Green Areas
Medians
Signals
KHAK CHAURAHA
Latitude- 23°12'26.74"N
Longitude- 75°46'51.13"E
N
Scale-Not to Scale
All dimensions are in metres(Approx)
DATE- 4/Aug/2017

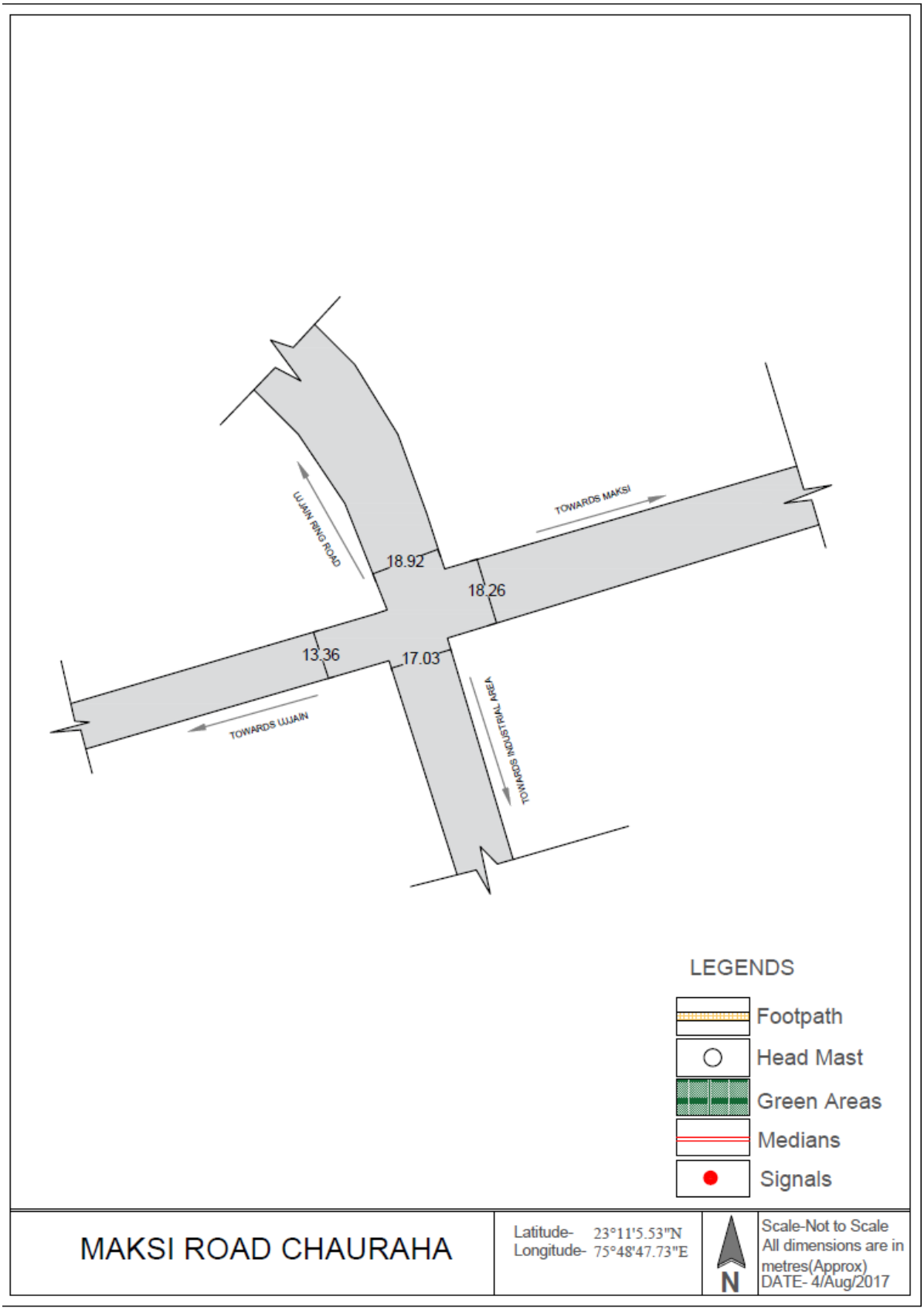

TOWARDS BMA HOSPITAL CHAURAHA
TOWARDS SARASWATI NAGAR
TOWARDS KANTHAL CHAURAHA
TOWARDS CHAMUNDA MATA CHAURAHA
26.12
29.76
12.03
31.98
48.98
7.59
29.06
32.80
12.78
25.08
LEGENDS
Footpath
Head Mast
Green Areas
Medians
Signals
KOYALA PHATAK CHAURAHA
Latitude- 23°11'21.04"N
Longitude- 75°47'5.32"E
N
Scale-Not to Scale
All dimensions are in metres(Approx)
DATE- 4/Aug/2017

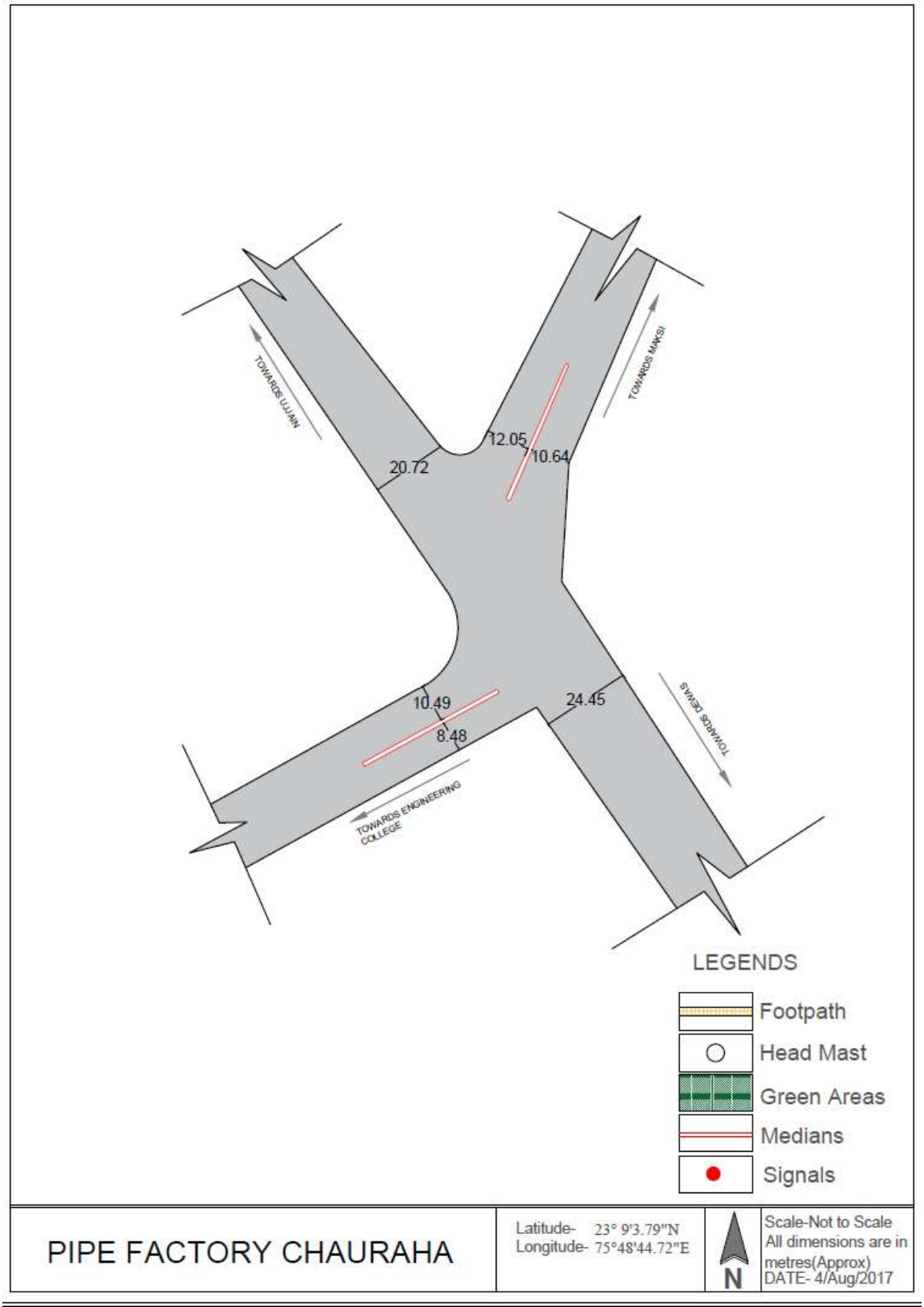


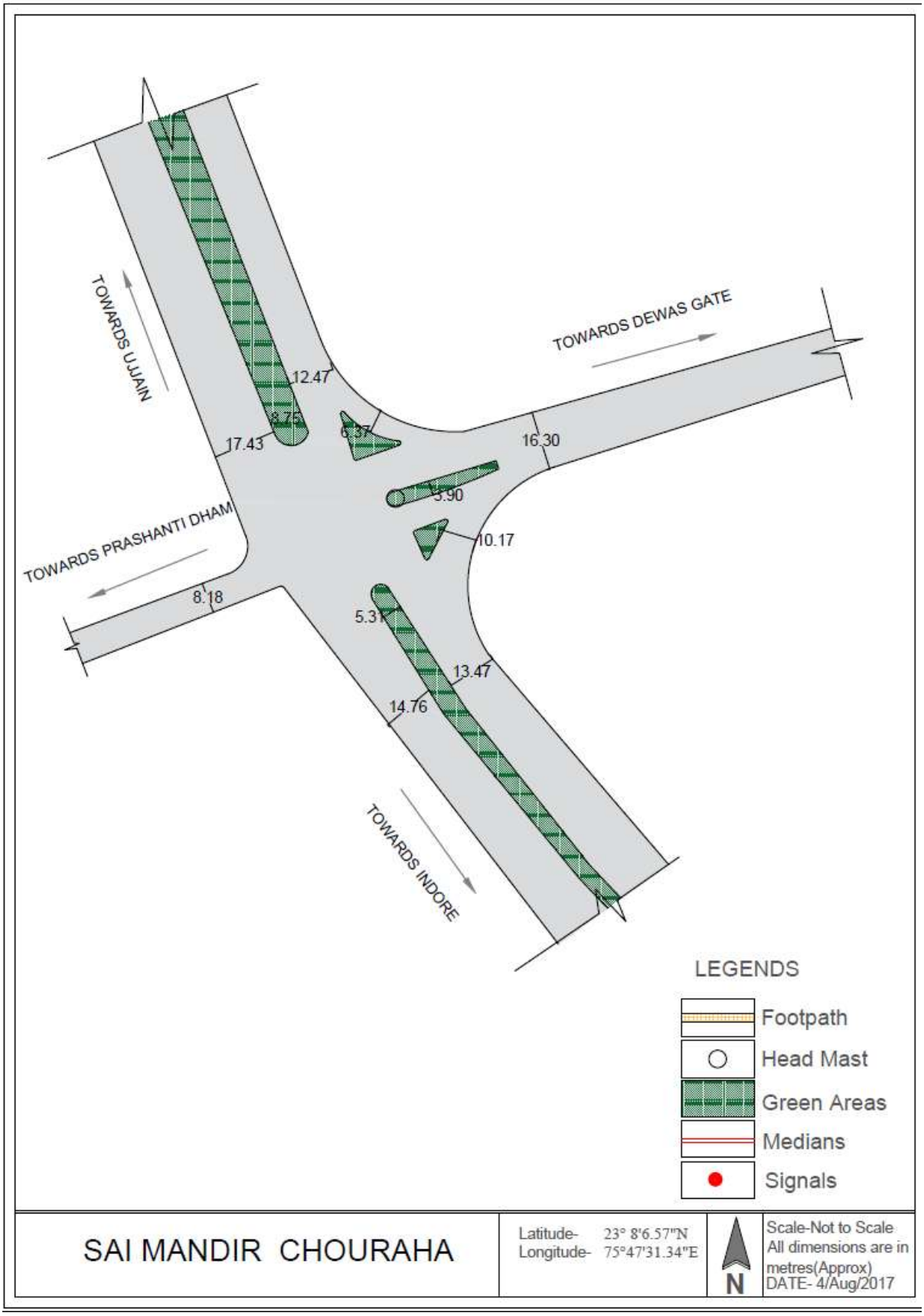

LEGENDS

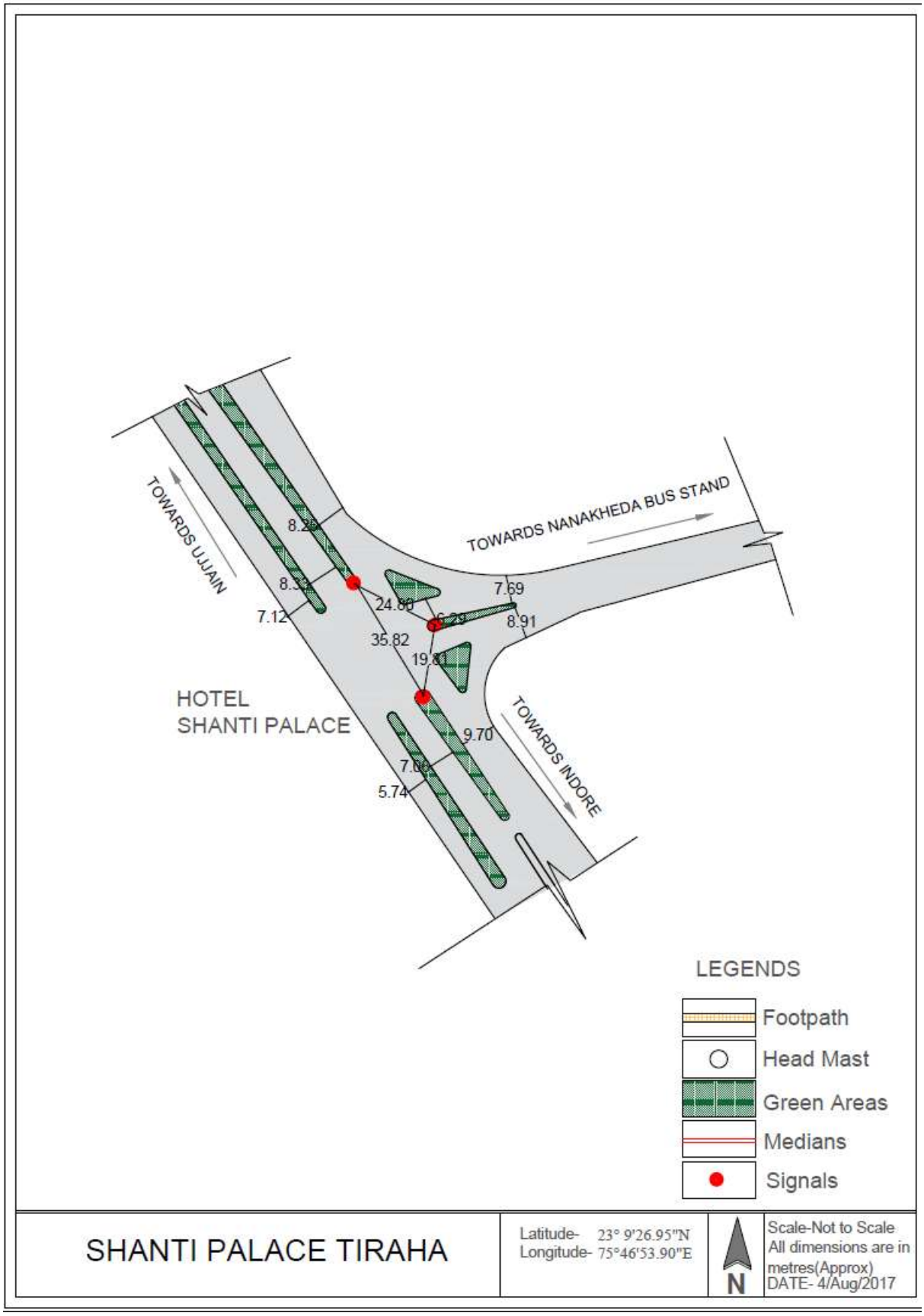
- Footpath
- Head Mast
- Green Areas
- Medians
- Signals

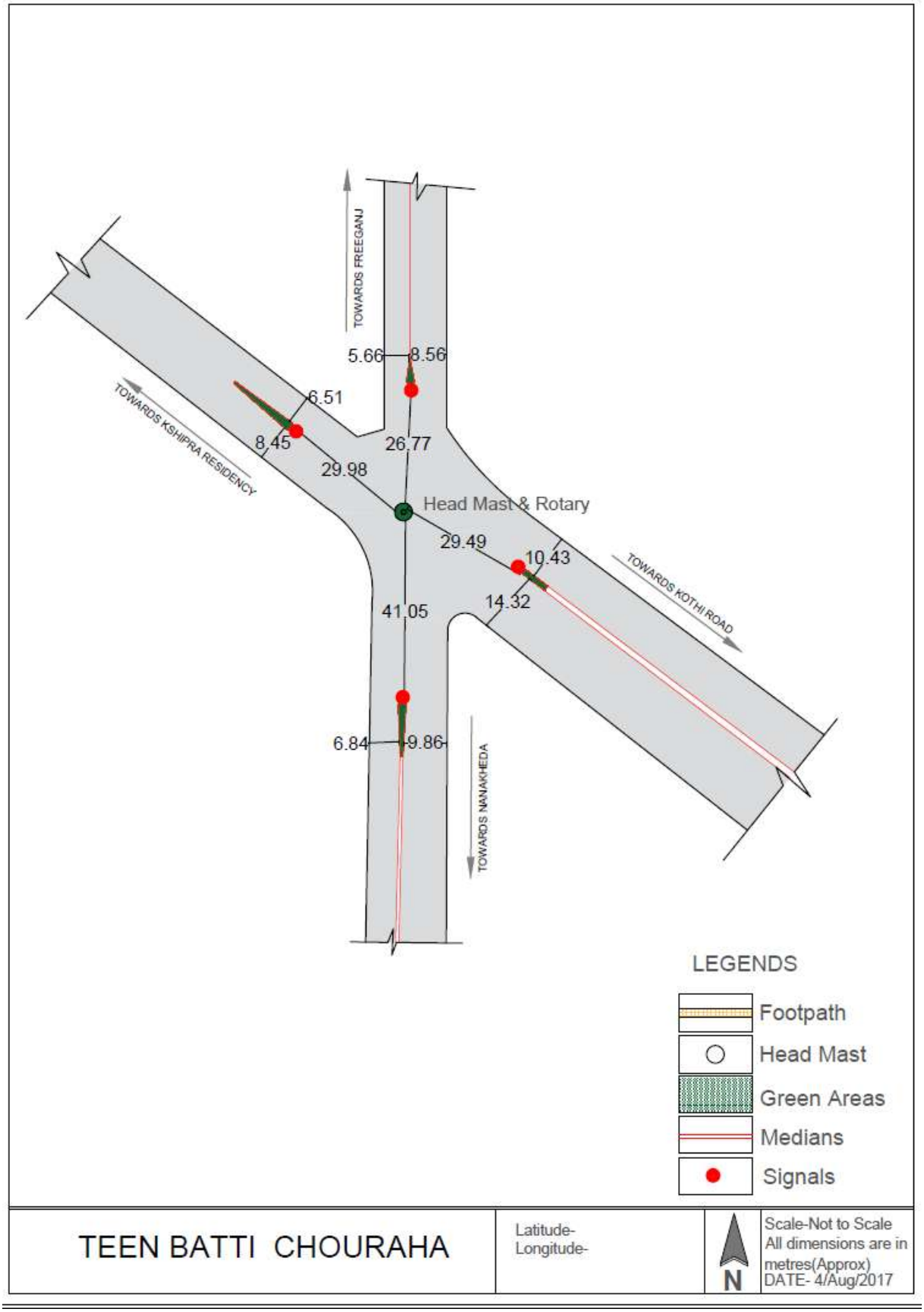
| MAHAMRITUNJAI TIRAHA | Latitude- 23° 8'55.36"N<br>Longitude- 75°47'17.05"E | N | Scale-Not to Scale<br>All dimensions are in metres(Approx)<br>DATE- 4/Aug/2017 |
|---|---|---|---|

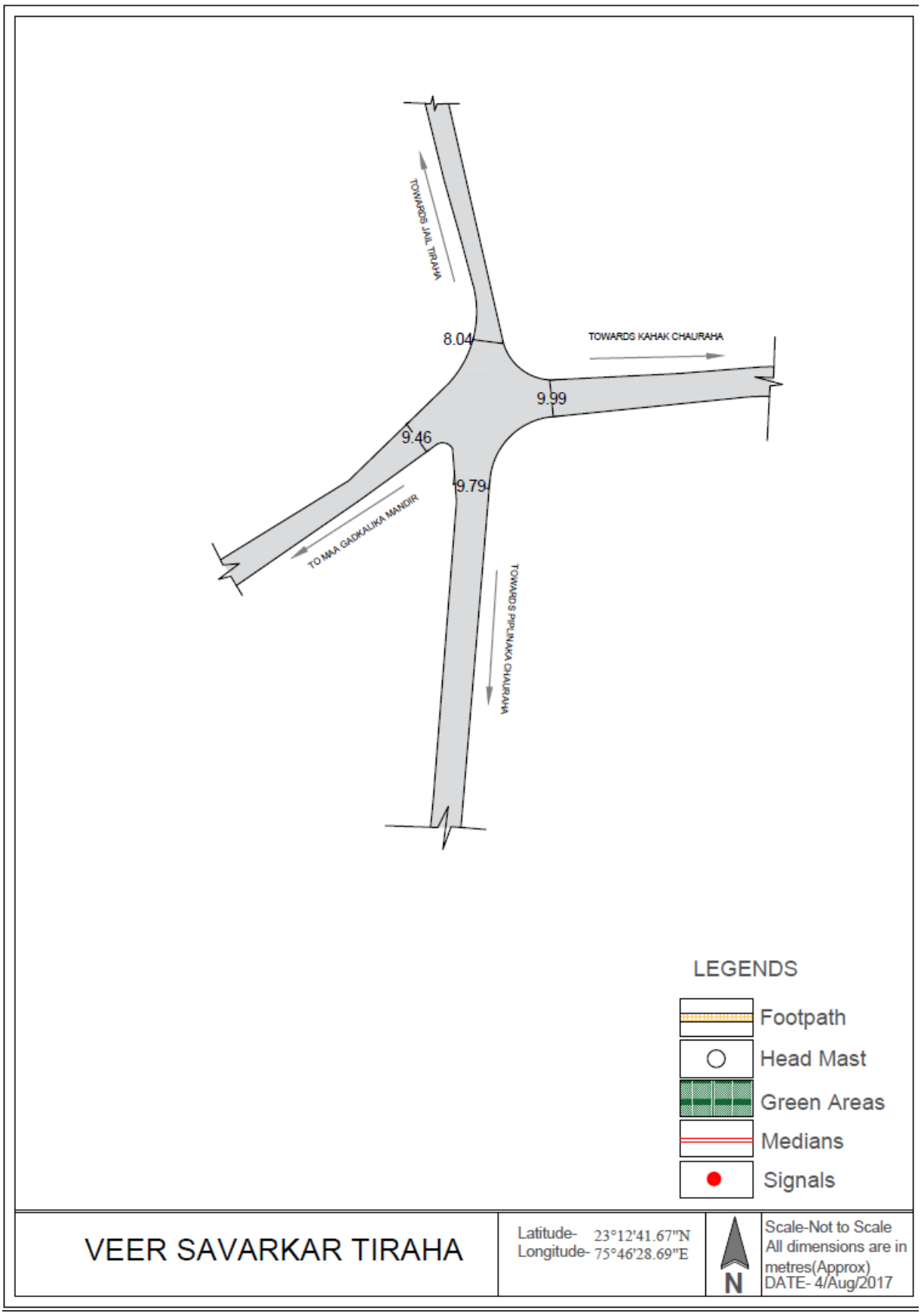

UJJAIN RING ROAD
TOWARDS MAKSI
18.92
18.26
13.36
17.03
TOWARDS UJJAIN
TOWARDS INDUSTRIAL AREA
LEGENDS
Footpath
Head Mast
Green Areas
Medians
Signals
MAKSI ROAD CHAURAHA
Latitude- 23°11'5.53"N
Longitude- 75°48'47.73"E
N
Scale-Not to Scale
All dimensions are in metres(Approx)
DATE- 4/Aug/2017


TOWARDS UJJAIN
TOWARDS MAKSI
12.05
10.64
20.72
10.49
8.48
24.45
TOWARDS DEWAS
TOWARDS ENGINEERING COLLEGE
LEGENDS
Footpath
Head Mast
Green Areas
Medians
Signals
PIPE FACTORY CHAURAHA
Latitude- 23° 9'3.79"N
Longitude- 75°48'44.72"E
N
Scale-Not to Scale
All dimensions are in metres(Approx)
DATE- 4/Aug/2017


TOWARDS UJJAIN
TOWARDS DEWAS GATE
TOWARDS PRASHANTI DHAM
TOWARDS INDORE
12.47
8.75
17.43
6.37
16.30
5.90
10.17
8.18
5.31
13.47
14.76
LEGENDS
Footpath
Head Mast
Green Areas
Medians
Signals
SAI MANDIR CHOURAHA
Latitude- 23° 8'6.57"N
Longitude- 75°47'31.34"E
N
Scale-Not to Scale
All dimensions are in metres(Approx)
DATE- 4/Aug/2017


TOWARDS UJJAIN
TOWARDS NANAKHEDA BUS STAND
TOWARDS INDORE
HOTEL
SHANTI PALACE
8.26
7.12
24.80
7.69
8.91
35.82
9.70
5.74
LEGENDS
Footpath
Head Mast
Green Areas
Medians
Signals
SHANTI PALACE TIRAHA
Latitude- 23° 9'26.95"N
Longitude- 75°46'53.90"E
N
Scale-Not to Scale
All dimensions are in metres(Approx)
DATE- 4/Aug/2017


TOWARDS FREEGANJ
TOWARDS KSHIPRA RESIDENCY
TOWARDS KOTHI ROAD
TOWARDS NANAKHEDA
5.66
8.56
6.51
8.45
26.77
29.98
Head Mast & Rotary
29.49
10.43
14.32
41.05
6.84
9.86
LEGENDS
Footpath
Head Mast
Green Areas
Medians
Signals
TEEN BATTI CHOURAHA
Latitude-
Longitude-
N
Scale-Not to Scale
All dimensions are in metres(Approx)
DATE- 4/Aug/2017


TOWARDS JAIL TIRAHA
8.04
TOWARDS KAHAK CHAURAHA
9.99
9.46
9.79
TO MAA GADKALIKA MANDIR
TOWARDS PIPLINAKA CHAURAHA
LEGENDS
Footpath
Head Mast
Green Areas
Medians
Signals
VEER SAVARKAR TIRAHA
Latitude- 23°12'41.67"N
Longitude- 75°46'28.69"E
N
Scale-Not to Scale
All dimensions are in metres(Approx)
DATE- 4/Aug/2017

### 4.18 Responsibility Matrix

Below is the table of the responsibility matrix, providing roles and responsibilities of various stakeholders for this project during various stages of the project. For the table given below, following is the terminology which is being used:

*R – Responsible | A – Accountable | C – Consulted | I – Informed*

| # | Key Activities | Successful Bidder | USCL | Network Vendors | Electricity Providers | Ujjain Police | PMC |
|---|---|---|---|---|---|---|---|
| 1. | Project Kick Off | R/A | C | I | I | I | C |
| 2. | Deployment of manpower | R/A | C | I | I | I | C |
| 3. | Assess the requirement of IT Infrastructure and Non IT Infrastructure | R/A | C | C | C | C | C |
| 4. | Assessment of Business processes | R/A | C | I | I | C | C |
| 5. | Assessment of requirement of Softwarerequirements | R/A | C | I | I | C | C |
| 6. | Assess theIntegration requirement | R/A | C | C | C | C | C |
| 7. | Assess the connectivity requirement all locations | R/A | C | C | I | C | C |
| 8. | Assessment of training requirement | R/A | C | I | I | C | C |
| 9. | Formulation of Solution Architecture | R/A | C | C | I | C | C |
| 10. | Creation of Detail Drawing | R/A | C | C | I | C | C |
| 11. | Detailed Design of ITMS Solutions | R/A | C | C | I | C | C |
| 12. | Development of test cases (Unit, System Integration and User Acceptance) | R/A | C | C | I | C | C |
| 13. | Preparation of final bill of quantity and material | R/A | C | C | C | C | C |
| 14. | SoP preparation | R/A | C | C | C | C | C |
| 15. | Physical Infrastructure setup | R/A | C | I | I | I | C |
| 16. | Procurementof Equipment , edge devices, COTS software (if any), Licenses | R/A | C | I | I | I | C |
| 17. | ITand Non IT Infrastructure Installation | R/A | C | I | I | I | C |

*R – Responsible | A – Accountable | C – Consulted | I – Informed*

| # | Key Activities | Successful Bidder | USCL | Network Vendors | Electricity Providers | Ujjain Police | PMC |
|---|---|---|---|---|---|---|---|
| 18. | Software Application customization (if any) | R/A | C | I | I | I | C |
| 19. | Development of BespokeSolution (if any) | R/A | C | I | I | I | C |
| 20. | Integration with Third party services/application (if any) | R/A | C | I | I | I | C |
| 21. | Unit and User Acceptance Testing | R/A | C | I | I | I | C |
| 22. | Implementation of Solutions | R/A | C | I | I | I | C |
| 23. | Preparation of User Manuals , training curriculum and training materials | R/A | C | I | I | I | C |
| 24. | Role based training(s) on the Command Centre Software | R/A | C | I | I | I | C |
| 25. | SoP implementation | R/A | C | C | C | C | C |
| 26. | Integration of solutions withCommand and Control Centre | R/A | C | C | C | C | C |
| 27. | Go Live | R/A | C | I | I | I | C |
| 28. | Operation and Maintenance of IT, Non IT infrastructure and Applications | R/A | C | I | I | I | C |
| 29. | SLA and Performance Monitoring | R/A | C | I | I | I | C |
| 30. | Logging, tracking and resolution of issues. | R/A | C | I | I | I | C |
| 31. | Application enhancement | R/A | C | I | I | I | C |
| 32. | Patch & Version Updates | R/A | C | I | I | I | C |

**Note**: All decisions will be taken by USCL which need to be abided by all the stakeholders in the above matrix.

## 4.19 Technical Specifications / Functional Requirement Specifications

The following are the minimum technical specifications for the equipment. The bidders are requested to consider more advanced and better models with better features and specifications. In case some equipment is not mentioned here, it is expected that the most appropriate equipment shall be supplied. It is a requirement that no equipment, which is in end-of-support or has an anticipated end-of-support in the next 5 years be supplied as part of this contract.

### *4.19.1 Functional Requirements - Solution*

| # | Building Blocks | Bidder Compliance(Yes/No) |
|---|---|---|
| 1 | Traffic Signal Controller | |
| 2 | Vehicle Detectors | |
| 3 | Communication Network | |
| 4 | Software Application | |
| 5 | ANPR Camera | |
| 6 | RLVD / Evidence Cameras | |
| 7 | PTZ Camera | |
| 8 | Traffic Signal Poles and Lights | |
| 9 | Other Poles (For Camera, etc.) | |
| 10 | Gantry Setup for ITMS | |
| 11 | Public Address System | |
| 12 | Emergency Call Box System | |
| 13 | Servers and associated software | |

### *4.19.2 Common Guidelines regarding compliance of systems / equipment*

1. All applicable laws, rules, regulations, and standards in force are required to be followed.
2. The specifications mentioned for various IT / Non-IT components are indicative requirements and should be treated for benchmarking purpose only. Implementing Agencies are required to undertake their own requirement analysis and may propose higher specifications that are better suited to the requirements.
3. Any manufacturer and product name mentioned in the Tender should not be treated as a recommendation of the manufacturer / product.
4. None of the IT / Non-IT equipment's proposed by the Implementing Agency should be End of Life product. It is essential that the technical proposal is accompanied by the OEM certificate in the format given in this Tender, where-in the OEM will certify that the product is not end of support product & shall support for at least 5 years from the date of Bid Submission.
5. All IT Components should support IPv4 and IPv6
6. Technical Bid should be accompanied by OEM's product brochure / datasheet. Implementing Agency's should provide complete make, model, part numbers and sub-part numbers for all equipment/software quoted, in the Technical Bid.

7. Implementing Agency should ensure that only one make and model is proposed for one component in Technical Bid
8. Implementing Agency's should ensure complete warranty and support for all equipment from OEMs. All the back-to-back service agreements should be submitted along with the Technical Bid.
9. All equipment, parts should be original and new.
10. The user interface of the system should be a user friendly Graphical User Interface (GUI).
11. The solution developed by the Implementing Agency shall have the capability to send e-Mails and SMS (Gateway to be procured by the Client and SMS charges to be borne by the Client). The Implementing Agency shall ensure that SMS and e-Mails can be sent in a scheduled / non-scheduled manner for various functions being developed under this contract.
12. Critical core components of the system should not have any requirements to have proprietary platforms and should conform to open standards.
13. For custom made modules, industry standards and norms should be adhered to for coding during application development to make debugging and maintenance easier. Object oriented programming methodology must be followed to facilitate sharing, componentizing and multiple-use of standard code. Before hosting the application, it shall be subjected to application security audit (by any of the CERTIN empanelled vendors) to ensure that the application is free from any vulnerability; and approved by the Traffic Police Department.
14. All the Clients Machines / Servers shall support static assigned IP addresses or shall obtain IP addresses from a DNS/DHCP server.
15. The Successful Implementing Agency should also propose the specifications of any additional servers / other hardware, if required for the system.
16. The Successful Implementing Agency must provide the architecture of the solution it is proposing.
17. The Servers provided should meet industry standard performance parameters (such as CPU Utilisation of 60 percent or less, disk utilisation of 75 percent or less).
18. Implementing Agency is required to ensure that there is no choking point / bottleneck anywhere in the system (end-to-end) and enforce performance and adherence to SLAs. SLA reports must be submitted as specified in the Bid without fail.
19. All the hardware and software supplied should be from the reputed Original Equipment Manufacturers (OEMs). The Department reserves the right to ask replacement of any hardware / software if it is not conforms to all the requirements specified in the tender documents.
20. Cameras and the Video Management / Video Analytics Software should be ONVIF Core Specification '2.X' or 'S' compliant and provide support for ONVIF profiles such as Streaming, Storage, Recording, Playback, and Access Control. Cameras should be secure and have key features including video enhancer, traffic intelligence (Direction analyser, Vehicle counter, etc.)
21. Bidder shall be responsible to file FIR in nearest Traffic Police Station for any theft or physical damage of product under ITMS Project (including cable & accessories) due to any unforeseen reason. The Implementing Agency shall have to submit the copy of FIR to USCL within 7 days from the date of filing FIR.
22. Implementing Agency shall have to take approval from USCL for Schematic drawing of junction box or any fabrication work.

### *4.19.3 Electrical and Structured cabling component*

| # | **Parameter** | **Minimum Specifications** | **Bidder Compliance (Yes/No)** |
|---|---|---|---|
| 1. | Standards | All electrical components shall be design manufactured and tested in accordance with relevant Indian standards IEC's | |
| 2. | OEM | At least 5 years OEM warranty. | |

| # | Parameter | Minimum Specifications | Bidder Compliance (Yes/No) |
|---|---|---|---|
| | Warranty | | |

*4.19.4 Earthing*

All electrical components are to be earthen by connecting two earth tapes from the frame of the component ring and will be connected via several earth electrodes. The cable arm will be earthen through the cable glands. Earthling shall be in conformity with provision of rules 32, 61, 62, 67 & 68 of Indian Electricity rules 1956 and as per IS-3043. The entire applicable IT infrastructure in the Control Rooms shall be earthed.

| Sr. No. | Description | Bidder Compliance (Yes/No) |
|---|---|---|
| 1. | Earthing should be done for the entire power system and provisioning should be there to earth UPS systems, Power distribution units, and AC units etc. so as to avoid a ground differential. State shall provide the necessary space required to prepare the earthing pits. | |
| 2. | All metallic objects on the premises that are likely to be energized by electric currents should be effectively grounded. | |
| 3. | The connection to the earth or the electrode system should have sufficient low resistance in the range of 0 to 25 ohm to ensure prompt operation of respective protective devices in event of a ground fault, to provide the required safety from an electric shock to personnel & protect the equipment from voltage gradients which are likely to damage the equipment. | |
| 4. | Recommended levels for equipment grounding conductors should have very low impedance level less than 0.25 ohm. | |
| 5. | In case of a UPS and Transformer equipment, the Earth resistance shall be automatically measured on an online basis at a pre-configured interval and corrective action should be initiated based on the observation. The automatic Earthing measurements should be available on the UPS panel itself | |
| 6. | There should be enough space between data and power cabling and there should not be any cross wiring of the two, in order to avoid any interference, or corruption of data. | |
| 7. | The earth connections shall be properly made. | |
| 8. | A complete copper mesh earthing grid needs to be installed for the server farm area, every rack need to be connected to this earthing grid. A separate earthing pit needs to be in place for this copper mesh. | |
| 9. | Provide separate earthing pits for servers, UPS & generators as per the standards. | |

*4.19.5 Online UPS for field locations*

| Sr. No. | Parameter | Minimum Specifications | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| 1. | **Make** | <to be provided by the bidder> | | |
| 2. | **Model** | <to be provided by the bidder> | | |
| 3. | Capacity | Adequate capacity to cover all Components at respective field locations | | |
| 4. | Technology | IGBT based PWM Technology, True Online UPS | | |
| 5. | Backup Time | 2 hours | | |
| 6. | Input/Output Frequency Range | 45 to 55 Hz | | |
| 7. | Output Voltage | 220VAC - 230VAC | | |
| 8. | Voltage Regulation | +/-2% (or better) and with built-in Over Voltage Cut off facility in the Device | | |
| 9. | Frequency | 50 Hz +/- 0.1% (free Run Mode) | | |
| 10. | Harmonic Distortion (THD) | < 3% (linear load) | | |
| 11. | Output Waveform | Pure Sine wave | | |
| 12. | Output Power Factor | 0.8 or more | | |
| 13. | Battery Backup | Adequate and required battery backup to achieve required uptime of field device as well as SLA of the overall solution. The battery capacity should be estimated for providing 4 hours backup | | |
| 14. | Battery Type | Lead acid, Sealed Maintenance Free (SMF) | | |
| 15. | General Operating Temperature | 0 to 50 Degree Celsius | | |
| 16. | Alarms & Indications | All necessary alarms & indications essential for performance monitoring of UPS like mains fail, low battery & fault detection | | |
| 17. | Bypass | Automatic, Manual Bypass Switch | | |

| Sr. No. | Parameter | Minimum Specifications | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| 18. | Certifications | For Safety & EMC as per international standard | | |
| 19. | Overall Protection | IP 55, Junction Box design should ensure to keep the temperature within suitable operating range for equipment's and should also avoid intentional water splash and dust intake | | |

*4.19.6 Online UPS for indoor locations*

| # | Parameter | Minimum Specifications | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| 1. | **Make** | <to be provided by the bidder> | | |
| 2. | **Model** | <to be provided by the bidder> | | |
| 3. | Capacity | Adequate capacity to cover all above IT Components at respective location | | |
| 4. | Output Wave Form | Pure Sine wave | | |
| 5. | Input Power Factor at Full Load | >0.90 | | |
| 6. | Input | Three Phase 3 Wire for over 5 KVA | | |
| 7. | Input Voltage Range | 305-475VAC at Full Load | | |
| 8. | Input Frequency | 50Hz +/- 3 Hz | | |
| 9. | Output Voltage | 400V AC, Three Phase for over 5 KVA UPS | | |
| 10. | Output Frequency | 50Hz+/- 0.5% (Free running); +/- 3% (Sync. Mode) | | |
| 11. | Inverter efficiency | >90% | | |
| 12. | Over All AC- | >85% | | |

| # | Parameter | Minimum Specifications | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| | AC Efficiency | | | |
| 13. | UPS shutdown | UPS should shutdown with an alarm and indication on following conditions 1)Output over voltage 2)Output under voltage 3)Battery low 4)Inverter overload 5)Over temperature 6)Output short | | |
| 14. | Battery Backup | 60 minutes in full load | | |
| 15. | Battery | VRLA (Valve Regulated Lead Acid) SMF (Sealed Maintenance Free) Battery | | |
| 16. | Indicators & Metering | Indicators for AC Mains, Load on Battery, Fault, Load Level, Battery Low Warning, Inverter On, UPS on Bypass, Overload, etc.<br><br>Metering for Input Voltage, Output Voltage and frequency, battery voltage, output current etc. | | |
| 17. | Audio Alarm | Battery low, Mains Failure, Over temperature, Inverter overload, Fault etc. | | |
| 18. | Cabinet | Rack / Tower type | | |
| 19. | Operating Temp | 0 to 60 degrees centigrade | | |
| 20. | Management Protocol | SNMP Support through TCP/IP | | |

*4.19.7 Functional Requirements for Communication Network*

Function of the Communication network is for remote monitoring and management.Real time data (like RTC time, stage timing, mode, events, etc.) from the traffic signal controller and the cameras, and all other equipment is required to be sent to the Control Room / Interim ICCC / ICCC.Central Computer running the application shall calculate and send optimum signal timings to all intersections in the corridor. The bidder shall clearly estimate and specify the bandwidth requirements and the type of network recommended for the.

The contractor shall specify the networking hardware requirements at the Control room / Interim ICCC / ICCC and remote intersections for establishing the communication network.

The communications network shall be designed to be highly secure and all data packets being transmitted to and from the edge devices shall be at least 128 bit encrypted.

*4.19.8 Emergency Call Box (ECB) System*

1. A high quality digital transceiver, to be placed at certain traffic junctions determined by the Police Department (mostly at junction boxes / camera poles to avoid anyadditional investments)

2. Key is to make it easily accessible by public

3. The unit shall preferably have a Double button which when pressed, shall connect to the Traffic Command Centre/other locations over the existing network infrastructure setup for ITMS & Surveillance project.

4. These are to be placed only a select locations such as Police/Traffic islands or pedestals or within the vicinity of constant Police supervision or CCTV field of view to avoid misuse and vandalism of the call box.

| Sr. No | Parameter | Minimum Specifications or better | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| **1.** | **Make** | <to be provided by the bidder> | | |
| **2.** | **Model** | <to be provided by the bidder> | | |
| **3.** | Construction | Cast Iron/Steel Foundation, Sturdy Body for equipment | | |
| **4.** | Call Button | Watertight Push Button, Visual Feedback for button press | | |
| **5.** | Speaker | To be used for Public Address System | | |
| **6.** | Connectivity | GSM/PSTN/Ethernet as per solution offered | | |
| **7.** | Sensors | For tempering/Vandalism | | |
| **8.** | Battery | Internal Battery with different charging options (Solar/Mains) | | |
| **9.** | Power | Automatic on/off operation | | |
| **10.** | Casing | IP-55 rated for housing<br>However, appropriate protection against heavy rainfall and dust is required to be provided through external means, if required. | | |
| **11.** | Operating conditions | 0° to 60°C | | |

*4.19.9 Public Address (PA) System*

| Sr. No. | Parameter | Minimum Specifications or better | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|

| Sr. No. | Parameter | Minimum Specifications or better | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| 1. | **Make** | <to be provided by the bidder> | | |
| 2. | **Model** | <to be provided by the bidder> | | |
| 3. | PAS system | Should have the capability to control individual PAS i.e. to make an announcement at select location (1:1) and all locations (1: many) simultaneously.<br><br>The PAS should also support both, Live and Recorded inputs | | |
| 4. | Speaker | Should be provided with sufficient number ofspeakers to cover all the arms of each traffic junction, To be used for Public Address System | | |
| 5. | Connectivity | IP Based | | |
| 6. | Access Control | Access control mechanism would be also required to establish so that the usage is regulated. | | |
| 7. | Integration | With VMS and Command and Control Centre | | |
| 8. | Construction | Cast Iron Foundation and M.S. Pole, Sturdy Body for equipment | | |
| 9. | Power | Automatic on/off operation | | |
| 10. | Casing | IP-55 rated for housing | | |
| 11. | Operating conditions | 0° to 60°C | | |
| 12. | Housing | Appropriately housed in a suitable enclosure to protect against dust, lighting and heavy rains. | | |

*4.19.10 Poles*

The Poles should be of appropriate design and make and be prepared after consulting the Client. Various types of poles would be required, including Poles for housing traffic lights, sensor camera, housing Variable Message Sign Boards.

The approach should be to have minimum number of highly safe and secure poles, which should be erected with good quality of workmanship.

| Sr. No. | Parameter | Minimum Specifications | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|

| Sr. No. | Parameter | Minimum Specifications | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| 1. | **Make** | <to be provided by the bidder> | | |
| 2. | **Model** | <to be provided by the bidder> | | |
| 3. | Pole type | Hot Dip Galvanized after Fabrication with Silver coating of 86 micron as per IS:2629; Fabrication in accordance with IS-2713 (1980) | | |
| 4. | Height | 5-15 Meters (or higher), as-per-requirements for different types of cameras & Site conditions | | |
| 5. | Pole Diameter | Min. 10 cm diameter pole (bidder to choose larger diameter for higher height) | | |
| 6. | Cantilevers | Based on the location requirement suitable size cantilevers to be considered with the pole | | |
| 7. | Bottom base plate | Minimum base plate of size 30x30x1.5 cm | | |
| 8. | Mounting facilities | To mount Traffic signals, RLVD Cameras, ANPR, Speed detection sensors, CCTV cameras, Traffic Signals, Pedestrian Signals, Switch, etc. | | |
| 9. | Pipes, Tubes | All wiring must be hidden, through tubes/pipes. No wires shall be visible from outside. | | |
| 10. | Foundation | Casting of Civil Foundation with foundation bolts, to ensure vibration free erection (basic aim is to ensure that video feed quality is not impacted due to winds in different climatic conditions). Expected foundation depth of min. 100cms.<br><br>Please refer to earthing standards mentioned elsewhere in the document. | | |
| 11. | Protection | Lightning arrester shall be provided, to protect all field equipment mounted on pole. | | |
| 12. | FOR CANTILEVER GALVANISED POLE / GANTRY | 6.00 Meters long Pole having diameter 125 mm with a base plate is 300 x 300 x 20 mm. Pole sheet<br><br>thickness is 4mm, with a suitable<br><br>Arm length:-<br><br>For 2 lane Road 3 Meters - ARM<br><br>For 3 lane road 4.5 metres - ARM<br><br>For 4 Lane Road 6 Metres – ARM<br><br>Arm to be made available on both sides where | | |

| Sr. No. | Parameter | Minimum Specifications | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| | | space for centrally mounted pole is available<br><br>With a thickness of 4 mm having a diameter of 80mm, with suitable foundation accessories i.e. 4xM-<br><br>25 x 850mm with junction box in pole. (With Steel Rope).<br><br>More than 6000 mm above ground level including Foundation | | |
| 13. | Branding | Poles to have branding as required by the client. | | |

*4.19.11 Field Junction Box*

| Sr. No. | Parameter | Minimum Specifications | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| 1. | **Make** | <to be provided by the bidder> | | |
| 2. | **Model** | <to be provided by the bidder> | | |
| 3. | Size | Suitable size as per site requirements to house the field equipment | | |
| 4. | Cabinet Material | GI with powder coated | | |
| 5. | Material Thickness | Min 1.2mm | | |
| 6. | Locks | Secure Lockable to ensure protection | | |
| 7. | Protection | IP 66, Junction Box design should ensure to keep the temperature within suitable operating range for equipment's and should also avoid intentional water splash and dust intake | | |
| 8. | Mounting | On Camera Pole / Ground mounted on concrete base | | |
| 9. | Form Factor | Rack Mount/DIN Rail | | |
| 10. | Other Features | Rain Canopy, Cable entry with glands, proper earthing and Fans/any other accessories as required for operation of equipment’s within junction box.` | | |

| Sr. No. | Parameter | Minimum Specifications | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| 11. | Branding | As per Ujjain Smart City | | |
| 12. | Installation | At locations as per the direction of the Client / Traffic Police / Municipal Corporation | | |

*4.19.12 Variable Message Signage System*

**A) Functional Requirements of the Variable Message Signage System**

| Sr. No. | Description | Bidder Compliance(Yes/No) | Product Documentation Reference |
|---|---|---|---|
| **1** | **Make** | <to be provided by the bidder> | |
| **2** | **Model** | <to be provided by the bidder> | |
| **3** | **System Requirements** | | |
| a. | The system should be capable to display warnings, traffic advice, route guidance and emergency messages to motorists from the Police Command Centrein real time. | | |
| b. | The system should also be capable to display warnings, traffic advice, route guidance and emergency messages to motorist by using local PC/Laptops. | | |
| c. | The VMS should display text and graphic messages using Light Emitting Diode (LED) arrays. | | |
| d. | The System should able to display failure status of any LED at Police Command Centre. | | |
| e. | The System should support Display characters in true type fonts and adjustable based on the Operating system requirement. | | |
| f. | The VMS workstation at the Police Command Centreshould communicate with the VMS controller through the network. It should send out command data to the variable message sign controller and to confirm normal operation of the signboard. In return, the VMS workstation should receive status data from the VMS controller. | | |
| g. | VMS controllers should continuously monitor the operation of the VMS via the provided communication network. | | |

| Sr. No. | Description | Bidder Compliance(Yes/No) | Product Documentation Reference |
|---|---|---|---|
| h. | Operating status of the variable message sign should be checked periodically from the Police Command Centre. | | |
| i. | It shall be capable of setting an individual VMS or group of VMS's to display either one of the pre-set messages or symbols entered into the computer via the control computer keyboard or by another means. | | |
| j. | It shall be capable of being programmed to display an individual message to a VMS or a group of VMS's at a pre-set date and time. | | |
| k. | A sequence of a minimum of 10 messages/pictures/ pre-decided sign or group of signs shall be possible to assign for individual VMS or group of VMS's. | | |
| l. | It shall also store information about the time log of message displayed on each VMS.The information stored shall contain the identification number of the VMS, content of the message, date and time at which displayed message/picture starts and ends. | | |
| m. | The central control computer shall perform regular tests (pre-set basis) for each individual VMS.Data communication shall be provided with sufficient security check to avoid unauthorized access. | | |
| **4** | **Variable Message Sign board application** | | |
| a. | Central Control Software allows controlling multiple VMS from one console. | | |
| b. | Capable of programming to display all types of Message/ advertisement having alphanumeric character in English and Hindi and combination of text with pictograms signs. The system should have feature to manage video / still content for VMS display.<br><br>The system should have capability to divide VMS screen into multi-parts to display diverse form of information like video, text, still images, advertisements, weather info, city info etc. The system should also provide airtime management and billing system for paid content management | | |
| c. | Capable of controlling and displaying messages on VMS boards as individual/ group. | | |

| Sr. No. | Description | Bidder Compliance(Yes/No) | Product Documentation Reference |
|---|---|---|---|
| d. | Capable of controlling and displaying multiple font types with flexible size and picture sizes suitable as per the size of the VMS. | | |
| e. | Capable of controlling brightness & contrast through software. | | |
| f. | Capable to continuously monitor the operation of the Variable Message sign board, implemented control commands and communicate information to the Police Command Centrevia communication network. | | |
| g. | Real time log facility – log file documenting the actual sequence of display to be available at central control system. | | |
| h. | Multilevel event log with time & date stamp. | | |
| i. | Access to system only after the authentication and acceptance of authentication based on hardware dongle with its log. | | |
| j. | Location of each VMS will be plotted on GIS Map with their functioning status which can be automatically updated. | | |
| k. | Report generation facility for individual/group/all VMSs with date and time which includes summary of messages, dynamic changes, fault/repair report and system accessed logs, link breakage logs, down time reports or any other customized report. | | |
| l. | Configurable scheduler on date/day of week basis for transmitting pre-programmed message to any VMS unit. | | |
| m. | Various users should access the system using single sign on and should be role based. Different roles which could be defined (to be finalized at the stage of SRS) could be Administrator, Supervisor, Officer, Operator, etc. | | |
| n. | Apart from role based access, the system should also be able to define access based on location. | | |
| o. | Rights to different modules / Sub-Modules / Functionalities should be role based and proper log report should be maintained by the system for such access | | |
| p. | Components of the architecture must provide redundancy and ensure that there are no single points of failure in the | | |

| Sr. No. | Description | Bidder Compliance(Yes/No) | Product Documentation Reference |
|---|---|---|---|
| | key project components. To take care of remote failure, the systems need to be configured to mask and recover with minimum outage. | | |
| q. | The architecture must adopt an end-to-end security model that protects data and the infrastructure from malicious attacks, theft, natural disasters etc. provisions for security of field equipment as well as protection of the software system from hackers and other threats shall be a part of the proposed system. Using Firewalls and Intrusion detection systems such attacks and theft shall be controlled and well supported (and implemented) with the security policy. The virus and worms attacks shall be well defended with Gateway level Anti-virus system, along with workstation level Anti-virus mechanism. There shall also be an endeavour to make use of the SSL/VPN technologies to have secured communication between Applications and its end users. Furthermore, all the system logs shall be properly stored & archived for future analysis and forensics whenever desired. | | |
| r. | Ease of configuration, ongoing health monitoring, and failure detection are vital to the goals of scalability, availability, and security and must be able to match the growth of the environment. | | |
| s. | System shall use open standards and protocols to the extent possible | | |
| t. | Facility to export reports to excel and PDF formats. | | |
| **3.** | **Remote Monitoring** | | |
| a. | All VMS shall be connected/configured to Police Command Centrefor remote monitoring through network for two way communication between VMS and control Room to check system failure, power failure & link breakage. | | |
| b. | Remote Diagnostics to allow identifying failure up to the level of failed individual LED. | | |

**B) Technical Specifications: Variable Message Signage System**

| Sr. No. | Parameter | Description | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| **1.** | **Make** | | <to be provided by the bidder> | |
| **2.** | **Model** | | <to be provided by the bidder> | |
| **3.** | **Dimensions** | | | |
| A | Minimum 3.0m length X 1.5m height X 0.2m depth. (3000mm x 1500mm X 200mm approx.) | | | |
| **4.** | **Colour LED** | Full Colour, class designation C2 as per IRC/EN 12966 standard | | |
| **5.** | **Luminance Class/Ratio** | L3 as per IRC/EN 12966 standards. | | |
| **6.** | **Luminance Control & auto Diming** | | | |
| a. | Should be automatically provide different luminance levels but shall also be controllable from the traffic centre using software. | | | |
| b. | Auto dimming capability toadjust to ambient light level (sensor based automatic control) | | | |
| c. | Photoelectric sensor shall be positioned at the sign front and sign rear to measure ambient light.Capable of being continually exposed to direct sunlight without impairment of performance. | | | |
| **7.** | **Contrast Ratio** | R3 as per IRC/EN 12966 standard | | |
| **8.** | **Beam Width** | B6+ as per IRC/EN12966 standards. | | |
| **9.** | **Pixel Pitch** | 12mm or better | | |
| **10.** | **Picture Display** | | | |
| d. | At least 300mm as per IRC /EN 12966 standards | | | |
| e. | Full Matrix: Number of lines & characters adjustable, active area: 2.88mX1.2m at least | | | |
| f. | Synchronized Dot to Dot display. | | | |
| a. | Capable of displaying real time message generated by Police Command Centre. | | | |
| b. | Special frontal design to avoid reflection. | | | |
| c. | Display shall be UV resistant | | | |
| **11.** | **Viewing Angle** | B6+ as per IRC/EN12966 standard-Viewing angle shall ensure message readability for motorists in all lanes of the approach road | | |

| Sr. No. | Parameter | Description | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| **12.** | **Viewing Distance** | Suitable for readability from 150 Metres or more at the character size of 240mm, from moving vehicles. | | |
| **13.** | **Self-Test** | | | |
| a. | VMS shall have self-test diagnostic feature to test for correct operation. | | | |
| b. | Display driver boards shall test the status of all display cells in the sign even when diodes are not illuminated. | | | |
| c. | All periodic self-test results shall be relayed to the Police Command Centrein real time to update the status of the VMS | | | |
| **14.** | **Alarms** | | | |
| a. | Door Open sensor to Inform Control room during unauthorized access | | | |
| b. | LED Pixel failure detection alarm | | | |
| **15.** | **Flicker** | Refresh Frequency should not be less 90 Hz.No visible flicker to naked eye. | | |
| **16.** | **Multiple Data Communication interface/Port** | RJ45 Ethernet, RS232, RS 485, FC port and any other suitable | | |
| **17.** | **Communication (connectivity)** | Wired & GPRS based wireless technology with 3G upgradable to 4G capability. | | |
| **18.** | **Ambient Operating Temperature** | The system should be capable of working in ambient temperature range of $0^{o}$C to $55^{o}$C. | | |
| **19.** | **Humidity (RH)** | Operating ambient humidity: 10% - 95% Rh or better. | | |
| **20.** | **Protection against Pollution/dust/water** | Complete VMS should be of IP 65 protection level from front and IP54 from side and rear.As per EN60529 or equivalent Standard. | | |
| **21.** | **Power** | | | |
| a. | 170-250V AC (more than 90% power factor) or DC as per equipment requirement. | | | |
| b. | Protection for overvoltage/ fluctuation/drop of the nominal voltage (50%) shall be incorporated. | | | |

| Sr. No. | Parameter | Description | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| c. | The enclosure shall contain at least two 15 Amp VAC (industrial grade) outlet socket for maintenance purpose. | | | |
| **22.** | **Power Back-up & its enclosure** | UPS for two hour power back-up with auto switching facility. The enclosure of UPS and battery should be pole mountable with IP 65 protected housing and lockable. | • | • |
| **23.** | **Material for VMS frame** | At least 2mm aluminium or Non-corrosive, water resistant or better. Frame of the VMS should be black & Powder coated. | | |
| **24.** | **Mounting,Installation and finishes** | | | |
| a. | Mounting structure shall use minimum 6Mtrs. High Cylindrical GI Pole (Class B) or suitable structure with 5.5 meters minimum vertical clearance under the VMS sign from the Road surface. | | | |
| b. | The mounting shall be capable of withstanding road side vibrations at site of installation. | | | |
| c. | It shall be provided with suitable walkway for maintenance access. | | | |
| d. | The side's interior and rear of enclosures shall be provided in maintenance free natural aluminium finish.All enclosure shall be flat and wipe clean. | | | |
| e. | Rugged locking mechanism should be provided for the onsite enclosures and cabinets. | | | |
| f. | For Structural safety, the successful bidder has to provide structural safety certificate from qualified structural engineers approved/ certified by Govt. Agency. | | | |
| **25.** | **Wind Load** | WL9 as per EN12966 to withstand high wind speeds and its own load. | | |
| **26.** | **Cabling, connections and Labelling.** | | | |
| a. | All cable conductors shall be of ISI marked for quality and safety.It shall be of copper insulated, securely fastened, grouped, wherever possible, using tie warps approximately every 10-20 cm. or cable trays. | | | |
| b. | All connections shall be vibration-proof quick release connections except for power cables terminating in terminal blocks, which shall be screwed down. | | | |
| c. | All terminal block shall be made from self-extinguishing materials.Terminations shall be logically grouped by function and terminals carrying power shall be segregated from control signal terminals. | | | |

| Sr. No. | Parameter | Description | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| d. | All cables shall be clearly labelled with indelible indication that can clearly be identified by maintenance personnel using "As built: drawings". | | | |
| e. | Lightening arrester shall be installed for safety on each VMS. | | | |
| f. | The successful bidder has to provide safety certificate from qualified Electrical engineers approved/certified by Govt. Agency. | | | |
| **27.** | **Local Storage in VMS** | Embedded VMS controller should be capable to store at least 100 messages and symbols/pictograms to allow display to run in isolated mode on a predefined structures/timings, in case of connectivity failure. | | |

*4.19.13 FRS for ANPR*

The ANPR System shall enable monitoring of vehicle flow at strategic locations. The system shall support real-time detection of vehicles at the deployed locations, recording each vehicle, reading its number plate, database lookup from central server and triggering of alarms/alerts based on the vehicle status and category as specified by the database. The system usage shall be privilege driven using password authentication.

| # | Description | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|
| **1.** | **Make** | <to be provided by the bidder> | |
| **2.** | **Model** | <to be provided by the bidder> | |
| **3.** | **Vehicle Detection by Colour**<br>• The system shall detect the colour of all vehicles in the camera view during daytime and label them as per the predefined list of configured system colours. The system will store the colour information of each vehicle along with the license plate information for each transaction in the database.<br>• The system shall have options to search historical records for post event analysis by the vehicle colour or the vehicle colour with license plate and date time combinations | | |
| **4.** | **Alert Generation**<br>• The system should have option to input certain license plates according to the hot listed categories like "Wanted", "Suspicious", "Stolen", etc. by authorized personnel.<br>• The system should be able to generate automatic alarms to alert the control room personnel for further action, in the event of detection of any vehicle falling in the hot | | |

| # | Description | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|
| | listed categories. | | |
| **5.** | **Vehicle Status Alarm Module**<br>• On successful recognition of the number plate, system should be able generate automatic alarm to alert the control room for vehicles which have been marked as "Wanted", "Suspicious", "Stolen", "Expired". (System should have provision/expansion option to add more categories for future need).<br>• The Instantaneous and automatic generation of alarms. In case of identity of vehicle in any category which is define by user. | | |
| **6.** | **Vehicle Log Module**<br>• The system shall enable easy and quick retrieval of snapshots, video and other data for post incident analysis and investigations.<br>• The system should be able to generate suitable MIS reports that will provide meaningful data to concerned authorities and facilitate optimum utilization of resources. These reports shall include.<br>o Report of vehicle flow at each of the installed locations for Last Day, Last Week and Last Month.<br>o Report of vehicles in the detected categories at each of the installed locations for Last Day, Last Week and Last Month.<br>o Report of Vehicle Status change in different Vehicle Categories.<br>• The system shall have Search option to tune the reports based on license plate number, date and time, site location as per the need of the authorities.<br>• The system shall have option to save custom reports for subsequent use. The system shall have option to export report being viewed to common format for use outside of the ANPRS or exporting into other systems.<br>• The system should provide advanced and smart searching facility of License plates from the database. There should be an option of searching number plates almost matching with the specific number entered (up to 1 and 2 character distance) | | |
| **7.** | **Vehicle Category Editor**<br>• The system should have option to input certain license plates according to category like "Wanted", "Suspicious", and “Stolen", “Expired" etc. by Authorized personnel.<br>• The system should have an option to add new category by authorized personnel.<br>• The system should have option to update vehicle status in specific category by authorized personnel e.g. on retrieval of stolen vehicle, system entry should be changed from "Stolen" to "Retrieved".<br>• System should have option to specify maximum time to retain vehicle records in specific categories. | | |

| # | Description | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|
| **8.** | **Central Management Module**<br>• The Central Management Module shall run on the ANPRS Central Server in control booth. It should be possible to view records and edit hotlists from the Central Server.<br><br>**ANPR Specification**<br>• Base Specification of Fixed Box Cameras (Section 5.2.2.2 of Annexure I) must be part of the ANPR specifications.<br><br>**Camera Housing**<br>• IP66 standard with sunshield vandal proof Housing | | |
| **9.** | **Systems requirement**<br>• **Local Server at Intersection:** The system must run on a Commercial off the Shelf Server (COTS). Outdoor IP 66 Quad core processor based server should be able to cover at least 8 lanes. Temperature rating of the server should be at least 60 degree.<br>• **Operating system:** The system must be based on open platform and should run on Linux or windows Operating system.<br>• **Workstation:** Workstation must run on latest available OS. | | |

*4.19.14 FRS for RLVD*

| # | Description | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|
| **1** | **Make** | <to be provided by the bidder> | |
| **2** | **Model** | <to be provided by the bidder> | |
| **3** | **General** | | |
| a. | The following Traffic violations to be automatically detected by the system by using appropriate Non-Intrusive sensors technology: The system should have both provisions to detect red light status by taking the signal feed from the traffic signal controller as well as by video analytics method using another camera (Evidence Camera) focused at the red light. The Evidence camera should also be used for evidence snap generation.<br><br>a) Red Light Violation<br><br>b) Stop Line Violation | | |

| # | Description | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|
| b. | The system should be capable of capturing multiple infracting vehicles simultaneously in Different lanes on each arm at any point of time with relevant infraction data like:<br><br>a) Type of Violation<br><br>b) Date, time, Site Name and Location of the Infraction<br><br>c) Registration Number of the vehicle through ANPR Camera system for each vehicle identified for infraction. | | |
| c. | The system should be equipped with a camera system to record a digitized image and video of the violation, covering the violating vehicle with its surrounding and current state of signal (Red/Green/Amber) by which the system should clearly show nature of violation and proof thereof :-<br>a) When it violates the stop line.<br><br>b) When it violates the red signal.<br><br>c) Besides, a closer view indicating readable registration number plate patch of the violating vehicle for court evidence for each violation.<br><br>The system must have in-built tool to facilitate the user to compose detail evidence by stitching video clips from any IP camera in the junction (including but not limited to the red light violation detection camera, evidence camera), and any other surveillance cameras in the vicinity of the spot of incidence. The entire evidence should be watermarked and encrypted to stand the court of law. | | |
| d. | The system shall be able to detect all vehicles infracting simultaneously in each lane/ arm at the junction as per locations provided. It should also be able to detect the vehicles infracting serially one after another in the same lane. The vehicles should be clearly identifiable and demarcated in the image produced by the camera system. | | |
| e. | The Evidence image produced by the system should be wide enough to give the exact position of the infracting vehicles with respect to the stop line and clearly indicate colour of the Traffic light at the instant of Infraction even if any other means is being used to report the colour of the light. | | |
| f. | The system should interface with the traffic controller to validate the colour of the traffic signal reported at the time of Infraction so as to give correct inputs of the signal cycle. | | |

| # | Description | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|
| g. | The Evidence and ANPR camera should continuously record all footage in its field of view to be stored at the local base station. This should be extractable onto a portable device as and when required. The option of live viewing of evidence cameras from the locations shall be available at the TMC. The network should have the capability to provide the real time feed of the evidence camera to the TMC at the best resolution possible on the available network. | | |
| h. | The system shall be equipped with IR Illuminator to ensure clear images including illumination of the Number Plate and capture the violation image under low light conditions and night time. | | |
| **4** | **Recording & display information archive medium** | | |
| a. | The recording and display of information should be detailed on the snapshot of the infracting vehicle as follows: | | |
| b. | Computer generated unique ID of each violation | | |
| c. | Date (DD/MM/YYYY) | | |
| d. | Time (HH:MM:SS) | | |
| e. | Equipment ID | | |
| f. | Location ID | | |
| g. | Carriageway or direction of violating vehicle | | |
| h. | Type of Violation (Signal/Stop Line) | | |
| i. | Lane Number of violating vehicle | | |
| j. | Time into Red/Green/Amber | | |
| k. | Registration Number of violating vehicle | | |
| **5** | **On site-out station processing unit communication & Electrical Interface** | | |
| a. | The system should automatically reset in the event of a program hang up and restart on a button press. However the system should start automatically after power failure. | | |
| b. | The system should have secure access mechanism for validation of authorised personnel. | | |
| c. | Deletion or addition and transfer of data should only be permitted to authorised users. | | |
| d. | A log of all user activities should be maintained in the system. | | |
| e. | Roles and Rights of users should be defined in the system as per the requirements of the client | | |

| # | Description | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|
| f. | All formats of the stored data with respect to the infractions should be Non Proprietary. | | |
| g. | The communication between the on-site outstation processing unit housed in the junction box and the detection systems mounted on the cantilever shall be through appropriate secured technology. | | |
| h. | The system should have the capability to transfer the data to Police Command Centrethrough proper encryption in real time and batch mode for verification of the infraction and processing of challan. Call forwarding architecture shall be followed to avoid any data loss during transfer. | | |
| i. | In the event that the connectivity to the TCC is not established due to network/connectivity failures, then all data pertaining to the infraction shall be stored on site and will be transferred once the connectivity is re-established automatically. There shall also be a facility of physical transfer of data on portable device whenever required. There should be a provision to store minimum **one week** of data at each site on a 24x7 basis. | | |
| **6** | **Mounting structure** | | |
| a. | Should be cantilever mounted and shall have minimum 6 meters height with appropriate vertical clearance under the system from the Road surface to ensure no obstruction to vehicular traffic. | | |
| b. | It should be capable to withstand high wind speeds and for structural safety, the successful bidder has to provide structural safety certificate from qualified structural engineers approved/ certified by Govt. Agency. | | |
| c. | It shall be painted with one coat of primer and two coats of PU paint. The equipment including poles, mountings should have an aesthetic feel keeping in mind the standards road Infrastructure (e.g. Poles, Navigation boards etc.) currently installed at these locations. The equipment should look “one” with the surroundings of the location and not look out of place. | | |
| d. | Rugged locking mechanism should be provided for the onsite enclosures and cabinets. | | |
| **7** | **RLVD Application** | | |
| a. | It should be capable of importing violation data for storage in database server which should also be available to the Operator for viewing and retrieving the violation images and data for further processing. The programme should allow for viewing, sorting, transfer & printing of violation data. | | |

| # | Description | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|
| b. | It should generate the photograph of violations captured by the outstation system which include a wider view covering the violating vehicle with its surrounding and a closer view indicating readable registration number plate patch of the violating vehicle or its web link on notices for court evidence. | | |
| c. | All outstation units should be configurable using the software at the Central Location. | | |
| d. | Violation retrieval could be sorted by date, time, location and vehicle registration number and the data structure should be compatible with Raipur Police database structure. It should also be possible to carry out recursive search and wild card search. | | |
| e. | The operator at the back office should be able to get an alarm of all fault(s) occurring at the camera site (e.g. sensor failure, camera failure, failure of linkage with traffic signal, connectivity failure, Camera tampering, sensor tampering). | | |
| f. | The automatic number plate recognition Software will be part of the supplied system, Success rate of ANPR will be taken as 80% or better during the day time and 60% or better during the night time with a standard number plate. | | |
| g. | The application software should be integrated with the E Challan software for tracing the ownership details of the violating vehicle and issuing/printing notices. Any updates of the software (OS, Application Software including any proprietary software), shall be updated free of cost during the contract period by the MSI. | | |
| h. | Image zoom function for number plate and images should be provided. In case the number plate of the infracting vehicle is readable only through the magnifier then in such cases the printing should be possible along with the magnified image. | | |
| i. | Various users should be able to access the system using single sign on and should be role based. Different roles which could be defined (to be finalized at the stage of SRS) could be Administrator, Supervisor, Officer, Operator, etc. | | |
| j. | Apart from role based access, the system should also be able to define access based on location. | | |
| k. | Rights to different modules / Sub-Modules / Functionalities should be role based and proper log report should be maintained by the system for such access. | | |
| l. | Components of the architecture must provide redundancy and ensure that there are no single points of failure in the key project components. Considering the high sensitivity of the system, design shall be in such a way as to be resilient to technological sabotage. To take care of remote failure, the systems need to be configured to | | |

| # | Description | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|
| | mask and recover with minimum outage. | | |
| m. | The architecture must adopt an end-to-end security model that protects data and the infrastructure from malicious attacks, theft etc. Provisions for security of field equipment as well as protection of the software system from hackers and other threats shall be a part of the proposed system. Using Firewalls and Intrusion detection systems such attacks and theft shall be controlled and well supported (and implemented) with the security policy. The virus and worms attacks shall be well defended with Gateway level Anti-virus system, along with workstation level Anti-virus mechanism. There shall also be an endeavour to make use of the SSL/VPN technologies to have secured communication between Applications and its end users. Furthermore, all the system logs shall be properly stored & archived for future analysis and forensics whenever desired. | | |
| n. | The evidence of Infraction should be encrypted and protected so that any tampering can be detected. | | |
| o. | Ease of configuration, ongoing health monitoring, and failure detection are vital to the goals of scalability, availability, and security and must be able to match the growth of the environment. | | |
| p. | System shall use open standards and protocols to the extent possible and declare the proprietary software wherever used. | | |
| q. | The user interface should be user friendly and provide facility to user for viewing, sorting and printing violations. The software should also be capable of generating query based statistical reports on the violation data. | | |
| r. | The data provided for authentication of violations should be in an easy to use format as per the requirements of user. | | |
| s. | User should be provided with means of listing the invalid violations along with the reason(s) of invalidation without deleting the record(s). | | |
| t. | Basic image manipulation tools (zoom etc.) should be provided for the displayed image but the actual recorded image should never change. | | |
| u. | Log of user actions be maintained in read only mode. User should be provided with the password and ID to access the system along with user type (admin, user). | | |

| # | Description | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|
| v. | Image should have a header/footer depicting the information about the site IP and violation details like date, time, equipment ID, location ID, Unique ID of each violation, lane number, registration. Number of violating vehicle and actual violation of violating vehicle etc. so that the complete lane wise junction behaviour is recorded including (Red Light violation and Stop Line Violation) | | |
| w. | Number plate should be readable automatically by the software/interface. There should be user interface for simultaneous manual authentication / correction and saving as well. | | |
| x. | Interface for taking prints of the violations (including image and above details). | | |

*4.19.15 Specifications for Traffic Control System*

**A) Traffic Control- Traffic Sensor**

Appropriate camera based traffic sensors may be chosen to provide the operational levels and accuracy as required for successful function of the system as per the SLAs defined.

**B) Traffic Control- Traffic Controller**

Appropriate controller technology may be chosen to provide the operational levels and accuracy as required for successful function of the system as per the SLAs defined. The proposed traffic controller shall be disabled friendly and shall also provide audio tones output.

**C) Traffic Control- Traffic Light Aspects**

| Sr. No. | Description | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|
| **1.** | **Make** | <to be provided by the bidder> | |
| **2.** | **Model** | <to be provided by the bidder> | |
| **3.** | **Key Features:** | | |
| a. | lowest power consumption for all colours, maximum 8 watts for each colour | | |
| b. | Meets or exceeds intensity, colour and uniformity specifications | | |
| c. | Temperature compensated power supplies for longer LED life | | |
| d. | Uniform appearance light diffusing | | |
| e. | Should be Intertek/ETL/EN compliant | | |
| f. | All units operate at voltage of- 12 / 24 volts DC | | |
| g. | LED shall be single source narrow beam type with clear lens & Luminance uniformity of 1:15 | | |
| h. | Pedestrian traffic lights should be provided with clearly audible signals for the benefit of pedestrians with visual | | |

| Sr. No. | Description | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|
| | impairments | | |
| i. | Phantom Class 5 or equivalent. IP Rating: IP65 | | |
| **4.** | **LED aspects:** | | |
| a. | Red, Amber, Green-Full (300 mm diameter) : Hi Flux | | |
| b. | Green-arrow (300 mm diameter): Hi flux | | |
| c. | Animated Pedestrian-Red and Green Animated c/w countdown (300 mm) Hi Brite with diffusions | | |
| **5.** | **LED Retrofit Specifications:** | | |
| a. | Power supply:230 Vac +/- 10% and frequency 50+/-5Hz | | |
| b. | Standards: EN 12368 compliant | | |
| c. | Convex Tinted Lens: Available | | |
| d. | Fuse and Transients: Available | | |
| e. | Operating Temperature Range: 0 degree Celsius to 55 degree Celsius<br>Turn Off/Turn On Time: 75 mili-seconds max | | |
| f. | Total Harmonic Distortion: <20% | | |
| g. | Electromagnetic interference: Meets FCC Title 47,Subpart B, Section 15 Regulation or equivalent EN/IRC standard | | |
| h. | Blowing Rain/Dust Spec: MIL 810For Equivalent EN/IRC standard complaint | | |
| i. | Minimum Luminous Intensity (measured at intensity point)(cd): Red 400 | | |
| j. | Amber 400 | | |
| k. | Green 400 | | |
| l. | Dominant Wavelength (nm): Red 630<br>Amber 590 | | |
| m. | Green 490 | | |
| n. | Lamp conflict compatibility system: Compatible with lamp failure and conflict detection | | |

**D) Countdown Timer**

| # | Parameters | Minimum Specifications | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| **1.** | **Make** | <to be provided by the bidder> | | |
| **2.** | **Model** | <to be provided by the bidder> | | |
| **3.** | **CPU** | **Micro Controller** | | |
| **4.** | **Mechanical Specifications** | | | |
| A | Structural Material | Polycarbonate strengthened against UV rays | | |
| B | Body Colour | Light Grey/Black | | |

| # | Parameters | Minimum Specifications | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| C | Dimensions | 360mm x 370mm x 220mm | | |
| **5.** | **Display Specification** | | | |
| A | Lamp Diameter | 300mm | | |
| B | Digit Height | 150 -165mm | | |
| C | Display Type | Dual Coloured (Red & Green) | | |
| D | No. of Digit | 3 | | |
| **6.** | **LED Specifications** | | | |
| A | LED Diameter | 5mm LED | | |
| B | Viewing Angle | 30° | | |
| C | LED Wave Length | 630-640nm (Red), 505nm - 520nm (Blue-Green) | | |
| D | LED Dice Material | AIInGap (Red), InGaN (Blue-Green) | | |
| E | LED Warranty period | 5 years | | |
| **7.** | **Technical Features** | | | |
| A | Power Consumption | 20 - 30 Watt Per Lamp | | |
| B | Input Power | 85-260V AC, 50Hz | | |
| C | Operating Temperature | -20 to + 60 °C | | |
| D | Humidity | 0% to 95% Relative Humidity | | |
| E | Water & Dust Ingress | IP 65 | | |
| F | Standard | En12966 Compliant | | |

**E) Poles for Traffic Signals**

**F) Cables for Traffic Signals**

| Sr. No | Component | Minimum Specifications | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| **1.** | **Make** | <to be provided by the bidder> | | |

| | | | | |
|---|---|---|---|---|
| **2.** | **Model** | <to be provided by the bidder> | | |
| **3.** | Material | GI Class 'B' pipe | | |
| **4.** | Paint | Pole painted with two coats of zinc chromate primer and two coats of golden yellow Asian apostolate paint or otherwise as required by architect and in addition bituminous painting for the bottom 1.5 m portion of pole. | | |
| **Sr. No** | **Component** | **Minimum Specifications** | **Bidder Compliance (Yes/No)** | **Product Documentation Reference** |
| 1. | **Make** | <to be provided by the bidder> | | |
| 2. | **Model** | <to be provided by the bidder> | | |
| **3.** | No's of core | 7 and 14 core 1.5 sq. mm. 3 Core 2.5 sq. mm. | | |
| **4.** | Materials | PVC insulated and PVC sheathed armoured cable with copper conductor of suitable size as specified in BOQ. | | |
| **5.** | Certification | ISI Marked | | |
| **6.** | Standards | Indian Electricity Act and Rules | | |
| A. | IS:1554 | PVC insulated electric cables (heavy duty) | | |

*4.19.16 FRS for Traffic Management System*

| **Sr. No.** | **Description** | **Bidder Compliance (Yes/No)** | **Product Documentation Reference** |
|---|---|---|---|
| **1** | **Make** | <to be provided by the bidder> | |
| **2** | **Model** | <to be provided by the bidder> | |
| **3** | **General** | | |
| a. | Offer traffic signal optimizing functionalities, use data from vehicle detectors and optimize traffic signal settings resulting improved vehicle delays and stops. The system shall also allow interconnecting individual area controllers and thus enabling traffic monitoring and regulating functionality from the central location. | | |
| b. | Monitor and control traffic signals, including signalized pedestrian crossings, using a traffic responsive strategy based on real time traffic flow and vehicle presence information. | | |
| c. | All junctions shall be provided vehicle detection system & communication equipment. This shall allow each intersection | | |

| Sr. No. | Description | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|
| | controller to be monitored from central control for proper functionality. Any corrective action can be initiated either automatically based on status information or by an operator. The real-time detection data shall be communicated to the central control station by each controller. | | |
| d. | Shall be driven by a central control system, on real time basis, with the capacity to calculate the optimal cycle times, effective green time ratios, and change intervals for all system traffic signal controllers connected to it which in turn can also work in configurable manner. These calculations shall be based upon assessments carried out by the central application software running on a City Operation Centre based on the data and information gathered by vehicle detectors at strategic locations at the intersections controlled by the system | | |
| e. | Health Monitoring should be available for the traffic lights with Auto / manual / centralized manual mode of controller, Flash mode or normal mode, Power interruption, Intrusion in controller, Aspect monitoring of traffic lights. | | |
| f. | The solution should include following minimum reports:<br><br>a. Stage Timing report<br><br>b. Cycle Timing report<br><br>c. Stage switching report<br><br>d. Cycle Time switching report<br><br>e. Mode switching report<br><br>f. Event Report<br><br>g. Power on & down<br><br>h. Intensity Change<br><br>i. Plan Change<br><br>j. RTC Failure<br><br>k. Time Update<br><br>l. Mode Change<br><br>m. Lamp Status Report<br><br>n. Loop Failure Report<br><br>o. Corridor Performance Report | | |

| Sr. No. | Description | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|
| | p. Corridor Cycle Time Report | | |
| g. | Traffic sensors include intrusive detectors like Inductive Loop Detectors, Magnetometers, or non-intrusive detectors such as microwave detectors, or any other kind of detectors to suit the need. The detectors should provide a standard open contact interface to the traffic controller to provide vehicle presence data. | | |
| h. | Implement SCOOT (Split Cycle & Offset Optimization Techniques), CoSiCoSt (Composite Signal Control Strategy) or a dynamic signal timing plan selection system using real-time detector data. | | |
| i. | Centralized user interface accessible from the control room, and it should support remote manual operation of traffic signals from the control room. In addition, the ATMS software should support selective vehicle (fire engines, ambulances and VIP vehicles) priority at traffic signals using GPS data. | | |
| j. | Communication between ATMS and traffic signal controllers on street should use industry standard protocols such as UTMC/UG405, OCIT or NTCIP. | | |
| k. | Historic data warehouse for aggregated traffic detector data and signal timing data. | | |
| l. | Integrated with Variable Message Signs (VMS), thereby enabling seamless operation of all ITS components on-street. | | |
| m. | Software should also have functionality to input and manage information about planned events and unplanned incidents and should have the ability to disseminate information about such events through Variable Message Sign Board (VMS) and mobile channels. The system should provide such information to mobile applications using industry standard protocols such as TPEG (tpegML), UTMC XML or Datex-II. | | |
| n. | Aggregate fault data from on-street ITS components and the ability to track fault status by operational staff till the fault is resolved. | | |
| o. | Traffic Light Aspects –<br><br>Key Features:<br><br>1. Lowest power consumption for all colours<br><br>2. Meets or exceeds intensity, colour and uniformity specifications<br><br>3. Temperature compensated power supplies<br><br>4. Uniform appearance light diffusing<br><br>5. ITE products shall be Intertek/ETL/EN/Equivalent certified | | |

| Sr. No. | Description | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|
| | 6. All units operate on AC or DC as the per the suggested solution by Implementing Agency<br><br>LED aspects:<br><br>1. Red, Amber, Green-Full (300 mm diameter): Hi Flux<br><br>2. Red, Amber, Green-arrow (300 mm diameter): Hi flux<br><br>3. Red, Green-Pedestrian (300 mm diameter): Hi Flux and Hi Brite<br><br>4. Animated Pedestrian-Red and Green Animated c/w countdown (200 mm) Hi Brite with diffusions<br><br>LED Retrofit Specifications, if required:<br><br>1.Power supply: 230 Vac *10% and frequency 50*5Hz<br><br>2. Standards: EN 12368 complaint<br><br>3. Convex Tinted Lens: Available<br><br>4. Fuse and Transients: Available<br><br>5. Operating Temperature Range: 0 degree Celsius to 60 degree Celsius<br><br>6. Turn Off/Turn On Time: max 75 mili seconds<br><br>7. Total Harmonic Distortion: <20%<br><br>8. Electromagnetic interference: Meets FCC Title 47, Subpart B, Section 15 Regulation or equivalent EN/IRC standard<br><br>9. Blowing Rain/Dust Spec: MIL 810F complaint or equivalent EN/IRC standard<br><br>10. Minimum Luminous Intensity (measured at intensity point)(nm): Red 250, Amber 250, Green 250<br><br>11. Dominant Wavelength (nm): Red 630, Amber 590, Green 490<br><br>12. Lamp conflict compatibility system: Compatible with lamp failure and conflict detection | | |
| p. | Meet all requirements as per the Indian Roads Congress (IRC) | | |
| q. | Micro-controller based | | |
| r. | Calendar Clock (RTC) with battery backup and clock accuracy synchronized with central server, 10 year backup | | |
| s. | USB / RJ45 wired / wireless / RS232 Secured connectivity | | |

| Sr. No. | Description | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|
| t. | Police Panel<br><br>The controller shall provide the following facilities in a separate panel with provision for lock and key arrangements for use by the Traffic Police.<br><br>• Four Hurry Call switches: The Hurry Call mode will provide the means to force the controller to a defined stage, without violating safety clearances. A pre-emption input may be used to demand the Hurry Call mode to give right of way to emergency vehicles. It should be possible to configure the Hurry Call switches to any stage as per site requirements.<br><br>• One Forced Flash Switch: Activation of this switch should force the signal to Flashing Amber / Flashing Red.<br><br>• One Auto / Manual Switch: Activation of this switch should enable manual operation of the controller. Deactivation of the manual switch shall continue from the current stage without interruption.<br><br>• One Manual Advance Pushbutton Switch: In manual operation mode, the stages appear in the sequence specified in the signal plan timetable. Activating the pushbutton switch shall terminate the currently running stage and start the next, without violating safety clearances.<br><br>•  One Junction OFF Switch: Activating this switch should put OFF all signal lamps. On deactivation of the switch the traffic signal controller shall resume its normal operation without violating any safety clearances. | | |
| u. | Stages – The controller shall have facility to configure 32 Stages.<br><br>• Cycle Plans – The controller shall have facility to configure 24 Cycle Plans and the Amber Flashing / Red Flashing plan. It shall be possible to define different stage switching sequences in different cycle plans. The controller shall have the capability for a minimum of 32 cycle-switching per day in fixed mode of operation.<br><br>• Day Plans – The controller shall have facility to configure each day of the week with different day plans. It shall also be possible to set any of the day plans to any day of the week. The controller shall have the capability to configure 20 day plans.<br><br>• Special Day Plans – The controller shall have facility to configure a minimum of 20 days as special days in a calendar year.<br><br>• Starting Amber – During power up the controller shall initially execute the Flashing Amber / Flashing Red plan for a time period of 3 Seconds to 10 Seconds. The default value of this Starting Amber is 5 Seconds. Facility shall be available to | | |

| Sr. No. | Description | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|
| | configure the time period of Starting Amber within the given limits at the site.<br><br>• Inter-green – Normally the inter-green period formed by the clearance Amber and Red extension period will be common for all stages. However, the controller shall have a facility to program individual inter-green period from 3 Seconds to 10 Seconds.<br><br>• Minimum Green – The controller shall allow programming the Minimum Green period from 5 Seconds to 10 Seconds without violating the safety clearances. It should not be possible to pre-empt the Minimum Green once the stage start commencing execution.<br><br>• All Red – Immediately after the Starting Amber all the approaches should be given red signal for a few seconds before allowing any right of way, as a safety measure. The controller shall have programmability of 3 Seconds to 10 Seconds for All Red signal.<br><br>• Signal lamps monitoring – The controller shall have inbuilt circuitry to monitor the lamp status<br><br>• Green – Green Conflict Monitoring – The controller shall have a facility to list all conflicting phases at an intersection. The controller should not allow programming of these conflicting phases in a Stage. A hardware failure leading to a conflict condition (due to faulty devices or short circuit in the output) shall force the signal into Flashing Amber / Flashing Red.<br><br>• Cable less Synchronization – It shall be possible to synchronize the traffic signal controllers installed in a corridor in the following modes of operation, without physically linking them and without communication network. GPS enabled RTC shall be the reference for the cable less synchronization.<br><br>o Fixed Time mode with fixed offsets<br><br>o Vehicle Actuated mode with fixed offsets | | |
| v. | Power Saving: Bidders are requested to propose appropriate energy saving mechanisms and approaches. The traffic signal controller shall have a facility to regulate the intensity of signal lamps during different ambient light conditions. | | |
| w. | A mobile app/ website should be developed informing citizens / officials of traffic density at various locations where traffic cameras have been installed.<br><br>The Website shall be linked with website being prepared for Ujjain Smart City Limited.<br><br>The Mobile App shall be linked with the on-going one-App / | | |

| Sr. No. | Description | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|
| | Mobile Apps being prepared for Ujjain Smart City Limited.<br><br>The directions and guidelines of User Interface / UX as applicable for existing mobile apps shall be followed to ensure seamless integration.<br><br>Co-operation and co-ordination with existing vendors for Mobile App and Website is required. | | |

*4.19.17 Specification for Vehicle Detector*

| Sr. No. | Description | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|
| **1** | **Make** | <to be provided by the bidder> | |
| **2** | **Model** | <to be provided by the bidder> | |
| **3** | **General** | | |
| a. | Count vehicles at each arm of the traffic junctions through an Object Detector | | |
| b. | Indicate the presence of vehicles and shall use to influence the operation of the traffic signal controller and shall generate counts, demands and extensions for right-of-way. | | |
| c. | Specify the placement of the detector (upstream, downstream, stop-line, exit etc.) | | |
| d. | Able to count vehicles in non-lane based mixed traffic flow conditions and differentiate between different vehicle types (two-wheeler, three-wheeler, car, HGV, etc.). | | |
| e. | give an estimate of the total number of vehicle presence detection zones and vehicle detectors required and the type of detection system recommended | | |
| f. | A detector that does not change its status at least once during a stage execution shall be notified to the Central Computer (in Automated mode) at the termination of the associated stage. | | |

*4.19.18 Specification for Blinker Light*

| Sr. No. | Description | Bidder Compliance(Yes/No) | Product Documentation Reference |
|---|---|---|---|
| **1** | **Make** | <to be provided by the bidder> | |
| **2** | **Model** | <to be provided by the bidder> | |
| **3** | **General** | | |
| g. | LED – Super Bright | | |
| h. | Housing Standard Moulded - 300mm<br><br>Housing & Hood Material Plastic-Poly Carbonate<br><br>Signal Head Aspect Single<br><br>Colour Aspect Amber<br><br>Lens for LED Kit Clear Lens<br><br>Blinking/Flashing Unit In-Built blinker unit to blink/flash as per requirement and adjustable.<br><br>LED High Luminous,5mm ,water clear super bright LEDs<br><br>LED Retrofit Dia. 300 mm<br><br>Wave Length -Typical Amber: 590 nm (±5nm)<br><br>LED Intensity Amber-8500mcd maximum. Light Brightness: ≥300cd<br><br>PIV Protection Reverse/over voltage protection for LED Chains | | |
| i. | Pole mounted, on island on right hand side of traffic direction or in any strategic location as applicable | | |
| j. | Solar Power System of 12 Volt DC with Solar Charger capable of taking load of one LED based Blinker light with battery charger. Mounting Frame for Solar panel supplied<br><br>Solar Power Panels SPV and (The panels in multiples of wattage-Wp modules) Chargeable Controller in-built. Micro controller based PWM charge regulator for Solar Power<br><br>Maintenance Free Battery (having back up for operating blinkerfor 24 Hours even in absence of Sun or during rainy or foggy days). | | |

| Sr. No. | Description | Bidder Compliance(Yes/No) | Product Documentation Reference |
|---|---|---|---|
| k. | • Material: Plastic Body (Plastic Polycarbonate)<br>• Size: 350 mm L X 350mm H (slim & sleek type)<br>• Hood: Sun Hood-plastic-polycarbonate<br>• Finish: Black -smooth finish/greyish black/textured<br>• Mounting: Pole Mounting<br>• Front: Polycarbonate unbreakable front lens | | |
| l. | MTBF >80000 Hours/10 years<br><br>MTTR 30 Minutes<br><br>Standard Guidance - BS EN 12368 complied. Our Traffic Lights are CE certified | | |

*4.19.19 Specification for Solar Power and Solar Power Backup – Optional based on Vendor Design*

| Sr. No. | Description | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|
| **1** | **Make** | <to be provided by the bidder> | |
| **2** | **Model** | <to be provided by the bidder> | |
| **3** | **General** | | |
| a. | Solar Panel – As required | | |
| b. | Batteries – SMF | | |
| c. | Panel Frame | | |
| d. | Solar charge controller Hybrid Type with Battery Charger for Charging Battery during No Sun days – complete automatic interchangeability, without Human Interface | | |

*4.19.20 FRS for Speed Violation Detection System*

| # | Description | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|

| # | Description | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|
| **1** | **Make** | <to be provided by the bidder> | |
| **2** | **Model** | <to be provided by the bidder> | |
| **3** | **General** | | |
| a. | The Speed Violations should be automatically detected by the system by using appropriate non-intrusive sensors technology. | | |
| b. | The system should be capable of capturing multiple infracting vehicles simultaneously in defined lanes at any point of time simultaneously with relevant infraction datalike:<br><br>a) Type of Violation<br><br>b) Speed of violating vehicle<br><br>c) Notified speed limit<br><br>d) Date, time, Site Name and Location of the Infraction<br><br>e) Registration Number of the vehicle through ANPR Camera system<br><br>for each vehicle identified for infraction | | |
| c. | The system should be equipped with a camera system to record a digitized image or video frames of the violation, covering the violating vehicle with its surrounding | | |
| d. | The system shall provide the No. of vehicles infracting simultaneously in each lane. The vehicles will be clearly identifiable and demarcated in the image produced by the camera system | | |
| e. | The system shall be equipped with IR Illuminator to ensure clear images including illumination of the Number Plate and capture the violation image under low light conditions and night time. | | |
| **4** | **Speed** | | |
| a. | Speed measurement may be made by using non-intrusive technology such as Radar/sensor/camera/virtual loop based or any other non-intrusive technology. CE and homologation certificate from Ministry of Traffic or equivalent department from respective country of origin, document authenticated by Indian Embassy (to authenticate that systems are legalized and tested for infractions to avoid legal issues) OR Certificate from internationally accredited metrology laboratories (approved for speed calibration) OR field test certificate/letter from reputed Indian R&D laboratory/agency under Government of India is acceptable | | |

| # | Description | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|
| **5** | **On site-out station processing unit communication & Electrical Interface** | | |
| a. | The system should automatically reset in the event of a program hang up and restart after power failure. | | |
| b. | The system should have secure access mechanism for validation of authorised personnel | | |
| c. | Deletion or addition and transfer of data should only be permitted to authorised users. | | |
| d. | A log of all user activities should be maintained in the system | | |
| e. | Roles and Rights of users should be defined in the system | | |
| f. | The data shall be transferred to the TCR in real time for verification of the infraction and processing of challan. | | |
| g. | In the event that the connectivity to the TCR is not established then all data pertaining to the infraction shall be stored on site and will be transferred once the connectivity is re-established automatically. | | |
| **6** | **Mounting structure** | | |
| a. | Should be cantilever mounted and shall have minimum 6 Metres. Height with appropriate vertical clearance under the system from the Road surface to ensure no obstruction to vehicular traffic. | | |
| b. | It should be capable to withstand high wind speeds and for structural safety, the successful bidder has to provide structural safety certificate from qualified structural engineers approved/ certified by Govt. Agency. | | |
| c. | Rugged locking mechanism should be provided for the onsite enclosures and cabinets. | | |
| **7** | **Speed Violation Application** | | |
| a. | It should be capable of importing violation data for the Operator for viewing and retrieving the violation images and data for further processing.The programme should provide for sort, transfer & print command. | | |
| b. | It should generate the photograph of violations captured by the outstation system which include a wider view covering the violating vehicle with its surrounding and a closer view indicating readable registration number plate patch of the violating vehicle or its web link on notices for court evidence. | | |
| c. | All outstation units should be configurable using the software at | | |

| # | Description | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|
| | the Central Location | | |
| d. | Violation retrieval could be sorted by date, time, location and vehicle registration number and data structure should be compatible with Ujjain Traffic Police database and Ujjain Transport department database structure. | | |
| e. | The operator at the back office should be able to get an alarm of any possible fault(s) at the camera site (outstand) (e.g. sensor failure, camera failure,failureof linkage with traffic signal, connectivity failure, Camera tampering , sensor tampering) | | |
| f. | The automatic number plate recognition Software may be part of the supplied system, or can be provided separately as add on module to be integrated with violation detection. a.) Success rate of ANPR will be taken as 80% or better during the day time and 60% or better during the night time on standard number plates. | | |
| g. | Image zoom function for number plate and images should be provided. Any updates of the software available, shall be updated free of cost during the contract period by the vendor and will integrate the same with existing application and database of Ujjain Traffic Police and Ujjain Transport department. | | |
| h. | The application software should be integrated with the notice branch software for tracing the ownership details of the violating vehicle and issuing/printing notices. | | |
| i. | Various users should be access the system using single sign on and should be role based. Different roles which could be defined (to be finalized at the stage if SRS) could be Administrator, Supervisor, Officer, Operator, etc. | | |
| j. | Apart from role based access, the system should also be able to define access based on location. | | |
| k. | Rights to different modules / Sub-Modules / Functionalities should be role based and proper log report should be maintained by the system for such access | | |
| l. | Important technical components of the architecture must support scalability to provide continuous growth to meet the growing demand of Ujjain Police. The system shall support vertical scalability so that depending on changing requirements from time to time, the system may be scaled upwards. There must not be any system imposed restrictions on the upward scalability. Main technological components requiring scalability are Storage, Bandwidth, Computing Performance (IT Infrastructure), Software / Application performance and advancement in proposed system features. | | |
| m. | The system shall also support horizontal scalability so that depending on changing requirements from time to time, the | | |

| # | Description | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|
| | system may be scaled horizontally. | | |
| n. | Components of the architecture must provide redundancy and ensure that are no single point of failures in the key project components. Considering the high sensitivity of the system, design shall be in such a way as to be resilient to technological sabotage. To take care of remote failure, the systems need to be configured to mask and recover with minimum outage. | | |
| o. | The architecture must adopt an end-to-end security model that protects data and the infrastructure from malicious attacks, theft, natural disasters etc. provisions for security of field equipment as well as protection of the software system from hackers and other threats shall be a part of the proposed system. Using Firewalls and Intrusion detection systems such attacks and theft shall be controlled and well supported (and implemented) with the security policy. The virus and worms attacks shall be well defended with Gateway level Anti-virus system, along with workstation level Anti-virus mechanism. There shall also be an endeavour to make use of the SSL/VPN technologies to have secured communication between Applications and its end users. Furthermore, all the system logs shall be properly stored & archived for future analysis and forensics whenever desired. | | |
| p. | Ease of configuration, ongoing health monitoring, and failure detection are vital to the goals of scalability, availability, and security and must be able to match the growth of the environment. | | |
| q. | System shall use open standards and protocols to the extent possible | | |
| r. | The user interface should be user friendly and provide facility to user for viewing, sorting and printing violations. The software should also be capable of generating query based statistical reports on the violation data. | | |
| s. | The data provided for authentication of violations should be in an easy to use format as per the requirements of user unit. | | |
| t. | User should be provided with means of listing the invalid violations along with the reason(s) of invalidation without deleting the record(s). | | |
| u. | Basic image manipulation tools (zoom etc.) should be provided for the displayed image but the actual recorded image should never change. | | |
| v. | Log of user actions be maintained in read only mode.User should be provided with the password and ID to access the system along with user type (admin, user). | | |
| w. | Image should have a header and footer depicting the information about the site IP and violation details like viz. date, time, | | |

| # | Description | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|
| | equipment ID, location ID, Unique ID of each violation, lane number, Registration Number of violating vehicle and actual violation of violating vehicle etc. so that the complete lane wise junction behaviour is recorded viz. (Speed of violating vehicle, notified speed limit, Speed Violation with Registration Number Plate Recognition facility. Number plate of cars, buses/HTVs should be readable automatically by the software/interface. There should be user interface for simultaneous manual authentication / correction and saving as well | | |
| x. | Number plate of cars, buses/HTVs should be readable automatically by the software/interface.There should be user interface for simultaneous manual authentication / correction and saving as well. | | |
| y. | Interface for taking prints of the violations (including image and above details). | | |

*4.19.21 FRS for E-Challan System Application*

The objective of the e-Challan application is as follows:

1. Issuing challan for traffic violations on a 24x7 basis.
2. Maintaining the details pertaining to all the activities of the Traffic circles/violations/violators.
3. Providing requisite structured/unstructured information to the traffic management officials as and when required.
4. Generating various statutory reports for the administrative use and functioning of the Traffic unit in matters of prosecution of violators and monitoring the functioning of field officers.
5. Integrating and networking the system with state-of-the-art hardware and application software for the Traffic Police to access and using the information in their day-to-day work.

| Sr. No. | Description | Bidder Compliance(Yes/No) | Product Documentation Reference |
|---|---|---|---|
| a. | The Challan generation module will be pre-integrated with the RLVD & Speed Violation Detection System. The Challan generating system will generate and print Challans for all the RLVD & Speed Violation events that are duly validated and checked by the operator. | | |
| b. | The Challan generating unit will be able to generate Challans in Hindi and English. The content of the Challan will be given by the Traffic Police department. | | |
| c. | Operator will have the option to filter the RLVD events based on the following criteria for generation of Challans: | | |
| d. | Number of violations by the same vehicle multiple times | | |

| | | | |
|---|---|---|---|
| | • For a particular category (e.g., 4-wheelers) of vehicles<br>• For a particular Thana<br>• Paid/Unpaid Challans<br>Ageing Analysis of Pending Challans | | |
| e. | Operator will have the option to mark the challan as PAID when the violator deposits the money against the challan. At the end of the day, the system should generate a report for the challans paid and the amount collected. | | |
| f. | The Challan generation system should have a provision to be integrated with the Traffic Police website so that the owner of the vehicle can view his challan details along with Evidence snaps by logging in to the website. | | |
| g. | Basic functional & technical features are mentioned herein below:<br>• Client/Server architecture<br>• User Friendly Graphical Interface<br>• Secured data communication & transfer<br>• Online & Offline integration with RTO/Motor Vehicle Department for fetching vehicle owner data<br>• VAHAN & SARATHI integration<br>• Role based user access<br>• Thick & Thin Client support<br>• Customizable Violation Types<br>• SMS/Email alert mechanism to inform violators/vehicle owners<br>• Multi-lingual Challan format support<br>• Sorting of challans by Thana/Junction<br>• Court Jurisdiction/ Traffic Police staff or Traffic Department<br>• Postal Information Module for dispatched/returned/refused etc.<br>• API support for integration with payment module & financial reconciliation of paid/unpaid challan<br>• API support for integrating with Traffic Police Website and City ICCC (if required)<br>• Compliance with Evidence Act & State MV Acts<br>• Digital signature supported<br>• Fault-Tolerant system<br>• Backup & Restore Mechanism<br>• Customizable MIS Reports | | |

| | | | |
|---|---|---|---|
| | • Export report & logs<br>• Development of Mobile App (Android and IOS) for Officers and Citizens to identify pending challans and enable payment through online payment gateways. | | |
| h. | The RLVD & Speed Violation Detection event based Challan generation system should be integrated with existing challan based system supplied by Handheld Device Based Spot Challan System Provider. Both the system should be able to integrate with each other in a duplex mode so that challan information is duly updated as a common database/repository. In case of spot challan of a violation using handled device, the Traffic police operator should get historical information of such violator such as past violations, earlier challan paid/unpaid etc. etc. | | |
| i. | The E-challan software should be supplied with a desktop or web client based payment collection application. The payment may be collected by cash/debit/credit card using 3rd party application/gateway however once the payment is made, the operator to input the payment information in this software against challan ID so that further MIS can be maintained. | | |
| j. | SMS / E-Mail | | |
| k. | App (iOS and Android) for Police / Citizen to check existing violations | | |
| l. | Online payment gatewayincluding website and Mobile App for payment of challan | | |

*4.19.22 PTZ Camera*

| # | **Parameters** | **Minimum Specifications or better** | **Bidder Compliance (Yes/No)** | **Product Documentation Reference** |
|---|---|---|---|---|
| 1. | **Make** | <to be provided by the bidder> | | |
| 2. | **Model** | <to be provided by the bidder> | | |
| 3. | Video Compression | H.264 | | |
| 4. | Video Resolution | 1920 X 1080 | | |
| 5. | Frame rate | Min.25 fps | | |
| 6. | Image Sensor | 1/3” OR ¼” Progressive Scan CCD / CMOS | | |
| 7. | Lens | Auto-focus, 4.3 - 129 mm (corresponding to 30x) | | |

| # | Parameters | Minimum Specifications or better | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| 8. | Minimum Illumination | Colour: 0.5 lux, B/W: 0.1 lux (at 30 IRE) | | |
| 9. | Day/Night Mode | Colour, Mono, Auto | | |
| 10. | S/N Ratio | ≥ 50Db | | |
| 11. | PTZ | Pan: 360° endless/continuous, 0.2 to 160°/s (auto), 0.2 to 100°/s (Manual)<br><br>Tilt: 90°, 0.2 to 100°/s (Auto), 0.2 to 40°/s (Manual)<br><br>30x optical zoom and 10x digital zoom<br><br>64 pre-set positions<br><br>Auto-Tracking<br><br>Pre-set tour | | |
| 12. | Auto adjustment + Remote Control of Image settings | Colour, brightness, sharpness, contrast, white balance, exposure control, backlight compensation, Gain Control, Wide Dynamic Range | | |
| 13. | Protocol | HTTP, HTTPS, FTP, RTSP, RTP, TCP, UDP, RTCP, DHCP, UPnP, QoS, IPV4, IPV6 | | |
| 14. | Security | Password Protection, IP Address filtering, User Access Log, HTTPS encryption | | |
| 15. | Operating conditions | 0 to 50°C (temperature), 50-90% humidity | | |
| 16. | Casing | NEMA 4X / IP-66 rated | | |
| 17. | Certification | UL/EN,CE,FCC | | |
| 18. | Local storage | Local storage-Minimum 64 GB Memory card in a Memory card slot. In the event of failure of connectivity to the central server the camera shall record video locally on the SD card automatically. After the connectivity is restored these recordings shall be automatically merged with the server recording such that no manual intervention is required to transfer the SD card based recordings to server. | | |
| 19. | IR | Internal/External. IR range should be 100 meters or better | | |

*4.19.23 Fixed Box / Bullet Cameras (Also to be used as evidence/context camera for RLVD purpose)*

| # | Parameter | Minimum Specifications or better | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| 1. | **Make** | <to be provided by the bidder> | | |
| 2. | **Model** | <to be provided by the bidder> | | |
| 3. | Video Compression | H.264 & MJPEG (Minimum 3 Streams) | | |
| 4. | Video Resolution | At least 4 Megapixels Camera | | |
| 5. | Frame rate | Min. 20 fps for H.264 & 15fps for MJPEG | | |
| 6. | Image Sensor | 1/3" Progressive Scan CCD / CMOS | | |
| 7. | Lens Type | Varifocal, C/CS Mount, IR Corrected Full HD | | |
| 8. | Lens# | Auto IRIS Vari Focal 5~50mm/ 8~50 mm/2.8~8mm, OR as per site condition | | |
| 9. | Minimum Illumination | Colour: 0.5 lux, B/W: 0.1 lux (at 30 IRE) | | |
| 10. | IR Cut Filter | Automatically Removable IR-cut filter | | |
| 11. | Day/Night Mode | Colour, Mono, Auto | | |
| 12. | S/N Ratio | ≥ 50 Db | | |
| 13. | Auto adjustment + Remote Control of Image settings | Colour, brightness, sharpness, contrast, white balance, exposure control, backlight compensation, Gain Control, Wide Dynamic Range (Min 120db) | | |
| 14. | Audio | Audio Capture Capability (G.711, G.726) | | |
| 15. | Local storage | Local storage-Minimum 64 GB Memory card in a Memory card slot. In the event of failure of connectivity to the central server the camera shall record video locally on the SD card automatically. After the connectivity is restored these recordings shall be automatically merged with the server recording such that no manual intervention is required to transfer the SD card based recordings to server. | | |
| 16. | Protocol | IPV4, IPV6, HTTP, HTTPS, FTP/SMTP, NTP, RTSP, RTP, TCP, UDP, RTCP, DHCP, UPnP, | | |

| # | Parameter | Minimum Specifications or better | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| | | QoS, ONVIF Profile S | | |
| 17. | Security | Password Protection, IP Address filtering, User Access Log, HTTPS encryption | | |
| 18. | Operating conditions | 0 to 50°C (temperature), 50 to 90% (humidity) | | |
| 19. | Intelligent Video | Motion Detection & Tampering alert | | |
| 20. | Alarm I/O | Minimum 1 Input &1 Output contact for 3rd part interface | | |
| 21. | Casing | NEMA 4X / IP-66 rated, IK10 | | |
| 22. | Certification | UL, CE,FCC | | |

*4.19.24 IR Illuminators*

The infrared illuminators are to be used in conjunction with the Fix Box / PTZ cameras specified above to enhance the night vision.

| Sr. No. | Parameter | Minimum Specifications or better | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| 1. | **Make** | <to be provided by the bidder> | | |
| 2. | **Model** | <to be provided by the bidder> | | |
| 3. | Range | Min. 120 meters, with adjustable beam angle from 20 to 40 deg to cover the complete field of view at specified locations. Minimum 48W Power Consumption IR when used with ANPR Camera and 80W when used with ANPR & Speed Detection Camera | | |
| 4. | Minimum Illumination | High sensitivity at Zero Lux | | |
| 5. | Power | Built In Photocell for Automatic on/off operation | | |
| 6. | Casing | IP-68 & IK10 rated | | |
| 7. | Operating conditions | -0° to 60°C | | |
| 8. | Certification | UL/EN/CE/FCC/IEC | | |
| 9. | Wavelength | 850nm | | |

### *4.19.25 Red Light Violation Detection Systems*

| Sr. No. | Parameter | Minimum Specifications or better | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| **1.** | **Make** | <to be provided by the bidder> | | |
| **2.** | **Model** | <to be provided by the bidder> | | |
| **3.** | **General** | | | |
| | The system should be capable of generating a video & minimum 3 snapshot in any of the standard industry formats (MJPEG, JPG, AVI, mp4, mov, etc.) with at least 10 frames per second. The video shall be from t-5 to t+5 sec of the violation and should also be recorded (being the instant at which the infraction occurred). | | | |
| **4.** | **Digital Network Camera for RLVD** | | | |
| a. | Video Compression | H.264 & MJPEG | | |
| b. | Video Resolution | 1920 X 1080 | | |
| c. | Frame rate | Min. 50 fps (PAL)/60 fps (NTSC) | | |
| d. | Image Sensor | /3" Progressive Scan CCD / CMOS | | |
| e. | Lens Type | Varifocal, C/CS Mount, IR Correction full HD lens | | |
| f. | Lens# | Auto IRIS<br><br>8~50mm /12 – 40 mm IR Corrected Lens or suitable lens as per requirement | | |
| g. | Minimum Illumination | Colour: 0.5 lux, B/W: 0.1 lux (at 30 IRE) | | |
| h. | IR Cut Filter | Automatically Removable IR-cut filter | | |
| i. | Day/Night Mode | Colour, Mono, Auto | | |
| j. | S/N Ratio | ≥ 50 Db | | |
| k. | Auto adjustment + Remote Control of Image settings | Colour, brightness, sharpness, contrast, white balance, exposure control, backlight compensation, Gain Control, Ture Wide Dynamic Range | | |

| Sr. No. | Parameter | Minimum Specifications or better | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| l. | Audio | Audio Capture Capability, G.711, G.726, AAC. External Microphone Input & Audio Output should be available | | |
| m. | Local storage | Local storage-Minimum 64 GB Memory card in a Memory card slot. In the event of failure of connectivity to the central server the camera shall record video locally on the SD card automatically. After the connectivity is restored these recordings shall be automatically merged with the server recording such that no manual intervention is required to transfer the SD card based recordings to server. | | |
| n. | Protocol | IPV4, IPV6, HTTP, HTTPS, FTP/SMTP, RTSP, RTP, TCP, UDP, RTCP, DHCP, UPnP, NTP, QoS, ONVIF Profile S | | |
| o. | Security | Password Protection, IP Address filtering, User Access Log, HTTPS encryption | | |
| p. | Operating conditions | 0 to 50°C (temperature), 50 to 90% (humidity) | | |
| q. | Casing | NEMA 4X / IP-68, IK10 rated | | |
| r. | Intelligent Video | Motion Detection & Tampering alert | | |
| s. | Alarm I/O | Minimum 1 Input &1 Output contact for 3rd part interface | | |
| t. | Certification | UL, CE,FCC | | |
| | **On site-out station processing unit communication & Electrical Interface (Junction Box)** | | | |
| a. | Data Storage on site | The system should be equipped with appropriate storage capacity for 7 days 24X7 recording, with overwriting capability. The images should be stored in tamper proof format only. | | |
| b. | Network Connectivity | Wired/GPRS based wireless technology with 3G upgradable to 4G capability. | | |
| c. | Minimum 2(two) USB Port to support the latest external mass storage devices and Ethernet (10/100) Port for possible networking. However all logs of data transfer through the ports shall be maintained by the system. | | | |
| d. | The system should be capable of working in ambient temperature range of $0^{o}$C to $60^{o}$C. | | | |

| Sr. No. | Parameter | Minimum Specifications or better | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| e. | Lightening arrester shall be installed for safety of system (As per BIS standard IS 2309 of 1989). | | | |
| f. | The housing of the outdoor cabinet should be capable of withstanding vandalism and harsh weather conditions and should meet weather proof standards. | | | |
| | **Violation Transmission and Security** | | | |
| a. | Encrypted data, images and video pertaining to Violations at the Onsite processing station should be transmitted to the TCRelectronically through connectivity in Jpeg format | | | |
| b. | Advanced Encryption Standard (AES) shall be followed for data encryption on site and TCR, and its access will protected by a password. | | | |
| c. | The vendor shall ensure that the data from the onsite processing unit shall be transferred to TCR within one day. | | | |
| | **Video Recording** | | | |
| a. | The system should be capable of continuous video recording in base station for 7 days. The system shall automatically overwrite the data after 7 days. It should be noted that at any point of time the local storage at the base station should have the data of previous 7 days. | | | |
| b. | Direct extraction through any physical device like USB flash drive , Portable Hard disk etc. shall be possible | | | |

*4.19.26 Speed Violation Detection System*

| Sr. No. | Description | | Bidder Compliance(Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| **1.** | **Make** | <to be provided by the bidder> | | |
| **a.** | **Model** | <to be provided by the bidder> | | |
| **b.** | The system should be capable of generating a video & minimum 3 snapshot in any of the standard industry formats (MJPEG, JPG, avi, mp4, mov, etc.) with at least 10 frames per second. The video shall be from t-5 to t+5 sec of the violation and should also be recorded (being the instant at which the infraction occurred).<br><br>It should be possible to configure speed limit individually for 2 wheelers and 4 wheelers category within the rule configuration option of the software. The software should be able to detect over speed violation based on such specific rules. The vehicle classification module should be available within the offered software for this purpose. | | | |
| **2.** | **Speed** | | | |

| Sr. No. | Description | | Bidder Compliance(Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| a. | Unit of Speed Measurement | Kmph | | |
| b. | Speed detection system to Capture speed | 120Kmph ± 5% | | |
| c. | Speed Threshold | (Vendor should provide manufacturer certificate/third party test report in support of their claim) | | |
| d. | Speed Enforcement Technology | Radar/Laser/Others Non-Intrusive Technology along with IP camera | | |
| **3.** | **Digital Network Camera** | | | |
| 1. | Video Compression | H.264 & MJPEG | | |
| 2. | Video Resolution | 1920 X 1080 | | |
| 3. | Frame rate | Min. 60 fps | | |
| 4. | Image Sensor | 1/2" Progressive Scan CCD / CMOS or better | | |
| 5. | Lens Type | Varifocal, C/CS Mount, IR Correction full HD lens | | |
| 6. | Lens# | Auto IRIS<br><br>8~50mm /12 – 40 mm or suitable lens as per requirement | | |
| 7. | Minimum Illumination | Colour: 0.5 lux, B/W: 0.1 lux (at 30 IRE) | | |
| 8. | IR Cut Filter | Automatically Removable IR-cut filter | | |
| 9. | Day/Night Mode | Colour, Mono, Auto | | |
| 10. | S/N Ratio | ≥ 50 Db | | |
| 11. | Auto adjustment + Remote | Colour, brightness, sharpness, contrast, white balance, exposure control, backlight compensation, Gain Control, | | |

| Sr. No. | Description | | Bidder Compliance(Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| | Control of Image settings | Ture Wide Dynamic Range | | |
| 12. | Audio | Audio Capture Capability, G.711, G.726, AAC | | |
| 13. | Local storage | Local storage-Minimum 64 GB Memory card in a Memory card slot. In the event of failure of connectivity to the central server the camera shall record video locally on the SD card automatically. After the connectivity is restored these recordings shall be automatically merged with the server recording such that no manual intervention is required to transfer the SD card based recordings to server. | | |
| 14. | Protocol | IPV4, IPV6, HTTP, HTTPS, FTP/SMTP, RTSP, RTP, TCP, UDP, RTCP, DHCP, UPnP, NTP, QoS, ONVIF Profile S | | |
| 15. | Security | Password Protection, IP Address filtering, User Access Log, HTTPS encryption | | |
| 16. | Operating conditions | 0 to 60°C (temperature), 50 to 90% (humidity) | | |
| 17. | Casing | NEMA 4X / IP-68, IK10 rated | | |
| 18. | Intelligent Video | Motion Detection & Tampering alert | | |
| 19. | Alarm I/O | Minimum 1 Input &1 Output contact for 3rd part interface | | |
| 20. | Certification | UL, CE,FCC | | |
| 1. | **Recording & display information archive medium** | | | |
| a. | The system should be capable of recording the following details of the infracting vehicles | | | |
| b. | • Computer generated unique ID of each violation<br>• Date (DD/MM/YYYY)<br>• Time (HH:MM:SS)<br>• Equipment ID | | | |

| Sr. No. | Description | | Bidder Compliance(Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| | • Location ID<br>• Carriageway or direction of violating vehicle<br>• In cases when multiple infracting vehicles are detected in one instant the system should be capable to provide the following data for all Infracting vehicles detected<br>o Type of Violation<br>o Notified speed limit (in Kmph)<br>o Speed of violating vehicle (in Kmph)<br>o Lane Number of violating vehicle<br>o Registration Number of violating vehicle | | | |
| 1. | **On site-out station processing unit communication & Electrical Interface** | | | |
| a. | Data Storage on site | The system should be equipped with appropriate storage capacity for 7 days 24X7 recording, with overwriting capability. The images should be stored in tamper proof format only. | | |
| b. | Network Connectivity | Wired/GPRS based wireless technology with 3G upgradable to 4G capability. | | |
| c. | Minimum 2(two) USB Port to support the latest external mass storage devices and Ethernet (10/100) Port for possible networking. However all logs of data transfer through the ports shall be maintained by the system. | | | |
| d. | The system should be capable of working in ambient temperature range of 0 degree C to 60 degree C | | | |
| e. | At least one hour UPS power back up to keep the system functional in case of power failure without any break in recording the violation. | | | |
| f. | Lightening arrester shall be installed for safety of system (As per BIS standard IS 2309 of 1989) | | | |
| g. | The housing of the outdoor cabinet should be capable of withstanding vandalism and harsh weather conditions. | | | |
| | **Violation Transmission and Security** | | | |
| a. | Encrypted data, images and video pertaining to Violations at the Onsite processing station should be transmitted to the TCR electronically through connectivity, in Jpeg format. | | | |

| Sr. No. | Description | Bidder Compliance(Yes/No) | Product Documentation Reference |
|---|---|---|---|
| b. | Advanced Encryption Standard (AES) shall be followed for data encryption on site and TCR, and its access will protected by a password. | | |
| c. | The vendor shall ensure that the data from the onsite processing unit shall be transferred to TCR within one day. | | |
| **5.** | **Video Recording** | | |
| a. | The system should be capable of continuous video recording in base station for 7 days. The system shall automatically overwrite the data after 7 days. It should be noted that at any point of time the local storage at the base station should have the data of previous 7 days. | | |
| b. | Direct extraction through any physical device like USB, Hard disk shall be possible | | |

*4.19.27 Edge Level Switch (at Traffic Junctions)*

| # | Parameter | Minimum Specifications | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| 1. | **Make** | <to be provided by the bidder> | | |
| 2. | **Model** | <to be provided by the bidder> | | |
| 3. | Port Density & Redundancy | The switch should be rugged industrial grade outdoor DIN rail mountable 8/16ports 10/100/1000TX PoE+( min. 4 Port IEEE802.3at Or 8 Port 802.3af) and with 2 100/1000x SFP ports<br><br>May require higher port density at some locations, depending upon site conditions | | |
| 4. | PoE Standard | • IEEE 802.3af/ IEEE 802.3at or better on all ports simultaneously | | |
| 5. | Quality of Service | Support for Egress rate limiting, Eight egress queues per port, Voice VLAN, DSCP for IP-based QoS, Differentiated services architecture, IEEE 802.1p Class of Service with strict and weighted round Robin scheduling. | | |

| # | Parameter | Minimum Specifications | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| 6. | Multicast support | • IGMP Snooping V1, V2, V3 | | |
| 7. | Management | SNMP V1,V2,V3, Web GUI, CLI, USB or equivalent memory card, IP v6 management feature on open standards, IEEE802.1ag, TDM or equivalent standards | | |
| 8. | Security | Should support Access Control Lists (ACLs), DHCP snooping, IEEE802.1x based port authentication, RADIUS, TACACS, SSL, SSH, port mirroring, NTP | | |
| 9. | Resiliency | IEEE802.3ac, IEEE802.3az, IEEE802.1v, IEEE802.1q, IEEE802.1d, IEEE802.1s, IEEE802.1w, ring resilience/ring protection | | |
| 10. | PoE Power per port | Sufficient to operate the CCTV cameras/edge devices connected | | |
| 11. | Enclosure Rating | IP 30 or equivalent Industrial Grade Rating(to be housed in Junction box) | | |
| 12. | Operating Temperature | 0 -60 C or better Industrial Grade Rating | | |
| 13. | Safety Certifications | UL/EN/IEC or equivalent, RoHS standards, NEMA –TS2 | | |

*4.19.28 Fixed Dome camera for Indoor Surveillance (If required by the Bidder)*

| Sr. No. | Parameter | Minimum Specifications or better | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| 1. | **Make** | | <to be provided by the bidder> | |
| 2. | **Model** | | <to be provided by the bidder> | |
| 3. | Video Compression | H.264 | | |
| 4. | Video Resolution | 1920 X 1080 | | |
| 5. | Frame rate | Min. 25 fps | | |

| Sr. No. | Parameter | Minimum Specifications or better | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| 6. | Image Sensor | 1/3" Progressive Scan CCD / CMOS | | |
| 7. | Lens Type | Varifocal, IR Correction Full HD lens compatible to camera imager | | |
| 8. | Lens# | Auto IRIS<br><br>2.8-10mm | | |
| 9. | Multiple Streams | Dual streaming with 2nd stream at minimum 720P at 30fps at H.264individually configurable | | |
| 10. | Minimum Illumination | Colour: 0.1 lux, B/W: 0.01 lux (at 30 IRE) | | |
| 11. | IR Cut Filter | Automatically Removable IR-cut filter | | |
| 12. | Day/Night Mode | Colour, Mono, Auto | | |
| 13. | S/N Ratio | ≥ 50 dB | | |
| 14. | Auto adjustment + Remote Control of Image settings | Colour, brightness, sharpness, contrast, white balance, exposure control, backlight compensation, Gain Control, Auto back focus | | |
| 15. | Wide Dynamic Range | True WDR upto 80 dB | | |
| 16. | Audio | Full duplex, line in and line out, G.711, G.726 | | |
| 17. | Local storage | Local storage-Minimum 32 GB Memory card in a Memory card slot. In the event of failure of connectivity to the central server the camera shall record video locally on the SD card automatically. After the connectivity is restored these recordings shall be automatically merged with the server recording such that no manual intervention is required to transfer the SD card based recordings to server. | | |
| 18. | Protocol | HTTP, HTTPS, FTP, RTSP, RTP, TCP, UDP, RTCP, DHCP, ONVIF Profile S &G | | |
| 19. | Security | Password Protection, IP Address filtering, User Access Log, HTTPS encryption | | |

| Sr. No. | Parameter | Minimum Specifications or better | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| 20. | Intelligent Video | Motion Detection & Tampering alert | | |
| 21. | Alarm I/O | Minimum 1 Input & Output contact for 3rd part interface | | |
| 22. | Operating conditions | 0 to 50°C | | |
| 23. | Casing | NEMA 4X / IP-66 rated & IK 10 | | |
| 24. | Certification | UL/EN, CE,FCC | | |
| 25. | Power | 802.3af PoE (Class 0) and 12VDC/24AC | | |

*4.19.29 Network Laser Colour Printer*

| Sr. No. | Parameter | Minimum Specifications | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| 1 | **Make** | <to be provided by the bidder> | | |
| 2 | **Model** | <to be provided by the bidder> | | |
| 3 | Print Speed | Black : 15 ppm or above on A3, 30 ppm or above on A4<br><br>Colour : 8 ppm or above on A3, 12 ppm or above on A4 | | |
| 4 | Resolution | 600 X 600 DPI | | |
| 5 | Memory | Min. 8 MB or more | | |
| 6 | Paper Size | A3, A4, Legal, Letter, Executive, custom sizes | | |
| 7 | Paper Capacity | 1000 sheets or aboveon standard input tray, 500 Sheetor above on Output Tray | | |
| 8 | Duty Cycle | 100,000 sheets or better per month | | |
| 9 | OS Support | Linux, Windows , 7, 8, 8.1, 10 | | |
| 10 | Interface | Ethernet Interface / Wi-Fi / USB | | |
| 11 | Consumables | First set of standard consumables for 10,000 pages (pages + Toner + Cartridge, etc.) to be provided by the Implementing | | |

| Sr. No. | Parameter | Minimum Specifications | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| | | Agency.<br><br>Post this number, consumables shall be provided by the Department. | | |

*4.19.30 Server/Networking Rack Specifications*

| Sr. No. | Parameter | Minimum Specifications | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| 1. | **Make** | <to be provided by the bidder> | | |
| 2. | **Model** | <to be provided by the bidder> | | |
| 3. | Type | • 19" 42U racks mounted on the floor<br>• Floor Standing Server Rack - 42U with Heavy Duty Extruded Aluminium Frame for rigidity. Top cover with FHU provision. Top & Bottom cover with cable entry gland plates. Heavy Duty Top and Bottom frame of MS. Two pairs of 19" mounting angles with 'U' marking. Depth support channels - 3 pairs with an overall weight carrying Capacity of 500Kgs.<br>• All racks should have mounting hardware 2 Packs, Blanking Panel.<br>• Stationery Shelf(2 sets per Rack)<br>• All racks must be lockable on all sides with unique key for each rack<br>• Racks should have Rear Cable Management channels, Roof and base cable access | | |
| 4. | Wire managers | • Two vertical and four horizontal | | |
| 5. | Power Distribution Units | • 2 per rack<br>• Power Distribution Unit - Vertically Mounted, 32AMPs with 25 Power Outputs. (20 Power outs of IEC 320 C13 Sockets &5 Power outs of 5/15 Amp Sockets), Electronically controlled circuits for Surge & Spike protection, LED readout for the total current being drawn from the channel, 32AMPS MCB, 5 KV AC isolated input to Ground & | | |

| Sr. No. | Parameter | Minimum Specifications | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| | | Output to Ground | | |
| 6. | Doors | • The racks must have steel (solid / grill / mesh) front / rear doors and side panels. Racks should NOT have glass doors / panels.<br>• Front and Back doors should be perforated with at least 63% or higher perforations.<br>• Both the front and rear doors should be designed with quick release hinges allowing for quick and easy detachment without the use of tools. | | |
| 7. | Fans and Fan Tray | • Fan 90CFM 230V AC, 4" dia (4 Nos. per Rack)<br>• Fan Housing Unit 4 Fan Position (Top Mounted) (1 no. per Rack) - Monitored - Thermostat based - The Fans should switch on based on the Temperature within the rack. The temperature setting should be factory settable. This unit should also include - humidity & temperature sensor | | |
| 8. | All in One Racks | • Racks should be all in one having power supply, cooling, built into them so that no additional / external interfaces are required. | | |
| 9. | Metal | Aluminium extruded profile | | |
| 10. | Side Panel | Detachable side panels (set of 2 per Rack) | | |

*4.19.31 KVM Module*

| Sr. No. | Item | Minimum Specifications | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| 1. | **Make** | <to be provided by the bidder> | | |
| 2. | **Model** | <to be provided by the bidder> | | |
| 3. | KVM Requirement | Keyboard, Video Display Unit and Mouse Unit (KVM) for the IT Infrastructure Management at ICCC | | |
| 4. | Form Factor | 19” rack mountable | | |

| Sr. No. | Item | Minimum Specifications | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| 5. | Ports | minimum 8 ports | | |
| 6. | Server Connections | It should support both USB and PS/2 connections. | | |
| 7. | Auto-Scan | It should be capable to auto scan servers | | |
| 8. | Rack Access | It should support local user port for rack access | | |
| 9. | SNMP | The KVM switch should be SNMP enabled. It should be operable from remote locations | | |
| 10. | OS Support | It should support multiple operating system | | |
| 11. | Power Supply | It should have dual power with failover and built-in surge protection | | |
| 12. | Multi-User support | It should support multi-user access and collaboration | | |

*4.19.32 Servers (As Building block, to establishing computing solution for sub-systems/solutions)*

Bidders are requested to ensure that the N+1 architecture is followed and minimum number of high end servers shall be preferred to be deployed.

| Sr. No. | Parameter | Minimum Specifications | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| 1. | Make | <to be provided by the bidder> | | |
| 2. | Model | <to be provided by the bidder> | | |
| 3. | Processor | Latest series / generation of 64 bit processor(s) with Twenty or higher Cores<br><br>Processor speed should be minimum 2 GHz<br><br>Minimum 8 processors per each physical server | | |
| 4. | RAM | Minimum 256 GB Memory | | |
| 5. | Internal Storage | 5 x 300 GB SAS (10k rpm) hot swap | | |

| Sr. No. | Parameter | Minimum Specifications | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| 6. | Network interface | 4 X 10GbE LAN ports for providing Ethernet connectivity<br><br>Optional: 1 X Dual-port 16Gbps FC HBA (or FCoE) for providing FC connectivity | | |
| 7. | Power supply | Dual Redundant Power Supply | | |
| 8. | RAID support | As per requirement/solution | | |
| 9. | Operating System | Licensed version of 64 bit latest version of Professional Linux / Microsoft® Windows based Operating system) | | |
| 10. | Form Factor | Rack mountable | | |
| 11. | Virtualization | Shall support Industry standard virtualization hypervisor like Hyper-V, VMWARE, and Oracle VM etc. In case the IA proposes the solution to virtualization, then they should propose suitable associated management solution to meet or exceed the SLAs. | | |
| 12. | Racks | As required – All in One | | |

*4.19.33 Storage*

The estimated Storage requirement for the ITMS and Surveillance system project is as below:

| # | Minimum Storage Requirement | TB |
|---|---|---|
| 1 | Total | 200 |

**Note:**

- Bidder is expected to carry out the storage requirement estimation and supply as per the solution proposed, if the estimation is more than above specified. They may also refer the bandwidth estimation and storage functional requirements as provided in this RFP.

*4.19.34 Storage Specifications*

| Sr. No. | Parameter | Minimum Specifications | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| 1. | **Make** | • <to be provided by the bidder> | | |
| 2. | **Model** | • <to be provided by the bidder> | | |

| Sr. No. | Parameter | Minimum Specifications | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| 3. | Solution/ Type | • IP Based/iSCSI/FC/NFS/CIFS<br>• If bidder is offering FCoE based solution, corresponding ports must be present in server as well as storage controller. | | |
| 4. | Storage | • Storage Capacity should be as per Overall Solution Requirement (usable, after configuring in offered RAID configuration)<br>• RAID solution offered must protect against double disc failure.<br>• Disks should be preferably minimum of 1.2 TB capacity for SAS and 3 TB for SATA (combination as per performance and SLA requirements of overall solution)<br>• To store all types of data (Data, Voice, Images, Video, etc.)<br>• Proposed Storage System should be scalable (vertically/horizontally) | | |
| 5. | Hardware Platform | • Rack mounted form-factor<br>• Modular design to support controllers and disk drives expansion | | |
| 6. | Controllers | • At least 2 Controllers in active/active mode<br>• The controllers / Storage nodes should be upgradable seamlessly, without any disruptions / downtime to production workflow for performance, capacity enhancement and software / firmware upgrades. | | |
| 7. | RAID support | • Should support various RAID Levels | | |
| 8. | Cache | • Minimum 64 GB of useable cache across all controllers. If cache is provided in additional hardware for the storage solution, then cache must be over and above 64 GB. | | |
| 9. | Redundancy and High Availability | • The Storage System should be able to protect the data againstsingle point of failure with respect to hard disks, connectivity interfaces, fans and power supplies | | |
| 10. | Management software | • All the necessary software (GUI Based) to configure and manage the storage space, RAID configuration, logical drives allocation, snapshots etc. are to be provided | | |

| Sr. No. | Parameter | Minimum Specifications | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| | | for the entire system proposed.<br>• Licenses for the storage management software should include disc capacity/count of the complete solution and any additional disks to be plugged in in the future, upto max capacity of the existing controller/units.<br>• A single command console for entire storage system.<br>• Should also include storage performance monitoring and management software<br>• Should provide the functionality of proactive monitoring of Disk drive and Storage system for all possible disk failures<br>• Should be able to take "snapshots" of the stored data to another logical drive for backup purposes | | |
| 11. | Data Protection | The storage array must have complete cache protection mechanism either by de-staging data to disk or providing complete cache data protection with battery backup for up to 4 hours | | |

*4.19.35 Secondary Storage*

| Sr. No. | Parameter | Minimum Specifications | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| **1** | **Make** | <to be provided by the bidder> | | |
| **2** | **Model** | <to be provided by the bidder> | | |
| **3** | Solution/Type | • Secondary Storage (Archival/Backup) can be on any media such as Disks, Disk systems, etc. or its combination along with all associate software. (so as to arrive at lower cost per TB)<br>• Minimum 200 TB usable as secondary storage<br>• May or may not use de-duplication technology<br>• Compatible with primary storage | | |

| Sr. No. | Parameter | Minimum Specifications | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| | | • Must use latest stable technology platform, with support available for next 5 years. | | |
| **4** | Backup Size | To store data as required, to meet the archival requirement for different type of data/information<br>• 23 days of storage for surveillance camera feeds<br>• 83 days of storage for traffic enforcement systems<br>• 275 days of storage | | |
| **5** | Hardware Platform | • Rack mounted,<br>• Rack based Expansion shelves | | |
| **6** | Software Platform | Must include backup/archive application portfolio required | | |
| **7** | Retrieval time | Retrieval time for any data stored on secondary storage should be max. 4 hours for critical data & 8 hours for other data. This would be taken into account for SLA calculation. (Critical data means any data needing urgent attention by the Judicial System or by Traffic Police Dept. for investigation / terrorist treat perception). | | |

*4.19.36 Layer 3 Gigabit Manageable Switch (To be used for DC/Aggregation Layer 3 Switch)*

| Sr. No. | Parameter | Minimum Specifications | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| 1. | **Make** | • <to be provided by the bidder> | | |
| 2. | **Model** | • <to be provided by the bidder> | | |
| 3. | Ports | • 24 or 48 (as per requirements) 10/100/1000 Base-TX/FX ports and extra 2 or 4 no's of 10G Base SX/LX/LR ports as per network solution offered.<br>• TX/FX Split as per field/site requirement | | |

| Sr. No. | Parameter | Minimum Specifications | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| | | • All ports can auto-negotiate between 10Mbps/ 100Mbps/ 1000Mbps, half-duplex or full duplex and flow control for half-duplex ports. | | |
| 4. | Switch type | Layer 3 | | |
| 5. | MAC | Support 8K MAC address. | | |
| 6. | Backplane | Properly sized Switching fabric capacity (as per network configuration to meet performance requirements of wire speed switching for the connected devices) | | |
| 7. | Forwarding rate | Packet Forwarding Rate should be 70.0 Mpps or better | | |
| 8. | Port Features | Must support Port Mirroring, Port Trunking and 802.3ad LACP Link Aggregation port trunks | | |
| 9. | Flow Control | Support IEEE 802.3x flow control for full-duplex mode ports. | | |
| 10. | Protocols | • IPV4, IPv6<br>• Support 802.1D, 802.1S, 802.1w, Rate limiting<br>• Support 802.1Q VLAN encapsulation, IGMP v1, v2 and v3 snooping<br>• 802.1p Priority Queues, port mirroring, DiffServ<br>• DHCP support<br>• Support upto 1024 VLANs<br>• Support IGMP Snooping and IGMP Querying<br>• Support Multicasting<br>• Should support Loop protection and Loop detection,<br>• Should support Ring protection | • | • |
| 11. | Access Control | • Support port security<br>• Support 802.1x (Port based network access control). | • | • |

| Sr. No. | Parameter | Minimum Specifications | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| | | • Support for MAC filtering.<br>• Should support TACACS+ and RADIUS authentication | | |
| 12. | VLAN | • Support 802.1Q Tagged VLAN and port based VLANs and Private VLAN<br>• The switch must support dynamic VLAN Registration or equivalent<br>• Dynamic Trunking protocol or equivalent | • | • |
| 13. | Protocol and Traffic | • Network Time Protocol orequivalent Simple Network Time Protocol support<br>• Switch should support traffic segmentation<br>• Traffic classification should be based on user-definable application types: TOS, DSCP, Port based, TCP/UDP port number | • | • |
| 14. | Management | • Switch needs to have console port for management via PC<br>• Must have support SNMP v1,v2 and v3<br>• Should support 4 groups of RMON<br>• Should have accessibility using Telnet, SSH, Console access, easier software upgrade through network using TFTP etc. Configuration management through CLI, GUI based software utility and using web interface | • | • |

*4.19.37 Core Switch (If required)*

| Sr. No. | Parameter | Minimum Specifications | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| 1. | **Make** | • <to be provided by the bidder> | | |
| 2. | **Model** | • <to be provided by the bidder> | | |
| 3. | Ports | • 24 or 48 (as per density required) 1G/ 10G Ethernet ports (as per internal connection requirements)<br>• Can have FCoE ports if FCoE solution is | • | • |

| Sr. No. | Parameter | Minimum Specifications | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| | | offered<br>• Extra 2 or higher Uplink ports (40GE)<br>• All ports can auto-negotiate between all allowable speeds, half-duplex or full duplex and flow control for half-duplex ports. | | |
| 4. | Switch type | Layer 3 | | |
| 5. | MAC | Support 32K MAC address. | | |
| 6. | Backplane | • Capable of providing wire-speed switching for fully populated switch | | |
| 7. | Throughput | Required throughput to achieve non-blocking performance for switch when all ports are populated. | | |
| 8. | Port Features | Must support Port Mirroring, Port Trunking and 802.3ad LACP Link Aggregation port trunks | | |
| 9. | Flow Control | • Support IEEE 802.3x flow control for full-duplex mode ports. | | |
| 10. | Protocols | • IPV4, IPV6<br>• Support 802.1D, 802.1S, 802.1w, Rate limiting<br>• Support 802.1X Security standards<br>• Support 802.1Q VLAN encapsulation, IGMP v1, v2 and v3 snooping<br>• 802.1p Priority Queues, port mirroring, DiffServ<br>• DHCP support<br>• Support up to 1024 VLANs<br>• Support IGMP Snooping and IGMP Querying<br>• Support Multicasting<br>• Should support Loop protection and Loop detection, | | |
| 11. | Access Control | • Support port security<br>• Support 802.1x (Port based network access control). | • | • |

| Sr. No. | Parameter | Minimum Specifications | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| | | • Support for MAC filtering.<br>• Should support TACACS+ and RADIUS authentication | | |
| 12. | VLAN | • Support 802.1Q Tagged VLAN and port based VLANs and Private VLAN<br>• The switch must support dynamic VLAN Registration or equivalent<br>• Dynamic Trunking protocol or equivalent | • | • |
| 13. | Protocol and Traffic | • Network Time Protocol orequivalent Simple Network Time Protocol support<br>• Switch should support traffic segmentation<br>• Traffic classification should be based on user-definable application types: TOS, DSCP, Port based, TCP/UDP port number | • | • |
| 14. | Management | • Switch needs to have a console port for management via a console terminal or PC<br>• Must have support SNMP v1,v2 and v3<br>• Should support 4 groups of RMON<br>• Should have accessibility using Telnet, SSH, Console access, easier software upgrade through network using TFTP etc. Configuration management through CLI, GUI based software utility and using web interface | • | • |
| 15. | Resiliency | • Dual load-sharing power supplies<br>• Redundant fans | • | • |
| 16. | Switch should support FCoE& IPv6 from day one | | • | • |

*4.19.38 Core Router*

| Sr. No. | Item | Minimum Specifications | Bidder Compliance (Yes, No) | Product Documentation Reference |
|---|---|---|---|---|
| 1. | **Make** | <to be provided by the bidder> | | |
| 2. | **Model** | <to be provided by the bidder> | | |

| Sr. No. | Item | Minimum Specifications | Bidder Compliance (Yes, No) | Product Documentation Reference |
|---|---|---|---|---|
| 3. | Multi-Services | Should deliver multiple IP services over a flexible combination of interfaces | | |
| 4. | Ports | As per overall network architecture proposed by the bidder, the router should be populated with required number of LAN/WAN ports/modules, with cable for connectivity to other network elements. | | |
| 5. | Speed | As per requirement, to cater to entire bandwidth requirement of the project. | | |
| 6. | Interface modules | Must support minimum 2* 10G Port with necessary SFP+ Modules. Must have capability to interface with variety interfaces. | • | • |
| 7. | Protocol Support | Musthave supportforTCP/IP, PPP<br><br>Must support IPSEC VPN<br><br>Must have support for integration of data and voice services<br><br>Routing protocols of RIP, OSPF, and BGP.<br><br>Support IPV4 & IPV6 | | |
| 8. | Manageability | Must be SNMP manageable | | |
| 9. | Scalable | • The router should be scalable. For each slot multiple modules should be available.<br><br>• The chassis offered must have free slots to meet the scalability requirement of expansion of the project in the future. | | |
| 10. | Traffic control | Traffic Control and Filtering features for flexible user control policies | | |
| 11. | Bandwidth | Bandwidthondemandforcosteffectiveconnectionperformance enhancement | | |
| 12. | Remote Access | Remote access features | | |
| 13. | Redundancy | • Redundancy in terms of Power supply(s). Power supply should be able to support fully loaded chassis<br><br>• All interface modules, power supplies should be | | |

| Sr. No. | Item | Minimum Specifications | Bidder Compliance (Yes, No) | Product Documentation Reference |
|---|---|---|---|---|
| | | hot-swappable | | |
| 14. | Security features | • MD5 encryption for routing protocol<br>• NAT<br>• URL based Filtering<br>• RADIUS Authentication<br>• Management Access policy<br>• IPsec / Encryption L2TP | | |
| 15. | QOS Features | • RSVP<br>• Priority Queuing<br>• Policy based routing<br>• Traffic shaping<br>• Time-based QoS Policy<br>• Bandwidth Reservation / Committed Information Rate | | |

*4.19.39 Backup Software*

- The software shall be primarily used to back up the necessary and relevant video feeds from storage that are marked or flagged by the Police. The other data that would require backing up would include the various databases that shall be created for the surveillance system. Details of data that would be created will be provided to the successful bidder
- Scheduled unattended backup using policy-based management for all Server and OS platforms
- The software should support on-line backup and restore of various applications and Databases
- The backup software should be capable of having multiple back-up sessions simultaneously
- The backup software should support different types of backup such as Full back up, Incremental back up, Differential back up, Selective back up, Point in Time back up and Progressive Incremental back up and snapshots
- The backup software should support different types of user interface such as GUI, Web-based interface, etc.

*4.19.40 Directory services*

- Should be compliant with LDAP v3

- Support for integrated LDAP compliant directory services to record information for users and system resources
- Should provide authentication mechanism across different client devices / PCs
- Should provide support for Group policies and software restriction policies
- Should support security features, such as Kerberos, Smart Cards, Public Key Infrastructure (PKI), etc.
- Should provide support for X.500 naming standards
- Should support that password reset capabilities for a given group or groups of users can be delegated to any nominated user
- Should support that user account creation/deletion rights within a group or groups can be delegated to any nominated user
- Should support directory services integrated DNS zones for ease of management and administration/replication.

*4.19.41 Firewall*

| # | Item | Minimum Specifications | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| 1. | **Make** | <to be provided by the bidder> | | |
| 2. | **Model** | <to be provided by the bidder> | | |
| 3. | Physical attributes | • Should be mountable on 19" Rack<br>• ModularDesign<br>• Internal redundant power supply | | |
| 4. | Interfaces | • Minimum 2 * 10 Gig Port with necessary modules<br>• 4 x GE, upgradable to 8 GE<br>• Console Port 1 number | | |
| 5. | Performance and Availability | • Encrypted throughput: minimum 1 Gbps<br>• Concurrent connections: up to250,000<br>• Simultaneous VPN tunnels: 2000 | | |
| 6. | Routing Protocols | • Static Routes<br>• RIPv1, RIPv2<br>• OSPF | | |
| 7. | Protocols | • TCP/IP<br>• RTP | | |

| # | Item | Minimum Specifications | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| | | • IPsec, DES/3DES/AES<br>• FTP, HTTP, HTTPS,SNMP, SMTP<br>• DHCP, DNS, Support for IP v4 & IPv6<br>• IPSEC | | |
| 8. | Other support | • 802.1Q, NAT, PAT, IP Multicast support, Remote Access VPN, Time based Access control lists, URL Filtering, support VLAN, Radius/ TACACS, Support multilayer firewall protection, Traffic shaping, Bandwidth monitoring | | |
| 9. | QoS | • QoS features like traffic prioritisation, differentiated services, committed access rate. Should support for QoS features for defining the QoS policies. | | |
| 10. | Management | • Console, SSHv2, Browser based configuration<br>• SNMPv1, SNMPv2, SNMPv3 | | |
| 11. | Certifications | ICSA | | |

*4.19.42 Intrusion Prevention System*

This can be offered as separate unit or as a module in firewall

| # | Item | Required Specifications | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| 1. | **Make** | <to be provided by the bidder> | | |
| 2. | **Model** | <to be provided by the bidder> | | |
| 3. | Performance | Should have an aggregate throughput of no less than 200Mbps<br>Total Simultaneous Sessions – 500,000 | | |
| 4. | Features | IPS should have Dual Power Supply<br>IPS system should be transparent to network, not default gateway to Network<br>IPS system should have Separate interface for secure management | | |

| # | Item | Required Specifications | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| | | IPS system should be able to protect Multi Segment in the network, should be able to protect 4 segments. | | |
| 5. | Real Time Protection | • Web Protection<br>• Mail Server Protection<br>• Cross Site Scripting<br>• SNMP Vulnerability<br>• Worms and Viruses<br>• Brute Force Protection<br>• SQL Injection<br>• Backdoor and Trojans | | |
| 6. | Stateful Operation | • TCP Reassembly<br>• IP Defragmentation<br>• Bi-directional Inspection<br>• Forensic Data Collection<br>• Access Lists | | |
| 7. | Signature Detection | Should have provision for Real Time Updates of Signatures, IPS Should support Automatic signature synchronization from database server on web Device should have capability to define User Defined Signatures | | |
| 8. | Block attacks in real time | • Drop Attack Packets<br>• Reset Connections<br>• Packet Logging<br>• Action per Attack | | |
| 9. | Alerts | • Alerting SNMP<br>• Log File<br>• Syslog<br>• E-mail | | |

| # | Item | Required Specifications | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|---|
| 10. | Management | • SNMP v1, v2, v3<br>• HTTP/HTTPS<br>• SSHv2, Console | | |
| 11. | Security Maintenance | • IPS Should support 24/7 Security Update Service<br>• IPS Should support Real Time signature update<br>• IPS Should support Provision to add static own attack signatures<br>• System should show real-time and History reports of Bandwidth | | |

*4.19.43 Enterprise Management System (EMS)*

To ensure that ICT systems are delivered at the performance level envisaged, it is important that an effective monitoring and management system be put in place. It is thus proposed that a proven Enterprise Management System (EMS) is proposed by the bidder for efficient management of the system, reporting, SLA monitoring and resolution of issues. Various key components of the EMS to be implemented as part of this engagement are –

1. Network Monitoring System
2. Server Monitoring System
3. Helpdesk System

The solution should provide a unified web based console which allows role based access to the users.

**1. Network Management System**

Solution should provide fault & performance management of the server side infrastructure and should monitor IP/SNMP enabled devices like Routers, Switches, PA System, Emergency Call Boxes, Sensors, etc. (i.e. all devices supplied as part of RFP scope). Proposed Network Management shall also help monitor key KPI metrics like availability, in order to measure SLA's. Following are key functionalities that are required which will assist administrators to monitor network faults & performance degradations in order to reduce downtimes, increase availability and take proactive actions to remediate & restore network services.

| # | Description | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|
| **1** | **Make** | <to be provided by the bidder> | |
| **2** | **Model** | <to be provided by the bidder> | |

| # | Description | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|
| 3 | The proposed solution must automatically discover manageable elements connected to the infrastructure and map the connectivity between them. Solution should provide centralized monitoring console displaying network topology map. | | |
| 4 | Proposed solution should provide customizable reporting interface to create custom reports for collected data | | |
| 5 | The system must use advanced root-cause analysis techniques and policy-based condition correlation technology (at network level) for comprehensive analysis of infrastructure faults. | | |
| 6 | The system should be able to clearly identify configuration changes and administrators should receive an alert in such cases. | | |
| 7 | The solution should support multicast protocols too, if the overall project solution offered includes multicast. | | |

**2. Server Performance Monitoring System**

| # | Description | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|
| 1 | The proposed tool should integrate with network performance management system and support operating system monitoring for various platforms supplied as part of this Project. | | |
| 2 | The proposed tool must provide information about availability and performance for target server nodes. | | |
| 3 | The proposed tool should be able to monitor various operating system parameters such as processors, memory, files, processes, file systems, etc. where applicable. | | |
| 4 | If the offered server/computing solution includes virtualisation, then the server performance monitoring solution must include virtualisation monitoring capabilities. | | |

### 3. Centralized Helpdesk System

| # | Description | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|
| 1 | Helpdesk system should provide incident management, problem management templates along with helpdesk SLA system for tracking SLA's pertaining to incident resolution time for priority / non-priority incidents. | | |
| 2 | System should also automatically create tickets based on alarm type | | |
| 3 | The proposed helpdesk solution must provide flexibility of logging, viewing, updating and closing incident via web interface for issues related to the project. | | |
| 4 | IT Asset database should be built and managed by the bidder, in order to carry out the scope of work items. | | |

*4.19.44 Centralized Anti-virus Solution*

The following features are required for centralized anti-virus solution, to protect all computing resources (servers, desktops, other edge level devices, etc.). The Bidders must estimate for appropriate licenses to cover all devices.

| Sr. No | Description | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|
| 1. | **Make** | <to be provided by the bidder> | |
| 2. | **Model** | <to be provided by the bidder> | |
| 3. | Ability to scan through all file types and various compression formats. Ability to scan for HTML, VBScript Viruses, malicious applets and ActiveX controls. | | |
| 4. | Must update itself over internet for virus definitions, program updates etc. (periodically as well as in push-updates in case of outbreaks) | | |
| 5. | Able to perform different scan Actions based on the virus type (Trojan/ Worm, Joke, Hoax, Virus, other) | | |
| 6. | Shall provide Real-time product Performance Monitor and Built-in Debug and Diagnostic tools, and context-sensitive help. | | |
| 7. | The solution must provide protection to multiple remote clients | | |

| Sr. No | Description | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|
| **8.** | Shall provide for virus notification options for Virus Outbreak Alert and other configurable Conditional Notification | | |
| **9.** | Should be capable of providing multiple layers of defence | | |
| **10.** | Shall have facility to clean, delete and quarantine the virus affected files. | | |
| **11.** | Should support online update, where by most product updates and patches can be performed without bringing messaging server off-line. | | |
| **12.** | Should support in-memory scanning so as to minimize Disk IO. | | |
| **13.** | Should support Multi-threaded scanning | | |
| **14.** | Should support scanning of nested compressed files | | |
| **15.** | Should support heuristic scanning to allow rule-based detection of unknown viruses | | |
| **16.** | All binaries from the vendor that are downloaded and distributed must be signed and the signature verified during runtime for enhanced security. | | |
| **17.** | Ability to scan through all file types and various compression formats. Ability to scan for HTML, VBScript Viruses, malicious applets and ActiveX controls. | | |
| **18.** | Must update itself over internet for virus definitions, program updates etc. (periodically as well as in push-updates in case of outbreaks) | | |
| **19.** | Able to perform different scan Actions based on the virus type (Trojan/ Worm, Joke, Hoax, Virus, other) | | |
| **20.** | Shall provide Real-time product Performance Monitor and Built-in Debug and Diagnostic tools, and context-sensitive help. | | |
| **21.** | The solution must provide protection to multiple remote clients | | |
| **22.** | Shall provide for virus notification options for Virus Outbreak Alert and other configurable Conditional | | |

| Sr. No | Description | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|
| | Notification. | | |
| **23.** | Should be capable of providing multiple layers of defence | | |
| **24.** | Shall have facility to clean, delete and quarantine the virus affected files. | | |
| **25.** | Should support online update, where by most product updates and patches can be performed without bringing messaging server off-line. | | |
| **26.** | Should support in-memory scanning so as to minimize Disk IO. | | |
| **27.** | Should support Multi-threaded scanning | | |
| **28.** | Should support scanning of nested compressed files | | |
| **29.** | Should support heuristic scanning to allow rule-based detection of unknown viruses | | |

*4.19.45 Video Management System*

Video management system shall constitute of a platform which will be designed for viewing, recording and replaying acquired video as part of overall project solution. This platform will be based on the Internet Protocol (IP) open platform concept. Major functionalities are described here:

**1. VMS Overview**

| Sr. No. | Description | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|
| **1.** | **Make** | <to be provided by the bidder> | |
| **2.** | **Model** | <to be provided by the bidder> | |
| **3.** | VMS shall be used for centralized management of all field camera devices, video servers and client users. | | |
| **4.** | VMS server shall be deployed in a clustered server environment or support inbuilt mechanism for high availability and failover. | | |
| **5.** | VMS shall support a flexible rule-based system driven by schedules and events. | | |
| **6.** | VMS shall be supported for fully distributed solution for monitoring and control function, designed for limitless multi-site and multiple server installations requiring 24/7 surveillance with | | |

| Sr. No. | Description | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|
| | support for devices from different vendors. | | |
| **7.** | VMS shall support ONVIF Profile S & G compliant internet protocol (IP) cameras. | | |
| **8.** | The bidder shall clearly list in their proposal the make and models that can be integrated with the VMS, additionally all the offered VMS and cameras must have Open Network Video Interface Forum (ONVIF) compliance.<br><br>VMS shall be enabled for any standard storage technologies and video wall system integration. | | |
| **9.** | VMS shall be enabled for integration with any external Video Analytics Systems both server & edge based. | | |
| **10.** | VMS shall be capable of being deployed in a virtualized server environment without loss of any functionality. | | |
| **11.** | All CCTV cameras locations shall be overlaid in graphical map in the VMS Graphical User Interface (GUI). The cameras selection for viewing shall be possible via clicking on the camera location on the graphical map. The graphical map shall be of high resolution enabling operator to zoom-in for specific location while selecting a camera for viewing. | | |
| **12.** | VMS shall have an administrator interface to set system parameters, manage codecs, manage permissions and manage storage. | | |
| **13.** | VMS day to day control of cameras and monitoring on client workstations shall be controlled through the administrator interface. | | |
| **14.** | Whilst live control and monitoring is the primary activity of the monitoring workstations, video replay shall also be accommodated on the GUI for general review and also for pre- and post-alarm recording display. | | |
| **15.** | The solution design for the VMS shall provide flexible video signal compression, display, storage and retrieval. | | |
| **16.** | All CCTV camera video signal inputs to the system shall be provided to various command control centre(s), viewing centre etc., and the transmission medium used shall best suit the relative camera deployments and access to the CCTV Network. | | |
| **17.** | VMS client shall have the capability to work with touch enabled multi-monitor workstations. It shall be capable of displaying videos in up to three (3) monitors simultaneously. | | |
| **a.** | AVI files | | |
| **b.** | Motion- Joint Photographic Experts Group (M-JPEG) | | |

| Sr. No. | Description | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|
| **c.** | Moving Picture Expert Group-4 (MPEG-4) | | |
| **d.** | MP4 Export or Latest | | |
| **18.** | All streams to the above locations shall be available in real-time and at full resolution. Resolution and other related parameters shall be configurable by the administrator in order to provide for network constraints. | | |
| **19.** | The VMS shall support field sensor settings. Each channel configured in the VMS shall have an individual setup for the following settings, the specific settings shall be determined according to the encoding device: | | |
| 20. | The VMS shall support the following operations: | | |
| a. | Adding an IP device | | |
| b. | Updating an IP device | | |
| c. | Updating basic device parameters | | |
| d. | Adding/removing channels | | |
| e. | Adding/removing output signals | | |
| f. | Updating an IP channel | | |
| g. | Removing an IP device | | |
| h. | Enabling/disabling an IP channel | | |
| i. | Refreshing an IP device (in case of firmware upgrade) | | |
| j. | Multicast at multiple aggregation points | | |
| 21. | The VMS shall support retrieving data from edge storage. Thus, when a lost or broken connection is restored, it shall be possible to retrieve the video from SD card and store it on central storage. System should support to view the recordings available over cameras local storage device (such as an SD card), and copy them to the server. | | |
| 22. | The VMS shall support bookmarking the videos. Thus, allowing the users to mark incidents on live and/or playback video streams. | | |
| 23. | The VMS shall allow the administrator to distribute camera load across multiple recorders and be able shift the cameras from one recorder to another by simple drag and drop facility. | | |
| 24. | VMS shall support automatic failover for recording. | | |

| Sr. No. | Description | Bidder Compliance (Yes/No) | Product Documentation Reference |
|---|---|---|---|
| 25. | VMS should also support dual recording or mirroring if required. | | |
| 26. | VMS shall support manual failover for maintenance purpose. | | |
| 27. | VMS shall support access and view of cameras and views on a smartphone or a tablet (a mobile device). | | |
| 28. | VMS shall support integration with the ANPR application. | | |
| 29. | VMS shall support integration with other online and offline video analytic applications. | | |
| 30. | VMS shall be able to accept alerts from video analytics built into the cameras, other third party systems, sensors etc. | | |

**2. Client System**

The Client system shall provide remote users with rich functionality and features as described below:

| Sr. No. | Functionality | Bidder Compliance (Yes/No) |
|---|---|---|
| 1. | Viewing live video from cameras on the surveillance system. | |
| 2. | Browsing recordings from storage systems. | |
| 3. | Creating and switching between multiple of views. | |
| 4. | Viewing video from selected cameras in greater magnification and/or higher quality in a designated hotspot. | |
| 5. | Using digital zoom on live as well as recorded video. | |
| 6. | Using sound notifications for attracting attention to detected motion or events. | |
| 7. | Getting quick overview of sequences with detected motion. | |
| 8. | Getting quick overviews of detected alerts or events. | |
| 9. | Quickly searching selected areas of video recording for motion (also known as Smart Search). | |

**3. Remote Web Client**

| Sr. No. | Description | Bidder Compliance (Yes/No) |
|---|---|---|
| 1. | The web-based remote client shall offer live view of up to 9cameras, including PTZ control (if applicable) and event / output activation.The Playback function shall give the user concurrent playback of multiple recorded videos with date, alert sequence or time searching. | |
| 2. | User Authentication – The Remote Client shall support logon using the user name and password credentials | |

**4. Mobile Client**

| Sr. No. | Description | Bidder Compliance (Yes/No) |
|---|---|---|
| 1. | The bidder shall be required to provide a standardised Mobile Application to integrate smart phones and tablets for 2-way communication with the Video Management System in a secure manner. It will be responsibility of Implementing Agency to configure such tablets / Smartphone with the Surveillance System and ensure that all the necessary access is given to these mobile users. | |
| 2. | Communication with mobile client and server shall be encrypted with Digital Certificate. | |

**5. Matrix Monitor**

| Sr. No. | Description | Bidder Compliance (Yes/No) |
|---|---|---|
| 1. | Matrix Monitor – The Matrix Monitor feature shall allow distributed viewing of multiple cameras on the system on any monitor. | |
| 2. | The Matrix Monitor feature shall access the H.264/MJPEG/MPEG4 stream from the connected camera directly and not sourced through the recording server. | |

**6. Alarm Management Module**

| Sr. No. | Description | Bidder Compliance (Yes/No) |
|---|---|---|
| 1. | The alarm management module shall allow for continuous monitoring of the operational status and event-triggered alarms from various system 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. | |
| 2. | The alarm management module shall provide interface and navigational tools through the client including; | |

| Sr. No. | Description | Bidder Compliance (Yes/No) |
|---|---|---|
| 3. | Graphical overview of the operational status and alarms from servers, network cameras and external devices including motion detectors and access control systems. | |
| 4. | Intuitive navigation using a map-based, hierarchical structure with hyperlinks to other maps, servers and devices or through a tree-view format. | |
| 5. | The module shall include flexible access rights and allow each user to be assigned several roles where each shall define access rights to cameras. | |
| 6. | Basic VMS should be capable to accept third party generated events / triggers. | |

**7. Management / Integration Functionality**

| Sr. No. | Description | Bidder Compliance (Yes/No) |
|---|---|---|
| 1. | The Surveillance System shall offer centralised management of all devices, servers and users. | |
| 2. | The Surveillance System should not have any limit on the number of cameras to be connected for Surveillance, Monitoring and Recording. Any increase in the no. of cameras should be possible by augmentation of Hardware components. | |
| 3. | The Surveillance System shall support distributed viewing of any camera in the system using Video walls or big screen displays. | |
| 4. | The Surveillance System shall support alarm management. The alarm management shall allow for the continuous monitoring of the operational status and event-triggered alarms from system servers, cameras and other external devices. | |
| 5. | It should be possible to integrate the Surveillance System with 3rd-party software, to enable the users to develop customized applications for enhancing the use of video surveillance solution. For e.g., integrating alarm management to initiate SMS, E-Mail, VoIP call, etc. | |
| 6. | The Management system shall store the overall network elements configuration in central database, either on the management server computer or on a separate DB Server on the network. | |
| 7. | System should be able to be integrated with Event Management / Incident Management System. | |

**8. System Administration Functionality**

| Sr. No. | Description | Bidder Compliance (Yes/No) |
|---|---|---|
| 1. | The System Administration Server shall provide a feature-rich administration client for system configuration and day-to-day administration of the system. | |
| 2. | The System Administration Server shall support different logs related to the Management Server.<br>• The System Log<br>• The Audit Log<br>• The Alert Log<br>• The Event Log | |
| 3. | Rules: The system shall support the use of rules to determine when specific actions occur.Rules shall define what actions shall be carried out under specific conditions.The system shall support rule initiated actions such as:<br>• Start and stop recording<br>• Set non-default live frame rate<br>• Send notifications via email<br>• Pop-up video on designated Client Monitor recipients | |

**9. Other Miscellaneous Requirements**

| Sr. No. | Description | Bidder Compliance (Yes/No) |
|---|---|---|
| 1. | System should have a facility to create CDs or other storage media for submission to Judiciary, which can be treated evidence for legal matters. Such storage media creation should be tamper proof and Implementing Agency to provide appropriate technology so that integrity and quality of evidence is maintained as per requirements of the judiciary. Bidder is required to specify any additional hardware / software required for this purpose & the same can be listed in Miscellaneous section of the bid. The bidder will also prepare the guideline document financial to be followed by the Traffic Police Personnel for the retrieval of Video / images from the CCTV System so as to maintain integrity of the evidence. Such a guideline document should include methods of retrieval of data, check-list to be followed and flowchart of the entire process to be followed. | |
| 2. | All the systems proposed and operationalization of Video Management System should comply with requirements of IT Acts. | |
| 3. | Security Platform shall have strong security mechanism such as the use of advance encryption/digital certificates/ authentication to ensure that only authorized personnel have access to critical information, prevent man-in-the-middle attacks, and that the | |

| Sr. No. | Description | Bidder Compliance (Yes/No) |
|---|---|---|
| | data is kept private. | |
| 4. | System should ensure that once recorded, the video cannot be altered, ensuring the audit trail is intact for evidential purposes. | |
| 5. | The offered VMS should have a very user friendly smart carting type function/feature to allow export of multiple video clips together. Once downloaded, an excel type sheet should also be created automatically to help the user with indexing and hyperlinking of all downloaded videos for easier playback and retrieval. | |

**10. Major Server components for VMS**

| | |
|---|---|
| **Video Management Server(s)** | Video Management System Servers will maintain coherent operations between all servers and workstations. It will host Control Centre, where the system is administered, and System database. It will monitor one or more Recorder servers on separate dedicated computers, storage devices, IP-compatible devices, and one or more workstation. All network communication will also be is performed via the Video Management servers. |
| **Video Recording Server(s)** | The Video Recorder Server will be a dedicated server that will store and processes video with the help of Video Management System |
| **Web Server(s)** | It will be used to launch the client application remotely through web browsers. |
| **Gateway Server (s) – If required** | A Media Gateway server will be used to establish remote connections to review and transcode the video. Standalone Media Gateway servers can also be installed on separate machines. Standalone servers will be recommended for such large systems that will transfer video data to remote clients. |

### 4.20 Safety Measures

The following safety measures are required to ensure by the Implementing Agency.

A. Electrical Safety: Lightning Protection
City is prone to intermittent strikes by lightning during the monsoon season and atother times. Particular attention shall be paid to the incorporation of adequate protectivemeasures for all equipment and cabling provided under the Contract. Additional requirementsrelating to individual Contracts are to be included in the Specification.

B. Earthing
Proper earthing to the signal junction controllers, poles & fixtures, electric meter cabin shall beprovided as per the Indian Electricity rules. All the junction poles shall be interconnected withthe earthing wire (G.I. or otherwise) of specified gauge and the common point shall be earthednear the controller of signal junction as per the standard procedure described in the I.E. Rulesfor earthing.

C. Protective Requirements (Electrical)
Safety requires that all installations shall be such as to allow the operation of internalprotective devices upon the occurrence of a fault, and that all non- current carrying metallicparts shall be connected to the appropriate earth terminal in such a manner as to ensure thathazardous voltage cannot exist on exposed conductive metalwork.
Where protection against dangerous earth-leakage currents by fuses or excess- current circuitbreakers is admissible as defined in IS:3043 - 1987, Cl. 19.2, one of the following methods ofearthing shall be employed:-
   (a) Where the supply undertaking will provides a Safety Earth labelled Do Not Removeearthing point, which affords a metallic return path to the means of earthing, theearthing lead shall connect the installation-earthing terminal to this point
   (b) Where a means of earthing is not be provided by the electricity supply undertaking,the installation-earthing terminal shall be connected to an effective earth electrode(appropriate label shall be supplied). In such a case a residual current operated earthleakage circuit breaker (ELCB) with a rated operating current not exceeding 30 milliamperesand an operating time not exceeding 30 milliseconds shall be provided.
   (c) Where the supply undertaking will provide a combined neutral/earth supply PME(Protective Multiple Earthing system) the earthing lead shall be connected to theconsumers installation shall so be arranged that connection to the neutral conductorof the incoming supply can be carried out by the supply undertaking when theconditions for allowing such a connection have been met. This shall be labelledappropriately.

D. In all cases the appropriate earthing method must be ascertained from the local supplyundertaking. A summary of the conditions to be met for the installation of a PME system isoutlined below:-
   (a) All cabinets, poles and other metal hardware comprising the traffic signalling, DataTransmission equipment installation shall be connected to the installation main earthingterminal by an Earth Continuity Conductor (ECC).
   (b) The connection to metalwork, which is not normally removed. The terminal shall beconstructed of a material, which will minimise galvanic corrosion resulting from contactwith the ECC or other metal part. Its design shall be such that damage to cables orinsulation or loosening due to vibrations does not occur.
   (c) Wire terminations shall be by the use of soldered or crimped lugs or screwedterminations. Specialist tools shall be used that ensure that crimped lugs shall only beapplied by using calibrated ratchet pneumatic type crimp tools to ensure correct tensionis applied to the termination lugs.
   (d) The ECC shall be designed and installed so that it complies with IS: 3043 - 1987, CL. 22.2 oran equivalent International standard. Individual earthing conductors shall be insulatedand colour-coded green/yellow strips.
   (e) All cable sheaths and/or armouring used, as an earth continuity conductor shall satisfy therequirements of IS: 3043 - 1987, CL. 9.2.5. Sheathed and/or armoured cables within postsand/or equipment shall have the cable sheaths and/or armouring connected to earth.
   (f) Where the sheathed and armoured cables are installed vertically in traffic signal poststhen support clips shall be provided.

(g) Where it is necessary to install an earth leakage circuit breaker for electrical protectionthis shall comply with the IEE Regulations or an equivalent International or Indianstandard.
(h) The main earthing terminal shall be connected to the arching point by a copper earthinglead, insulated and colour coded green/Yellow stripe with a minimum cross sectional areaof 6 mm square. Where an earth leakage circuit breaker is used then the cross sectionalarea of the earthing lead need not exceed 2.5mm squared.

E. The electricity supply provided by any of the nominated supply companies shall be by means ofa single phase service terminated in a cut-out of a type having incoming phase and neutralterminals. The supply companies or certified competent person will connect equipmentconductors of not less than 4mm square copper (phase and neutral) and 6mm squared earthconductor to their cut-out. The cut-out shall incorporate a high breaking capacity fuse carrierand fuse of correct rating (as specified by the equipment manufacturer) to comply with thetype requirements and maximum earth impedance's quoted in the IS: 732 or the Institute ofElectrical Engineers regulations. Where electricity supplies are installed adjacent to existingsupplies or equipment supplied by others then the Contractor shall take care not to haveconflicting electricity phases present, which may cause 415Voltages to be present. Inunavoidable circumstances where it has not been possible to provide a separate signal pole andalighting column is being used in its stead labelling as per IEE Standards shall be used at bothpoints. Where the Contractor identifies such circumstances, the Contractor shall immediatelyinform the Engineer who will make any final decisions.
Where mains supply cables are installed other than by the nominated providers the samerequirements for all cables and cut-outs shall apply and the purchaser responsible forproviding the mains supply to the equipment shall consult the relevant Electricity Authority toascertain that the proposed installation complies with their requirements.

F. Working at Height
The signal aspects and cable termination work is carried out at height, hence special attentionshall be given to work at height. The ladder of sufficient height or Mac-Lifton shall be used. Therequired care as described in the Indian safety Rules shall be strictly observed. If any accident orMishap happen due to any reason the contractor will be held solely responsible for the same.

G. The Client will not be responsible to any such untoward incidents arising from the negligence orimproper method or lack of safety procedures.

H. Use of Personal Protective Equipment: The contractor shall ensure that all the protectiveequipment is given to the employees working on site. The contractor will be held solely responsible for any negligence on this part.

I. Working on Site: The civil work as well as mechanical work is carried out on the site. The Siteshall be properly barricaded by the FRP barricades. The blinkers shall be provided on the endsand at the turning to visualize the on-going work to the road users. The illuminated batten shallbe used during night hours to control the traffic. The workers working on the site shall wear thereflective jackets during the working hours. The road safety norms for work on site shall bestrictly followed. The display boards shall be provided on site with following details - Go slow -work in progress, inconvenience caused is regretted, use the diversion, name of the contractoretc. The supervisor in-charge of the site shall issue the work permit to the staff on working aftersatisfying the safe conditions on site for work.
(a) Suitable scaffolds shall be provided for workmen for all that cannot safely be donefrom the ground, or from solid construction except such short period work as canbe done safely from ladders. When a ladder is used an extra mazdoor shall beengaged for holding the ladder and if the ladder is used for carrying materials aswell, suitable footholds and handholds shall be provided on the ladder and theladder shall be given an inclination not steeper than ¼ to 1 (¼ horizontal and 1vertical).
(b) Scaffolding or staging more than 3.25 meters above the ground or floor, swung orsuspended from an overhead support or erected with stationary support, shallhave a guard rail properly attached, belted braced and otherwise secured at least1 meter high above the floor or platform of such scaffolding or staging andextending along the entire length of the outside and ends thereof with only suchopenings as may be necessary for the delivery of materials. Such scaffolding orstaging shall be so fastened as to prevent it from swaying from the building orstructure.

(c) Safe means of access shall be provided to all working platforms and other workingplaces. Every ladder shall be securely fixed. No portable single ladder shall be over9 meters in length. Width between side rails in a rung ladder shall in no case beless than 30 cm. for ladder Secretary and including 3 meters in length. For longerladders this width shall be increased by at least 6 mm for each additional 30 cm oflength. Uniform step spacing shall not exceed 30 cm.

(d) Adequate precaution shall be taken to prevent danger from electrical equipment.No materials on any of the sites shall be so stacked or places as to cause danger orinconvenience to any person or the public. The contractor shall provide allnecessary fencing and lights to protect public from accidents and shall be boundto bear expenses of defence of every suit, action or other proceeding at law thatmay be brought by any person for injury sustained owing to neglect of the aboveprecautions and to pay any damages and costs which may be awarded in any suchsuit, action or proceedings to any such person or which may with the consent ofthe contractor be paid to compromise any claim by any such person.

J. Demolition

(a) Before any demolition work is commenced and also during the process of the work.

(b) All roads and open areas adjacent to the work site shall either be closed orsuitably protected

(c) No electric cable or apparatus which is liable to be a source of danger over acable or apparatus used by operator shall remain electrically charged.

(d) All practical steps shall be taken to prevent danger to persons employed, from risk of fire or explosion, or flooding. No floor, roof or other part of a buildingshall be so overloaded with debris or materials as to render it unsafe.

K. All necessary personal safety equipment as considered adequate by the Engineer shall beavailable for use of persons employed on the site and maintained in a condition suitable forimmediate use, and the Contractor shall take adequate steps to ensure proper use ofequipment by those concerned.

(a) Workers employed on mixing asphaltic materials, cement and lime mortars/concreteshall be provided with protective footwear, hand gloves and goggles.

(b) Those engaged in handling any materials which is injurious to eyes shall be providedwith protective goggles.

(c) Those engaged in welding works shall be provided with welder's protective eye-shields.

(d) Stone breakers shall be provided with protective goggles and protective clothing andseated at sufficiently safe intervals.

(e) When workers are employed in sewers and manholes, which are in use, the contractorshall ensure that manhole covers are opened and manholes are ventilated at least for anhour before workers are allowed to get into them. Manholes so opened shall becordoned off with suitable railing and provided with warning signals or boards toprevent accident to public.

(f) The Contractor shall not employ men below the age of 18 and women on the work ofpaining with products containing lead in any form. Whenever men above the age of 18are employed on the work of lead painting the following precautions shall be taken;

(g) No paint containing lead or lead products shall be used except in the form of paste orreadymade paint.

(h) Suitable face masks shall be supplied for use by workers when paint is applied in theform of spray or surface having lead paint dry rubbed and scrapped.

(i) Overalls shall be supplied by the contractor to workmen and adequate facilities shall beprovided to enable working painters to wash during and on cessation of work.

L. Adequate provision made for prompt first aid treatment of all injuries likely to besustained during the course of the work.

M. Use of hoisting machines and tackle including their attachments, anchorage and supportsshall conform to the following:

N. These shall be of good mechanical construction, sound material and adequate strengthand free from patent defects and shall be kept in good repair and in good working order.

(a) Every rope used in hoisting or lowering materials or as a means of suspension shallbe of durable quality and adequate strength, and free from patent defects. Everycrane driver or hoisting appliance operator shall be properly qualified and noperson under the age of 21 years shall be in-charge of any hoisting machineincluding any scaffold winch or give signals to operator.

(b) In case of every hoisting machine and of every chain ring hook, shackle, swivel andpulley block used in hoisting or lowering or as means of suspension, safe workingload shall be ascertained by adequate means. Every hoisting machine and all gearreferred to above shall be plainly marked with safe working load. In case ofhoisting machine having a variable safe working load, each safe working load andthe conditions under which it is applicable shall be clearly indicated. No partof any machine or of any gear referred to above in this paragraph shall be loadedbeyond safe working load except for the purpose of testing.

(c) In case of departmental machine, safe working load shall be notified by theEngineer, as regards contractor's machine the contractor shall notify safe workingload of each machine to the Engineer whenever he brings it to site of work andget it verified by the Engineer.

O. Motors, gearing, transmission, electric wiring and other dangerous parts of hoistingappliances shall be provided with efficient safeguards, hoisting appliances shall beprovided with such means as will reduce to the minimum risk of accidental descent ofload, adequate precautions shall be taken to reduce to the minimum risk of any part of asuspended load becoming accidentally displaced. When workers are employed onelectrical installations which are already energized, insulating mats, wearing apparel suchas gloves, sleeves and boots, as may be necessary, shall be provided. Workers shall notwear any rings, watches and carry keys or other materials which are good conductors ofelectricity.

P. All scaffolds, ladders and other safety devices mentioned or described herein shall bemaintained in a safe condition and no scaffold, ladder or equipment shall be altered orremoved while it is in use. Adequate washing facilities shall be provided at or near placesof work.

Q. These safety provisions shall be brought to the notice of all concerned by display on anotice board at a prominent place at the work spot. Persons responsible for ensuringcompliance with the Safety Provisions shall be named therein by the contractor.

R. To ensure effective enforcement of the rules and regulations relating to safetyprecautions, arrangements made by the Contractor shall be open to inspection by theEngineer or his representative and the inspecting officers.

Notwithstanding the above provisions, the contractor is not exempted from the operation of anyother Act or Rule in force.

## 4.21 Implementation Schedule, Deliverables and Payment Terms

### *4.21.1 Deliverables & Payment Schedule*

The payment of during Go-Live shall be strictly on project milestone basis as per actuals based on the details provided in the table provided below. The payment shall be released on successful completion of various deliverables to the satisfaction of USCL as percentage (%) of the total contract value.

Due to ongoing projects in the city, such as the Underground Drainage / Sewerage project, Junction improvements, Integrated Command and Control Centre, amongst others, there may be certain delays to this assignment. The Vendor shall not be held responsible for any delay on part of the client and should consider the same while implementing the contract.

In case part of the sites are made available then proportional part payment for the Capex items shall be released. However, Go-Live shall be considered only when the complete scope has been achieved.

T = Signing of Contract

| **Mile-stones** | **Payment Milestones for the Implementation % Payment of Time Schedule Phase** | **Payment Schedule** | **Time Schedule** | **Deliverables** |
|---|---|---|---|---|
| M1 | Completion of Site Survey | - | T+ 15 Days | Site Survey Report |
| M2 | Project Set up | 5% of Capex cost of the issued Work Order against Performance Bank Guarantee (PBG) | T + 1 Month | 1. Inception Report<br>2. Project Plan<br>3. Risk Management and Mitigation Plan<br>4. Updated Site Survey report<br>5. Final BoQ |
| M3 | Delivery and Receipt of Hardware and Software at site (Warehouse) and after Verification of such items by USCL/USCL authorized agency | 35% of Capex cost | T + 2 Month | 1. Final Bill of Quantity<br>2. HLD documents<br>3. LLD documents<br>4. Application architecture documents.<br>5. Technical Architecture documents.<br>6. Network Architecture documents.<br>7. Logical and physical database design. |

| Mile-stones | Payment Milestones for the Implementation % Payment of Time Schedule Phase | Payment Schedule | Time Schedule | Deliverables |
|---|---|---|---|---|
| | | | | 8. GUI design (screen design, navigation, etc.).<br>9. Test Plans<br>10. Change management Plan |
| M4 | Power-up (for hardware), Installation, configuration and Application deployment, Integration and Go-Live | 10% of Capex cost | T+ 3 Month | 1. IT and Non IT Infrastructure<br>2. Installation Report<br>3. Completion of UAT and closure of observations report<br>4. Training Completion report<br>5. Application deployment and configuration report |
| M5 | Completion of Integration requirements | 35% of Capex cost | T + 4 Month | 1. Integration Testing Report<br>2. Go-Live Report |
| M6 | Dry Run and Go-Live | 10% of Capex cost | T + 5 Month | 1. Dry Run Certificate (to be obtained daily from the Ujjain Police for a period of at least 21 days)<br>2. Go Live Certificate to be obtained from the Client after successful Dry Run. |
| M7 – a thru l | Year 1 payment for O&M after Go-Live | Monthly payment | Payment for Year 1 | SLA and other Reports for every month duly approved by line departments |
| M8– a thru l | Year 2 payment for O&M after Go-Live | Monthly payment | Payment for Year 2 | SLA and other Reports for every month duly approved by line departments |
| M9– a thru l | Year 3 payment for O&M after Go-Live | Monthly payment | Payment for Year 3 | SLA and other Reports for every month duly approved by line |

| Mile-stones | Payment Milestones for the Implementation % Payment of Time Schedule Phase | Payment Schedule | Time Schedule | Deliverables |
|---|---|---|---|---|
| | | | | departments |
| M10 | Handover | 5% of Capex Cost | | Successful handover after training to the client personnel |

*4.21.2 Payment Terms*

1. All payments shall be made in arrears.
2. The Bidder's request(s) for payment shall be made to the USCL in writing,accompanied by an invoice describing, as appropriate, services completed. The invoiceshould be submitted and upon fulfilment of other obligations stipulated in the contract.
3. Payments shall be made promptly by the USCL within thirty (30) days aftersubmission of the invoice or claim by the Bidder, after quality inspection andverification by the USCL's Official of the conformity of theGoods/Products/Services/Solutions supplied as per the agreed specifications.
4. Payment shall be made in Indian Rupees by RTGS / NEFT on Bank in the name ofbidder.
5. All remittance charges shall be borne by the Successful Bidder.
6. In case of disputed items, the disputed amount shall be withheld and shall be paid onlyafter settlement of the dispute.
7. Any penalties/ liquidated damages, as applicable, for delay and non-performance, asmentioned in this RFP document, shall be deducted from the due payments of therespective milestones.
8. Taxes, as applicable, shall be deducted / paid, as per the prevalent rules andRegulations
9. It is the responsibility of the bidders to quote for and provide all the H/w and S/w formeeting all the requirements of the RFP. In case during evaluation, it is found thatcertain H/w or S/w which is critical for meeting the requirement of this RFP and has notbeen quoted as part of Bill of material (BoM), the bid can be rejected as nonresponsive.Additionally, if after the award of contract, it is felt that additional H/w or S/ware required for meeting the RFP requirement and the same has not been quoted bythe Successful Bidder, the Successful Bidder shall provide all such additional H/w orS/w at no additional cost to USCL.
10. Payment of Operations and maintenance phase will be made on monthly basis (at completion of each quarter) based on the adherence to SLA, for the amount quoted for each respective year.

*4.21.3 Indicative Resource Requirement*

The below table illustrates a minimum indicative Team for Implementing Agencyfor this project, bidder is expected to provide better and more number of personnel resources as required to meet the requirement of the RFP.

| S. No. | Type of resource | Number of Personnel | Minimum qualification | Minimum Deployment |
|---|---|---|---|---|
| 1. | Project Manager | 1 | Graduate with at least 8 years of experience | To be deployed on site at least 50% of time till the project go live.<br><br>Post project Go Live, deployed at least 10% of time on site. |

| S. No. | Type of resource | Number of Personnel | Minimum qualification | Minimum Deployment |
|---|---|---|---|---|
| 2. | ITMS Expert and Business Analyst | 1 | Graduate with at least 5 years of experience. | To be deployed on site full time till the project go live.<br><br>Post project Go Live, deployed at least 20% of time on site. |
| 3. | Traffic Command Centre Expert | 1 | Graduate with at least 5 years of experience. | To be deployed on site full time till the project go live.<br><br>Post project Go Live, deployed at least 50% of time on site. |
| 4. | Network and Security Expert | 1 | Graduate with at least 5 years of experience. | To be deployed on site full time till the project go live.<br><br>Post project Go Live, deployed at least 20% of time on site. |
| 5. | Technical Expert for Server, Storage, related applications, etc. | 1 | Graduate with at least 5 years of experience. | |
| 6. | Support Specialist | At least (2) person available during working hours, At least (1) person available 24X7 (in shifts) | Diploma with at least 3 years of experience. | To be deployed on site for 25% of time till project Go Live.<br><br>Post project Go Live, to be deployed full time. |
| 7. | Field Support Engineers | At least (1) person available during working hours and exceptionally 24X7 in case of emergencies. | Diploma with at least 3 years of experience | To be deployed on site for 25% of time till project Go Live.<br><br>Post project Go Live, to be deployed full time. |
| 8. | Other Experts | In addition to the above, other experts (including profiles as mentioned above) as required by the Bidder / Implementing Agency. | As required by the bidders to execute the project. | Other experts to be deployed by the Implementing Agency to meet the requirements of the RFP. |

The Bidder is expected to construct the appropriate team with due care and diligence so as to meet all the obligations in this RFP with a standard that is expected of a professional technology and services firm. All mentioned personnel should be available for meetings at USCL location at a short notice.

## 4.22 Service Level Agreement (SLA)

SLA defines the terms of the Implementing Agency's responsibility in ensuring the timely delivery of the deliverables and the correctness of the same based on the agreed Performance Indicators as detailed in this section. The Successful Bidder has to comply with Service Levels requirements to ensure adherence to Project timelines, quality and availability of services.

**The Successful Bidder / Implementing Agency is required to supply software / automated tools to monitor all the SLAs mentioned below**.

**Note**: Penalties shall not be levied on the Implementing Agency in the following cases:

a. There is a Force Majeure event effecting the SLA which is beyond the control of the Successful Bidder

b. The non-compliance to the SLA has been due to reasons beyond the control of the Bidder.

c. Theft cases by default would not be considered as "beyond the control of Bidder". However, certain cases, based on circumstances & certain locations, USCL may agree to qualify as "beyond the control of Bidder". Damages due to any accident / mishap shall be considered as "beyond the control of Bidder". However, Power shut down or deliberate damage to field devices such as Cameras, Audio Systems etc. would not be considered as "beyond the control of Bidder".

The purpose of this Service Level Agreement (hereinafter referred to as SLA) is to clearly define the levels of service which shall be provided by the Implementing Agency to USCL for the duration of this Agreement.

### *4.22.1 Definition*

For the purposes of this service level agreement, the definitions and terms are specified in the contract along with the following terms shall have the meanings set forth below :

a. "Uptime" shall mean the time period for the specified services / components with the specified technical service standards are available to the user department. Uptime, in percentage, of any component (Non IT & IT) can be calculated as:

   Uptime = {1- [(Downtime) / (Total Time – Maintenance Time)]} * 100

b. "Downtime" shall mean the time period for which the specified services / components with specified technical and service standards are not available to the user department and excludes downtime owing to Force Majeure & Reasons beyond control of Implementing Agency.

c. "Incident" refers to any event / abnormalities in the functioning of the Services specified as part of the Scope of Work of the Systems Integrator that may lead to disruption in normal operations of the ITMS System.

d. "Resolution Time" shall mean the time taken (after the incident has been reported at the helpdesk), in resolving (diagnosing, troubleshooting and fixing) or escalating (to the second level or to respective vendors, getting the confirmatory details about the same from the vendor and conveying the same to the end user), the services related troubles during the first level escalation.

### *4.22.2 Measurement of SLA's*

The SLA metrics provided specifies performance parameters as baseline performance, lower performance and breach. All SLA calculations will be done on quarterly basis. The SLA also specifies the liquidated damages for lower performance and breach conditions.

Payment to the Implementing Agency is linked to the compliance with the SLA metrics. The matrix specifies three levels of performance, namely,

a. The Implementing Agency will get 100% of the Contracted value if all the baseline performance metrics are compiled and the cumulative credit points are 100

b. The Implementing Agency will get lesser payment in case of the lower performance. (For e.g. if SLA point score is 80 then the Implementing Agency will get 20% less on the quarterly payment – The formula calculating the deductions is "(100 – SLA Point Score)%")

c. If the performance of the Agency in respect of any parameter falls below the prescribed lower performance limit, debit points are imposed for the breach.

The credit (+) points earned during the quarter will be considered for computing penalty. The quarterly payment shall be made after deducting the liquidated damages as mentioned above.

The aforementioned SLA parameters shall be measured as per the individual SLA parameter requirements and measurement methods, through appropriate SLA Measurement tools to be provided by the Implementing Agency and audited by USCL or its appointed Consultant for accuracy and reliability.

USCL shall also have the right to conduct, either itself or through any other agency as it may deem fit, an audit / revision of the SLA parameters. The SLAs defined, shall be reviewed by USCL on an annual basis after consulting the Implementing Agency, Project Management Consultants and other experts. All the changes would be made by USCL after consultation with the Implementing Agency and might include some corrections to reduce undue relaxation in Service levels or some corrections to avoid unrealistic imposition of liquidated damages, which are noticed after project has gone live.

Total liquidated damages to be levied on the Implementing Agency shall be capped at 10% of the total contract value. However, USCL would have right to invoke termination of the contract in case the overall liquidated damages equals 10% of total contract value. Liquidated damages to be levied during Post Implementation period shall be capped at 10% of the OPEX value. USCL would also have right to invoke termination of contract in case cumulative debit point (breach points) are above 30 in 2 consecutive quarters.

#### *4.22.1 Implementation Phase SLA's*

Timely delivery of the Scope of Work

| | |
|---|---|
| **Definition** | **Timely delivery of deliverables would comprise installation and commissioning of entire bill of material and the application systems, and as per successful UAT of the same.** |
| **Service Level Requirement** | All the deliverables defined in the contract has to be submitted On-time on the date as mentioned in the contract with no delay. |
| **Measurement of Service Level Parameter** | To be measured in Number of weeks of delay from the timelines mentioned in the section "Project Timelines" |
| **Penalty for non-achievement of SLA Requirement** | Any delay in the delivery of the project deliverables (solely attributable to vendor) would attract a liquidated damage per week of 0.2% of the CAPEX of contract per week for first 8 weeks and 0.3% per week for every subsequent week. If the liquidated damage reaches 10% of the total contract value, Authority may invoke termination clause. Liquidated damage will be computed on Capex value of contract value |

*4.22.2 SLA Matrix for Post Implementation SLAs*

| Sr. No. | Performance Area | Baseline | | Lower Performance | Breach | | |
|---|---|---|---|---|---|---|---|
| | | Metric | Points | Metric | Points | Metric | Points |
| **1.** | **Field devices- SurveillanceCameras, RLVD system,Speed Detection system, Public Address System** | | | | | | |
| 1 | Uptime per Traffic Signals (Red-Amber-Green) Lights | 98% | 5 | >= 96% to <98% | 2.5 | <96% | 0 |
| 2 | Variable Message Signboard (VMS)- Uptime | 98% | 5 | >= 96% to <98% | 2.5 | <96% | 0 |
| 3 | Public Call Box– Uptime | 98% | 5 | >= 96% to <98% | 2.5 | <96% | 0 |
| 4 | Uptime per Surveillance Cameras (live feed available irrespective of network/power/etc. issues) | 98% | 5 | >= 96% to <98% | 2.5 | <96% | 0 |
| 5 | Uptime of Speed Detection system (Irrespective of network/power/etc. issues) | 98% | 5 | >= 96% to <98% | 2.5 | <96% | 0 |
| 6 | Uptime of RLVD system (Irrespective of network/power/etc. issues) | 98% | 5 | >= 96% to <98% | 2.5 | <96% | 0 |
| 7 | Uptime per PA system (live/recorded announcements available irrespective of network/power/etc. issues) | 98% | 5 | >= 96% to <98% | 2.5 | <96% | 0 |
| **2.** | **Application Performance (includes any user/system application related to the project)** | | | | | | |
| 1 | Overall application(s) availability | 99% | 10 | >= 96.5 % to <99% | 5 | < 96.5 % | 0 |
| 2 | Reports Generation Response Time (Alerts/MIS/Logs etc.) | Simple query - < 5secs<br>Medium complexity query - <30 secs | 5 | Simple complexity<br><br>Query = 5.01 – 10 | 2.5 | Simple complexity Query = > 10 secs | 0 |

| Sr. No. | Performance Area | Baseline | | Lower Performance | Breach | | |
|---|---|---|---|---|---|---|---|
| | | **Metric** | **Points** | **Metric** | **Points** | **Metric** | **Points** |
| | | High Complexity query - < 1min | | secs<br><br>Medium complexity<br><br>query = 30.01 – 60<br><br>secs<br><br>High Complexity query<br><br>= < 60.1 sec – 2 min | | Medium complexity query = > 60 secs<br>High Complexity query<br>= > 2 min | |
| 3. | **Video Analytics Performance** | | | | | | |
| 1 | ANPR for Standard Roman Number plates (3 wheelers & above) | 80% | 4 | 79.99% to 60% | 2.5 | < 60 % | 0 |
| 2 | ANPR for Non-Standard Roman Number plates (3 wheelers & above) please define non standard | 50% | 4 | 59.99% to 40% | 2.5 | < 40 % | 0 |
| 3 | ANPR for Standard Roman Number plates (2 wheelers) | 60% | 4 | 79.99% to 60% | 2.5 | < 60 % | 0 |
| 4 | ANPR for Other Number plates (2 wheelers) | 50% | 4 | 59.99% to 40% | 2.5 | < 40% | 0 |
| 5 | Any other analytics (SLA to be defined in discussion with Successful Bidder) | 80% | 4 | 79.99% to 60% | 2.5 | < 60% | 0 |
| 4. | **End-User Equipment Uptime** | | | | | | |

| Sr. No. | Performance Area | Baseline | | Lower Performance | Breach | | |
|---|---|---|---|---|---|---|---|
| | | Metric | Points | Metric | Points | Metric | Points |
| 1 | Video wall System (Linkage) at Command Centre / ICCC | 99% | 5 | >= 96 % to <99% | 2.5 | < 96 % | 0 |
| 2 | Monitoring workstations (Links) at Command Centres / ICCC | 99% | 3 | >= 96 % to <99% | 1.5 | < 96 % | 0 |
| 5. | **Underlying IT Infrastructure Uptime/Availability at ICCCs** | | | | | | |
| 1 | Production Servers Uptime | 99.95% | 5 | >= 99.5 % to <99.94% | 5 | < 99.5% | 0 |
| 2 | Storage System Uptime | 99.95% | 5 | >= 99.5 % to <99.94% | 5 | < 99.5% | 0 |
| 6. | **Security /Patch Services for IT Infrastructure** | | | | | | |
| 1 | Firewall and any other security appliance Uptime | 100% | 5 | 97 % to 99.99% | 2.5 | < 97% | 0 |
| 2 | Security rules update within 2 hours of approved change management request | 0 violations of service parameters | 1 | 1 – 4 violations | 0.5 | > 4 violations | 0 |
| 3 | Anti-virus, Anti-spyware, Anti-spam updates within 24 hrs. of request | 0 violations of service parameters | 1 | 1 – 4 violations | 0.5 | > 4 violations | 0 |
| 4 | Critical Patches – within 48 hours of patch release. | 0 violations of service parameters | 1 | 1 – 4 violations | 0.5 | > 4 violations | 0 |
| 5 | Non Critical Patches – within 15 days of patch release. | Up-to 1 violations of service parameters | 1 | 2 – 5 violations | 0.5 | > 5 violations | 0 |
| 6 | Resolution of low level Issue (upgrade, shifting and preventive maintenance (of non-production items)) | 2 days | 1 | >=2 to 3 days | 0.5 | > 3 days | 0 |

| Sr. No. | Performance Area | Baseline | | Lower Performance | Breach | | |
|---|---|---|---|---|---|---|---|
| | | Metric | Points | Metric | Points | Metric | Points |
| | **Total Score** | | **100** | | **50** | | **0** |

*4.22.3 General Instructions related to SLAs mentioned*

a. Theft cases by default would not be considered as "beyond the control of Bidder". However, certain cases, based on circumstances & certain locations, USCL/ End user department may agree to qualify as "beyond the control of Bidder".

b. Power shut down would not be considered as "beyond the control of Bidder".

c. Damages due to Road Accident / Mishap shall be considered as "beyond the control of Bidder".

d. Deliberate damage to field devices: camera, Pole etc. would not be considered as "beyond the control of Bidder"

e. Bidder is advised to have strong poles & proper housing to protect from such damages.

f. Bidder is also required to note that in case of SLAs not being made applicable for cases considered as "beyond the control of bidders", Bidder would still need to replace the component (if it is not functional as per SLA) within the SLA defined for Resolution of Critical Level / Medium Level / Low level issues. In case bidder doesn't adhere to the Issue Resolution SLA timelines, the original SLA shall be made applicable.

*4.22.4 Security Breach SLA*

**Note** – This SLA for Security Breach is applicable over and above the SLAs mentioned in above table.

| | |
|---|---|
| **Definition** | Security of the video feeds and the overall system is important and Successful Bidder shall be required to ensure no compromise is done on the same. Security Breach types considered for this SLA are–<br>• Availability of Video feeds to any other user than those authorized by USCL / End user department and provided passwords<br>• Availability of any report / data to any other user than those authorized by USCL/ End user department, and provided passwords<br>• Successful hacking of any active component on the network by any unauthorized user Or any other privacy rule is broken as per Govt. of India guidelines |
| **Service Level Requirement** | Security compliance of the system should be 100% |
| **Measurement of Level Service Para Meter** | Any reported security breach shall be logged into the SLA Management solution as a security breach |
| **Penalty for non-achievement of SLA Requirement** | For every security breach reported and proved, there shall be a penalty of INR 2,00,000/- or lead to termination of contract |

*4.22.5 Breach in supply of Technical Manpower*

**Note** – This SLA for supply of Technical Manpower is applicable over and above the SLAs mentioned in the above table.

<table>
<tr><td>Definition</td><td>Bidder is required to propose the CVs of the required technical manpower (as mentioned in this RFP). It is vital that such manpower is available to USCL/ End user department and performs to the expected levels. The current SLA breach shall specify penalty amount for non-availability of these man-power.</td></tr>
<tr><td>Service Level Requirement</td><td>Availability of the required man-power should be 100%. Implementing Agency to implement the biometric attendance system and share the attendance report of each person proposed as part of team on monthly basis with USCL<br><br>Note:Project team shall require to take the approval from the USCL or concerned authority. The penalty shall be waived off for that approved leaves. In case of absence of approval the penalty shall be levied.</td></tr>
<tr><td>Measurement of Service Level Parameter</td><td>Following instances would be considered as SLA non-compliances:<br><br>• Replacement of a profile by the Bidder (only one replacement per profile – with equal or higher qualification and experience – would be permitted per year)<br><br>• Non-deployment of the profile for more than 1 month. Authority reserves the right to ask Implementing Agency to replace (with equal or higher qualification and experience) the profile if the performance / commitment are not up to the mark<br><br>• Note: Replacement due to reasons not in control of Implementing Agency (like resignation of the resource, accident, etc.) would not be counted in the permissible 1 replacement.</td></tr>
<tr><td>Penalty for non-achievement of SLA Requirement</td><td>For every SLA non-compliance reported and proved, there shall be a penalty as given below:<br><br>
<table>
<tr><th>Team Member</th><th>Penalty</th></tr>
<tr><td>Project Manager</td><td>• Penalty of Rs 5,000 for the 1st week of non-availability at Project site<br><br>• Penalty of Rs. 10,000for the2nd week of non-availability at Project site<br><br>• Penalty of Rs. 50,000 thereafter(3rd week onwards) per week of non-availability</td></tr>
<tr><td>For all other team members</td><td>• Penalty of Rs 1,000 per day of non-availability for 7 days at Project site<br><br>• Penalty of Rs. 2,000per day of non-availability after 7 days at Project site</td></tr>
</table>
</td></tr>
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*4.22.6 Explanation Notes for SLA Matrix*

**A) Field Sensors (Surveillance Cameras, RLVD, ANPR, Speed violation detection, PA systems etc.) Availability**

| | |
|---|---|
| **Definition** | "Field Sensors (Traffic Signals, Surveillance Cameras, RLVD, ANPR, Speed violation detection, PA systems etc.) Availability" means availability of the sensor data to the Traffic Command Centre. |

| | |
|---|---|
| **Measurement of Service level Parameter** | [(Total average Uptime of all the respective field sensors in a quarter)/(Total Time in a quarter)]*100 |

**B) Application Availability**

| | |
|---|---|
| **Definition** | Application availability refers to the total time when the Application is available to the users for performing all activities and tasks. |
| **Measurement of Service level Parameter** | [(Total Uptime of the Application in a quarter) / (Total Time in a quarter)]*100 |

**C) Issue Resolution**

| | |
|---|---|
| **Explanation** | Issue Resolution SLA shall monitor the time taken to resolve a complaint / query after it has been reported by USCL /End user department to the Successful Bidder. |
| **Service Level Requirement** | Different Issues/Queries shall be classified as in following three categories as defined above.<br><br>**Critical** : Issue that impacts more than one production services / is raised by higher management / is impacting high importance areas<br><br>**Medium**: Issue that doesn't impact more than one production services but has a potential to impact or may get escalated to top management if not resolved quickly<br><br>**Low**: Upgrades, shifting, preventive maintenance. Issues which don't have impact on services. |

The calls logged should have two types of priorities –

1. Critical calls that lead to inability of locations / users to perform all functions pertaining to that particular location(s). Such calls will include issues with hardware, software, network, etc. Any dysfunctional hardware at any of the locations would be classified as critical, and
2. Non-critical calls that do not lead to complete disruption of services at any location(s) and there may be some work-around available.

Further, Calls related to application, hardware may be classified as calls pertaining to availability and performance which may be again classified as critical or non-critical. Availability is inversely related to downtime while performance is related to memory usage, CPU usage, etc.

In case of any dispute related to the nature of the call, whether critical or otherwise, a joint meeting shall be convened with the USCL where it would be decided if the call is / was critical. The decision of USCL shall be final.

The Implementing Agency would be required to submit an MIS detailing the number of calls received and their resolution thereof in a periodic manner.

# 5 Model Master Agreement

<<TO BE PREPARED ON STAMP PAPER OF APPROPRIATE VALUE>>

This Contract is made and entered into on this ….. day of <<MONTH<<, 2017 by and between

"**UJJAIN SMART CITY LIMITED**" (hereinafter referred to as **CLIENT**), which expression shall include its successors, administrators, executors and assignees) on the one part

and

**XXXX** having its office at XXXX referred to as the "System Integrator" or the "SI" (which expression shall include its successors, administrators, executors and permitted assignees) on the other part.

Each of the parties mentioned above are collectively referred to as the 'Parties' and individually as a 'Party'.

Whereas

1. Client has desired for Selection of <<PROJECT NAME>> conforming to specifications as set forth in the Scope of Work in the RFP issued.
2. And Whereas the System Integrator represents that it has the necessary capabilities for carrying out the said works as referred to herein and has submitted a bid for providing the required services against Tender No USCL/15 all in accordance with the terms and conditions set forth herein and any other reasonable requirements of the Client from time to time.
3. And Whereas Client has accepted the bid of the System Integrator and has placed Letter of Acceptance / Notification of Award vide its letter No. XXXXXX on the System Integrator.

NOW THEREFORE, in consideration of the mutual covenants, promises, assurances, representations and provisions set forth herein, the Parties hereto agree as follows:

Definitions:

4. In this Contract, the following terms shall be interpreted as indicated:

a) "Business Day" means any day that is not a Sunday or a public holiday (as per the official holidays observed by Client;
b) "Confidential Information" means any information disclosed to or by any Party to this Contract and includes any information in relation to the Parties, a third party or any information with regard to any registrant, or any other person who is covered within the ambit of any legislation related to Client, including any such information that may come to the knowledge of the Parties hereto / Bidder's Team by virtue of this Contract that:
   - is by its nature confidential or by the circumstances in which it is disclosed confidential; or
   - is designated by the disclosing Party as confidential or identified in terms connoting its confidentiality;
   - but does not include information which is or becomes public knowledge other than by a breach of this Contract;
   - But does not include information which is in receiving party's possession prior to receipt from the disclosing party.

- But does not include information which is independently developed or learned by the receiving party.
- But does not include information which is disclosed by the receiving with the prior written approval of the disclosing party.

c) "Contract" means the Agreement entered into between the Client and the "System Integrator" as recorded in the Contract form signed by the Client and the "System Integrator" including all attachments and Annexes thereto, the Tender and all Annexes thereto and the agreed terms as set out in the bid, all documents incorporated by reference therein and amendments and modifications to the above from time to time;

d) "System Integrator's Representative" means the person or the persons appointed by the System Integrator from time to time to act on its behalf for overall co-ordination, supervision and project management.

e) "Document" means any embodiment of any text or image however recorded and includes any data, text, images, sound, voice, codes or and databases or microfilm or computer generated micro fiche.

f) "Effective Date" means the date on which this Contract is signed and executed by the parties hereto. If this Contract is executed in parts, then the date on which the last of such Contracts is executed shall be construed to be the Effective Date;

g) "Intellectual Property Rights" means any patent, copyright, trademark, trade name, design, trade secret, permit, service marks, brands, propriety information, knowledge, technology, licenses, databases, computer programs, software, know how or other form of intellectual property right, title, benefits or interest whether arising before or after the execution of this Contract and the right to ownership and registration of these rights;

h) "Kick off Meeting" means a meeting convened by the Client to discuss and finalize the work execution plan and procedures with System Integrator.

i) The "SI" means the company / consortium with whom the order has been placed for providing Services as specified in this tender/Contract and shall be deemed to include the System Integrator's successors, representatives (approved by the Client), heirs, executors, administrators and permitted assigns, as the case may be, unless excluded by the terms of the Contract.

j) "Lead Bidder" is the entity which is mentioned in the Consortium Agreement as such and in whose favour the LOA is issued by Client.

k) "System Integrator's Team" means the successful Bidder who has to provide services to the Client under the scope of this Tender / Contract. This definition shall also include any and/or all of the employees of Bidder, their authorized agents and representatives and approved Sub-Implementation Agencies or other personnel employed or engaged either directly or indirectly by the System Integrator for the purposes of the Contract.

l) "Parties" means the Client and the System Integrator and "Party" means either of the Parties;

m) "Service" means facilities/services to be provided as per the requirements specified in this tender document and any other incidental services, such as installation, implementation, maintenance, provision of technical assistance and other such obligations of the System Integrator covered under the Contract;

n) "Service Specification" means and include detailed description, statements to technical data, performance characteristics, and standards as applicable and as specified in the Contract as well as those specifications relating to Industry standards and codes applicable to the performance of the work, work performance quality and the specifications affecting the works or any additional specification required to be produced by the System Integrator to meet the design criteria.

o) "Sub-System Integrator" means any person or persons or firm/company or their legal representatives, successors, assignees to which part of the Contract has been outsourced by the System Integrator after necessary consent of Client.

p) "The Contract Price/Value" means the price payable to the System Integrator under the Contract for the full and proper performance of its Contractual obligations;

Interpretation

5. In this Agreement, unless otherwise specified:

a) wherever the term System Integrator is used, it shall mean the Bidder, as applicable. In this Contract unless a contrary intention is evident:

b) the clause headings are for convenient reference only and do not form part of this Contract;

c) unless otherwise specified a reference to a clause number is a reference to all of its sub-clauses;

d) unless otherwise specified a reference to a clause, sub-clause or section is a reference to a clause, sub-clause or section of this Contract including any amendments or modifications to the same from time to time;
e) a word in the singular includes the plural and a word in the plural includes the singular;
f) a word importing a gender includes any other gender;
g) a reference to a person includes a partnership and a body corporate;
h) a reference to legislation includes legislation repealing, replacing or amending that legislation;
i) where a word or phrase is given a particular meaning it includes the appropriate grammatical forms of that word or phrase which have corresponding meanings.
j) in the event of an inconsistency between the terms of this Contract and the Tender and the Bid, the terms hereof shall prevail.
k) all measurements and calculations shall be in the metric system and calculations done to 2 (two) decimal places, with the third digit of 5 (five) or above being rounded up and below 5 (five) being rounded down except in money calculations where such amounts shall be rounded off to the nearest INR.

Ambiguities within Agreement

6. In case of ambiguities or discrepancies within this Agreement, the following principles shall apply:
a) as between two Clauses of this Agreement, the provisions of a specific Clause relevant to the issue under consideration shall prevail over those in a general Clause;
b) as between the provisions of this Agreement and the Schedules/Annexures, the Agreement shall prevail, save and except as expressly provided otherwise in the Agreement or the Schedules/Annexures; and
c) as between any value written in numerals and that in words, the value in words shall prevail.

Priority of Documents

7. This Agreement, including its Schedules and Annexures, represents the entire agreement between the Parties as noted in this Clause. If in the event of a dispute as to the interpretation or meaning of this Agreement it should be necessary for the Parties to refer to documents forming part of the bidding process leading to this Agreement, then such documents shall be relied upon and interpreted in the following descending order of priority:
a) This Agreement along with the SLA agreement, NDA agreement, Schedules and Annexures, including the tri-partite agreement for the bandwidth;
b) Request for Proposal and Addendum / Corrigendum to the Request for Proposal (if any).
8. For the avoidance of doubt, it is expressly clarified that in the event of a conflict between this Agreement, Annexures / Schedules or the contents of the RFP, the terms of this Agreement shall prevail over the Annexures / Schedules and Annexures / Schedules shall prevail over the contents and specifications of the RFP

Conditions Precedent

9. This Contract is subject to the fulfilment of the following conditions precedent by the System Integrator:
a) Furnishing of an unconditional and irrevocable and continuing **Bank Guarantee for Contract Performance of the sum of XXXX /- (XX% of the total Contract value)**, in a form and manner acceptable to the Client which would remain valid until such time and be renewable as may be stipulated by the Client.
b) Execution of a Deed of Indemnity and Non-Disclosure Agreement
c) Obtaining of all statutory and other approvals required for the performance of the Services under this Contract
d) If applicable, the Consortium Agreement should be signed between all the Consortium Members and submitted to Client.

Representations & Warranties

10. In order to convince the Client to enter into this Contract, the System Integrator hereby represents and warrants as of the date hereof, which representations and warranties shall survive the term and termination hereof, the following:

a) it is duly organized and validly existing under the laws of India, and has full power and authority to execute and perform its obligations under this Agreement and other agreements and to carry out the transactions contemplated hereby;

b) That the System Integrator has the requisite experience in providing the services, the technical know-how and the financial wherewithal, the power and the authority that would be required to successfully provide the Services sought by the Client for the purposes of this Contract;

c) That the System Integrator is not involved in any major litigation or legal proceedings, pending, existing, and potential or threatened, that may have an impact of affecting or compromising the performance or delivery of Services under this Contract;

d) That the representations and warranties made by the System Integrator in the bid or will be made in this Contract are and shall continue to remain true and fulfil all the requirements as are necessary for executing the obligations and responsibilities as laid down in the Contract and the Tender and unless the Client specifies to the contrary, the System Integrator shall be bound by all the terms of the Bid and the Contract through the term of the Contract;

e) That the System Integrator has the professional skills, personnel and resources/authorizations that are necessary for providing all such services as are necessary to fulfil the Scope of Work stipulated in the Tender and this Contract;

f) That there shall not be any privilege, claim or assertion made by a third party with respect to right or interest in, ownership, mortgage or disposal of any asset, property, movable or immovable as mentioned in any Intellectual Property Rights, licenses and permits;

g) That the System Integrator shall use such assets of the Client as the Client may permit for the sole purpose of execution of its obligations under the terms of the Bid, Tender or this Contract. The System Integrator shall however, have no claim to any right, title, lien or other interest in any such property, and any possession of property for any duration whatsoever shall not create any right in equity or otherwise, merely by fact of such use or possession during or after the term hereof;

h) That the System Integrator shall procure all the necessary permissions and adequate approvals and licenses for use of various software and any copyrighted process/product free from all claims, titles, interests and liens thereon and shall keep the Client indemnified in relation thereto;

i) That the execution of the Services and the Scope of work herein are and shall be in accordance and in compliance with all applicable laws.;

j) That all conditions precedent under the Contract has been satisfied;

k) That neither the execution and delivery by the System Integrator of the Contract nor the System Integrator's compliance with or performance of the terms and provisions of the Contract;

   i. will contravene any provision of any Applicable Law or any order, writ, injunction or decree of any court or Governmental Authority binding on the System Integrator;

   ii. will conflict or be inconsistent with or result in any breach of any or the terms, covenants, conditions or provisions of, or constitute a default under any Contract, Contract or instrument to which the System Integrator is a party or by which it or any of its property or assets is bound or to which it may be subject or

   iii. will violate any provision of the Memorandum and Articles of Association of the System Integrator;

l) That the System Integrator certifies that all registrations, recordings, filings and notarizations of the Contract and all payments of any tax or duty, including without limitation stamp duty, registration charges or similar amounts which are required to be effected or made by the System Integrator which is necessary to ensure the legality, validity, enforceability or admissibility in evidence of the Contract have been made;

m) That the System Integrator owns, has license to use or otherwise has the right to use, free of any pending or threatened liens or other security or other interests all its Intellectual Property Rights, which are required or desirable for performance of its services under this Contract and regarding the same the System Integrator does not, so far as the System Integrator is aware, in carrying on its business and operations, infringe any Intellectual Property Rights of any person. So far as the System Integrator is aware, none of the Intellectual Property Rights, owned or enjoyed by the System Integrator or which

the System Integrator is licensed to use, which are material in the context of System Integrator's business and operations for the performance of this Contract are being infringed nor, so far as the System Integrator is aware, is there any infringement or threatened infringement of those Intellectual Property Rights licensed or provided to the System Integrator by any person. All Intellectual Property Rights (owned by the System Integrator or which the System Integrator is licensed to use) required by the System Integrator for the performance of the Contract are valid and subsisting. All actions (including registration, payment of all registration and renewal fees) required to maintain the same in full force and effect have been taken thereon and shall keep the Client indemnified in relation thereto;

n) That any Intellectual Property created as a result of this Contract belongs solely to Client;
o) That time is the essence of the Contract and hence the System Integrator shall at all times maintain sufficient manpower, resources, and facilities, to provide the Services in a workmanlike manner on a timely basis.
p) That its security measures, policies and procedures are adequate to protect and maintain the confidentiality of the Confidential Information.
q) That in providing the Services or deliverables or materials, neither System Integrator nor its agent, nor any of its employees, shall utilize information which may be considered confidential information of, or proprietary to, any prior employer or any other person or entity;

11. The Client or its nominated agencies represent and warrant to the 'System Integrator' that:

a) it has full power and authority to execute, deliver and perform its obligations under this Agreement and to carry out the transactions contemplated herein and that it has taken all actions necessary to execute this Agreement, exercise its rights and perform its obligations, under this Agreement and carry out the transactions contemplated hereby;
b) it has taken all necessary actions under Applicable Laws to authorize the execution, delivery and performance of this Agreement and to validly exercise its rights and perform its obligations under this Agreement;
c) it has the financial standing and capacity to perform its obligations under the Agreement;
d) it is subject to the laws of India, and hereby expressly and irrevocably waives any immunity in any jurisdiction in respect of this Agreement or matters arising thereunder including any obligation, liability or responsibility hereunder;
e) this Agreement has been duly executed by it and constitutes a legal, valid and binding obligation enforceable against it in accordance with the terms hereof and its obligations under this Agreement shall be legally valid, binding and enforceable against it in accordance with the terms thereof;
f) the execution, delivery and performance of this Agreement shall not conflict with, result in the breach of, constitute a default under, or accelerate performance required by any of the Applicable Laws or any covenant, contract, agreement, arrangement, understanding, decree or order to which it is a party or by which it or any of its properties or assets is bound or affected;
g) there are no actions, suits or proceedings pending or, to its knowledge, threatened against it at law or in equity before any court or before any other judicial, quasi-judicial or other authority, the outcome of which may result in the default or breach of this Agreement or which individually or in the aggregate may result in any material impairment of its ability to perform its material (including any payment) obligations under this Agreement;
h) it has no knowledge of any violation or default with respect to any order, writ, injunction or any decree of any court or any legally binding order of any Government Instrumentality which may result in any Adverse Effect on the Client or its nominated agencies ability to perform its obligations under this Agreement and no fact or circumstance exists which may give rise to such proceedings that would adversely affect the performance of its obligations under this Agreement;
i) it has complied with Applicable Laws in all material respects;
j) all information provided by it in the RFP in connection with the Project is, to the best of its knowledge and belief, true and accurate in all material respects; and
k) upon the System Integrator performing the covenants herein, it shall not at any time during the term hereof, interfere with peaceful exercise of the rights and discharge of the obligations by the System Integrator, in accordance with this Agreement

Execution of Work Order

12. In the event of tender being submitted with consortium of partners, the Lead Bidder alone will be liable or responsible to the Client for due fulfilment of terms and conditions of the tender including installation, commissioning, operation, management and maintenance of the entire project.
13. The Successful Bidder should nominate and intimate Client a Project Manager specifically to handle the Work Order from Client and ensure that he fully familiarizes with the terms and conditions of the tender, scope of work, Work Order and the guidelines, and is responsible to effectively execute the Work Order complying all the terms and conditions.
14. In the event of tender being submitted with consortium of partners, the consortium cannot change its constituent partners during the execution of the work order without the express written permission from the client.

Assigning of Tender Whole or In Part

15. The System Integrator should not assign or make over the Contract, the benefit or burden thereof to any other person or persons or body corporate except declared consortium partners. They should not underlet or sublet to any person/s or body corporate except declared consortium partners for the execution of the Contract or any part thereof unless a proper approval for subletting is obtained from the Client.

Scope of work/Contract

16. Scope of the Contract shall be as defined in this RFP and the Corrigendum / Addendum issued with respect to this RFP.

General Requirements

17. The Bidder shall study and understand the existing processes and RFP thoroughly.
18. The service delivery shall be of the highest quality.
19. The Bidder should make his own arrangements to obtain all the material required for this work such as PCs, printers, scanners, adequate human resource, stationery deemed necessary at various stages of the project.
20. The Successful Bidder at his own cost shall also arrange all stationary, projectors, drinking water.
21. All hardware and software supplied by the bidder shall be properly stored by the bidder and they shall be responsible for its safe custody until it is supplied to the respective Offices.
22. All necessary use/test cases for the unit and integration testing shall be designed and prepared by the bidder under the guidance of the department.
23. It shall be obligatory for the Bidder to furnish Certificate, if demanded by the Department from manufacturer or the material supplier that the work has been carried out by using their material and as per their Recommendation
24. All electrical materials conforming to the Indian Standard Specification shall be used and the materials must comply with relevant standard specifications

Deviations

25. The tender should be for the complete scope of work and services. However, in case of any minor deviations, the Bidder should clearly and separately state the item that is in deviations in their tender. This should be clearly stated under deviations head quoting the index and serial references in Technical Specifications. Any deviation mentioned elsewhere in the tender but not clearly stated under this section should not be considered. The Bidder should also clearly indicate the services and utilities to be

provided by the Department including their obligations, if any. Client reserves the right to consider or reject these deviations of the tender.

Training

26. Training will be provided by the selected bidder to the officials /staff / users according to need basis. All the training materials (Soft copy & Hard copies) will be provided by the SI. The soft copy shall also be stored in the web portal created under this assignment for easy reference.
27. Client shall provide space for the training and the System Integrator shall provide all other equipment related to training, including but not limited to Systems, Projector, Training Material, etc.
28. Detailed training schedule is provided as a part of scope of work defined in this bid.

Licenses

29. In case of Foreign Supplies, the Successful Bidder should arrange necessary import license and other clearances.
30. All the licenses related to software and hardware procured for Client should be transferred to Client (and should be further transferable by Client to other authorities, such as Municipal Corporation of Ujjain, Education Department and other Schools, etc.) and should be perpetual licenses.

Storage & Risk

31. The Successful Bidder should make arrangements for transportation of Hardware/Software etc., to site and build their own stores for the intermediate storage of equipment, maintain the stores and all related documents and records, transport the equipment to site. System Integrator shall at his own expense adopt suitable Risk Management methodology to mitigate all risks assumed by the System Integrator under this Contract. System Integrator shall underwrite all the risk related to its personnel deputed under this Contract as well as equipment and components of the Client, procured for the Client, equipment, tools and any other belongings of the System Integrator or their personnel during the entire period of their engagement in connection with this Contract and take all essential steps to reduce and mitigate the risk. Tendering Authority or State Government will have no liability on this account.

Duration of the Contract

32. The Contract shall remain valid for implementation period till Go-Live (Completion of Roll Out) and for another 3 Years for operation and maintenance.

Performance Bank Guarantee

33. The Successful Bidder is required to remit the Performance Bank Guarantee equivalent to 5% of the value of the work order inclusive of EMD in the form of unconditional irrevocable Bank Guarantee for a period of Six years from the date of LOA, within fifteen days from the date of LOA. If the accepted Bidder fails to remit the Performance Bank Guarantee within the above said period, their tender will held void and the Earnest Money Deposit remitted by them will be forfeited to Client.

System Integrator’s Obligations

34. SI should perform the Services specified by the Client and make available the necessary equipment / facilities / services as may be necessary and other 'Scope of work' requirements as specified in the tender and changes thereof.
35. The System Integrator shall ensure that the System Integrator's Team is competent, professional and possesses the requisite qualifications and experience appropriate to the task they are required to perform under this Contract. The System Integrator shall ensure that the Services are performed through the efforts of the System Integrator's Team, in accordance with the terms hereof and to the satisfaction of the Client. Nothing in this Contract relieves the System Integrator from its liabilities or obligations under this Contract to provide the Services in accordance with the Client directions and requirements and as stated in this Contract and the Bid to the extent accepted by the Client and the System Integrator shall be liable for any non-performance, non-compliance, breach or other loss and damage resulting either directly or indirectly by or on account of its Team.
36. Warranty - The equipment supplied would carry onsite comprehensive OEM warranty for the entire duration of the Contract. The supplied software shall carry warranty/support as per the agreement between the Client and the software OEMs.
37. Third party claims - The selected System Integrator(s) shall indemnify Client against all third-party claims of infringement of patent, trademark or industrial design rights arising from use of the Goods or any part thereof in India.
38. Delivery and documentation - Delivery of Goods shall be made by the selected System Integrator strictly in accordance with the specifications of the tender document or in case of deviations, the specifications approved and accepted by the Client.
39. Ownership of equipment - All the equipment provided by the selected agency(s) shall virtually have the right to use of the property by Client throughout the Contract period though the ultimate transfer may come much later, after the expiry of the Contract period. The selected agency will therefore not shift, move, and transfer the equipment without the prior consent of the Client. Such a request by the System Integrator should be made with suitable justification and reasoning. However, the System Integrator will be allowed to carry out normal maintenance activities as scheduled. It should be noted that if equipment has to be replaced, the replacement must have a manufacturing date later than that of the equipment being replaced and the configuration of the replacement should be same or higher. Information about all such replacements along with reasons for should be provided in writing to Client.
40. Any equipment or material purchased, procured or developed as a result of this Contract shall belong to Client.
41. Ownership of all the data created during the period of Contract shall be the property of the Client, however, the responsibility of its maintenance, updating, correctness and backup would be that of System Integrator.
42. No third party interest in any form (lien, mortgage, hypothecation etc.) without the prior approval and consent of the Client, can be created on the assets, equipment etc. installed by the selected agency (s).
43. The System Integrator is required to ensure that at least one Senior Staff (Project Leader / Project Manager) who is capable of decision making and required coordination on day-to-day operations of the project are seated full-time at Client Office in Ujjain, for the rollout and O&M of the project.
44. Interpretation of Clauses - In case of any ambiguity in the interpretation of any of the clauses in the RFP, the interpretation of the clauses by Authorized Representative of Client shall be final and binding on all parties.

System Integrator's Representative

45. In case of a consortium, all the entities shall individually appoint their representative in the consortium for purposes of execution of this agreement and communicate the same to Client in writing.
46. Unless otherwise agreed with the Client, the named Project Manager shall be the System Integrator's Representative.
47. The System Integrator's representative shall have all the powers requisite for the performance of services under this Contract. The System Integrator's Representative shall liaise with the Client

Representative for the proper coordination and timely completion of the works and on any other matters pertaining to the works. He will extend full co-operation to Client representative in the manner required by them for supervision / inspection / observation of the facilities, equipment / material, procedures, performance, reports and records pertaining to the works. He shall also have complete charge of the System Integrator's personnel engaged in the performance of the works and to ensure internal discipline, compliance of rules, regulations and safety practice. He shall also co-ordinate and co-operate with the other System Integrators/Vendors of the Client working at the Site/offsite for activities related to planning, execution of scope of work and providing services under this Contract.

Reporting Progress

48. SI shall monitor progress of all the activities specified in the Contract and submit fortnightly and monthly progress report about various aspect of the work to the Client. The Client on mutual agreement between both parties may change the periodicity of such reports. Extracts of the progress report to be termed, as "Executive Summary" shall be submitted in 1 hard copy, along with 1copy of monthly progress report. The same is required to be submitted in soft copy as well. Formats for such reporting shall be discussed at the Kick-Off meeting.

49. The Infrastructure facilities / services, and manpower to be provided by the System Integrator under the Contract and the manner and speed of execution and maintenance of the work are to be conducted in a manner to the satisfaction of Client representative in accordance with the Contract. The rate of progress of the work, compliance to the requirements of the ICCC and departmental offices/its facilities, or any part of them at any time fall behind the stipulated time for completion or is found to be too slow to ensure completion of the works or insufficient for satisfactory operation of the Client, Client representative may so notify the System Integrator in writing.

50. The System Integrator shall reply to the written notice giving details of the measures he proposes to take to expedite the progress so as to complete the works by the prescribed time. The System Integrator shall not be entitled to any additional payment for taking such steps. If at any time it should appear to the Client or Client representative that the actual progress of work does not conform to the approved programme the System Integrator shall produce at the request of the Client representative a revised programme showing the modification to the approved programme necessary to ensure completion of the works within the time for completion or steps initiated to ensure compliance/improvement to the stipulated requirements

Knowledge of Site Conditions

51. The System Integrator's undertaking of this Contract shall be deemed to mean that the System Integrator possesses the knowledge of all the related requirements as stipulated in the Tender Document including but not limited to environmental, demographic and physical conditions and all criteria required to meet the design of the systems.

52. The System Integrator shall be deemed to have understood the requirements and have satisfied himself with the data contained in the Bidding Documents, the quantities and nature of the works and materials necessary for the completion of the works, etc., and in-general to have obtained himself all necessary information of all risks, contingencies and circumstances affecting his obligations and responsibilities therewith under the Contract and his ability to perform it. However, if during the process of site preparation and installation of the equipment at the locations, as required by Client, System Integrator detects any obstructions affecting the work, the System Integrator shall take all measures to overcome them.

53. SI shall be deemed to have satisfied himself as to the correctness and sufficiency of the Contract Price for the works. The consideration provided in the Contract for the System Integrator undertaking the works shall cover all the System Integrator's obligation and all matters and things necessary for proper execution and maintenance of the works in accordance with the Contract and for complying with any

instructions which the Client Representative may issue in accordance with the connection therewith and of any proper and reasonable measures which the System Integrator takes in the absence of specific instructions from the Client Representative.

System Integrator's Team

54. The System Integrator shall submit to the Client 7 days prior to the effective date of commencement of works / services or kick-off meeting whichever is earlier, an organization chart showing the proposed organization/manpower to be established by the System Integrator for execution of the work/facilities including the identities and Curriculum-Vitae of the key personnel to be deployed. The System Integrator shall promptly inform the Client in writing, of any revision or alteration of such organization charts.
55. The team proposed by the System Integrator as a part of the technical proposal should be deployed at Client. Any change in the team profile should be brought in to the notice of Client. System Integrator should ensure that any replacement personnel, if unavoidable, is equivalent or better than the original personnel in terms of experience and qualification.
56. The System Integrator shall be responsible for the deployment, transportation, accommodation and other requirements of all its employees required for the execution of the work and for all costs/charges in connection thereof.
57. The System Integrator shall provide and deploy, on the Site for carrying out the work, only those manpower resources who are skilled and experienced in their respective trades and who are competent to execute or manage/supervise the work in a proper and timely manner. Any deviation from the team proposed in the Technical Bid shall be given to Client as and when required.
58. The Client Representative may at any time object to and require the System Integrator to remove forthwith from the site a supervisor or any other authorized representative or employee of the System Integrator or any person(s) deployed by System Integrator or his agent / sub-Contractor, if, in the opinion of the Client Representative the person in question has misconduct himself or his deployment is otherwise considered undesirable by the Client Representative the System Integrator shall forthwith remove and shall not again deploy the person in question of the work site without the written consent of the Client Representative.
59. The Client Representative may at any time request the System Integrator to remove from the work / Site the System Integrator's supervisor or any other authorized representative including any employee of the System Integrator or his sub-SI or any person(s) deployed by System Integrator or their agent / sub-Contractor for professional incompetence or negligence or for being deployed for work for which he is not suited. The System Integrator shall consider the Client Representative Request and may accede to or disregard it. The Client Representative, having made a request, as aforesaid in the case of any person, which the System Integrator has disregarded, may in the case of the same person at any time but on a different occasion, and for a different instance of one of the reasons referred to above in this Clause object to and require the System Integrator to remove that person from deployment on the work, which the System Integrator shall then forthwith do and shall not again deploy any person so objected to on the work or on the sort of work in question (as the case may be) without the written consent of the Client Representative.
60. The Client Representative shall state to the System Integrator in writing his reasons for any request or requirement pursuant to this clause.
61. The System Integrator shall maintain backup personnel and shall promptly provide replacement of every person removed, pursuant to this section, with an equally competent substitute from the pool of backup personnel.
62. In case of change in its team composition owing to attrition, the System Integrator shall ensure a reasonable amount of time-overlap in activities to ensure proper knowledge transfer and handover/ takeover of documents and other relevant materials between the outgoing and the new member. The exiting team member should be replaced with an equally competent substitute from the pool of backup personnel.

63. The following shall be considered as the approved team for the System Integrator:

As per Annexure

Contract administration

64. Either party may appoint any individual / organization as their authorized representative through a written notice to the other party. Each Representative shall have the authority to:
   a) Exercise all of the powers and functions of his/her Party under this Contract other than the power to amend this Contract and ensure the proper administration and performance of the terms hereof; and Bind his or her Party in relation to any matter arising out of or in connection with this Contract.
   b) The System Integrator along with the members of Sub-Implementation Agencies/third parties shall be bound by all undertakings and representations made by the authorized representative of the System Integrator and any covenants stipulated hereunder, with respect to this Contract, for and on their behalf.
   c) For the purpose of execution or performance of the obligations under this Contract, the Client representative would act as an interface with the nominated representative of the System Integrator. The System Integrator shall comply with any instructions that are given by the Client representative during the course of this Contract in relation to the performance of its obligations under the terms of this Contract and the Tender.
65. A Committee comprising of representatives from the Client and the System Integrator shall meet on a regular basis as per schedule prescribed by Client to discuss any issues / bottlenecks being encountered. The minutes of these meetings shall be prepared and circulated to the participants.

Right of Monitoring, Inspection and Periodic Audit

66. The Client, reserves the right to inspect and monitor/assess the progress/performance/maintenance of the contract at any time during the course of the Contract, after providing due notice to the System Integrator. The Client may demand and upon such demand being made, the Client shall be provided with any document, data, material or any other information which it may require, to enable it to assess the progress of the project.
67. The Client shall also have the right to conduct, either itself or through another party as it may deem fit, an audit to monitor the performance by the System Integrator of its obligations/functions in accordance with the standards committed to or required by the Client and the System Integrator undertakes to cooperate with and provide to the Client / any other party appointed by the Client all documents and other details as may be required by them for this purpose. Any deviations or contravention identified as a result of such audit/assessment would need to be rectified by the System Integrator failing which the Client may, without prejudice to any other rights that it may have issue a notice of default.
68. Prior to any other party being appointed for such an audit, the Bidder will be requested to provide a list of entities that it deems not appropriate to conduct the said audit, which should be provided to Client within a 7 calendar days of such a request being made. Client shall then decide on this matter as appropriate.

Client Obligations

69. The Client Representative shall interface with the System Integrator, to provide the required information, clarifications, and to resolve any issues as may arise during the execution of the Contract. Client shall provide adequate cooperation in providing details, assisting with coordinating and obtaining of approvals from various governmental agencies, in cases, where the intervention of the Client is proper and necessary.
70. Client shall ensure that timely approval is provided to the System Integrator, where deemed necessary, which should include details and all specifications related to equipment/material required to be provided as part of the Scope of Work.

Information Security

71. The System Integrator shall not carry and/or transmit any material, information, layouts, diagrams, storage media or any other goods/material in physical or electronic form, which are proprietary to or owned by the Client out of its premises without prior written permission from the Client.
72. The System Integrator shall adhere to the Information Security policy developed by the Government of India.
73. SI acknowledges that Client business data and other Client proprietary information or materials, whether developed by Client or being used by Client pursuant to a license agreement with a third party (the foregoing collectively referred to herein as "proprietary information") are confidential and proprietary to Client; and System Integrator agrees to use reasonable care to safeguard the proprietary information and to prevent the unauthorized use or disclosure thereof, which care shall not be less than that used by System Integrator to protect its own proprietary information. System Integrator recognizes that the goodwill of Client depends, among other things, upon System Integrator keeping such proprietary information confidential and that unauthorized disclosure of the same by System Integrator could damage Client and that by reason of System Integrator's duties here under. System Integrator may come into possession of such proprietary information, even though System Integrator does not take any direct part in or furnish the services performed for the creation of said proprietary information and shall limit access thereto to employees with a need to such access to perform the services required by this agreement. System Integrator shall use such information only for the purpose of performing the said services.
74. SI shall, upon termination of this agreement for any reason, or upon demand by Client whichever is earliest, return any and all information provided to System Integrator by Client including any copies or reproductions, both hard copy and electronic copy.

Ownership of Equipment

75. The Client shall own the equipment / software and data centre infrastructure, supplied by the System Integrator arising out of or in connection with this Contract. Client shall reserve rights to use the software for any other applications or purpose other than mentioned in this RFP.

Intellectual Property Rights

76. Products and fixes: All products and related solutions and fixes provided pursuant to this work order shall be licensed according to the terms of the license agreement packaged with or otherwise applicable to such product. System Integrator would be responsible for arranging any licenses associated with products. "Product" means any computer code, web-based services, or materials comprising commercially released, pre-release or beta products (whether licensed for a fee or no charge) and any derivatives of the foregoing which are made available to Client for license which is published by product owner or its affiliates, or a third party. "Fixes" means product fixes that are either released generally (such as commercial product service packs) or that are provided to you when performing services (such as workarounds, patches, bug fixes, beta fixes and beta builds) and any derivatives of the foregoing.
77. Bespoke development: Subject to the provisions of Clauses below, upon payment, the IPR rights for any bespoke development done during the implementation of the project will lie with Client. System Integrator shall be entitled to a broad license back in the bespoke development for its internal usage and other e-governance projects.
78. Pre-existing work: All IPR including the source code and materials developed or otherwise obtained independently of the efforts of a party under this Agreement ("pre-existing work") including any enhancement or modification thereto shall remain the sole property of that party. During the

performance of the services for this agreement, each party grants to the other party (and their sub-contractors as necessary) a non-exclusive license to use, reproduce and modify any of its pre-existing work provided to the other party solely for the performance of such services for duration of the Term of this Agreement. Except as may be otherwise explicitly agreed to in a statement of services, upon payment in full, the System Integrator should grant Client a non-exclusive, perpetual, fully paid-up license to use the pre-existing work in the form delivered to Client as part of the service or deliverables only for its internal business operations. Under such license, either of parties will have no right to sell the pre-existing work of the other party to a Third Party. Client's license to pre-existing work is conditioned upon its compliance with the terms of this Agreement and the perpetual license applies solely to the pre-existing work that bidder leaves with Client at the conclusion of performance of the services.

79. Residuals: In no event shall System Integrator be precluded from independently developing for itself, or for others, anything, whether in tangible or non-tangible form, which is competitive with, or similar to, the deliverables set-out in this Agreement or Annexure. In addition, subject to the confidentiality obligations, System Integrator shall be free to use its general knowledge, skills and experience, and any ideas, concepts, know-how, and techniques that are acquired or used in the course of providing the Services.

Insurance

80. SI shall, at his own expense, arrange appropriate comprehensive insurance to cover all risks assumed by the System Integrator under this Contract in respect of its personnel deputed under this Contract as well as System Integrator's equipment, tools and any other belongings of the System Integrator or their personnel during the entire period of their engagement in connection with this Contract. Client will have no liability on this account.

81. SI shall take out insurance policies against all risks of loss or damage caused to Client property / equipment for property / equipment owned or hired by Client and the works and part of the works taken over by Client, including but not limited to theft, fire, flood, arson, and any other natural or man-made causes.

82. Notwithstanding anything contained in any provision of this Contract, save as specified above in this Clause Client shall defend, indemnify and hold System Integrator harmless from and against any losses, damages, cost or claims relating to Client existing property except in case of gross negligence or wilful misconduct of the System Integrator, its sub-System Integrators, their agents or employees, in which case the System Integrator shall be liable to bear any loss or damage occurring to the Property of the Client as a result of its gross negligence or wilful misconduct, provided however, that such liability shall be limited to 100% of the Contract Price.

83. "Gross Negligence" means: any act or failure to act (whether sole, joint or concurrent) by a person or entity which was intended to cause, or which was in reckless disregard of or wanton indifference to, avoidable and harmful consequences such person or entity knew, or should have known, would result from such act or failure to act. Notwithstanding the foregoing, Gross negligence shall not include any action taken in good faith for the safeguard of life or property, "wilful misconduct" means: "intentional disregard of good and prudent standards of performance or proper conduct under the Contract with knowledge that it is likely to result in any injury to any person or persons or loss or damage of property.

84. Certificate of Insurance: Before commencing performance of the Contract, System Integrator shall upon request furnish Client with certificates of insurance indicating (1) kinds and amounts of insurance as required herein (2) insurance Client or companies carrying the aforesaid coverage (3) effective and expiry dates of policies (4) that Client shall be given thirty (30) days written advance notice of any material change in the policy (5) waiver of subrogation endorsement has been attached to all policies and (6) the territorial limits of all policies. If any of the above policy expire or/ are cancelled during the term of this Contract and System Integrator fails for any reason to renew such policies, then Client may replace same and charge the cost thereof to System Integrator. Should the relapse in any insurance

required to be carried out by System Integrator hereunder for any reason; losses resulting there from shall be to the sole account of the System Integrator. Such insurance shall be affected within Insurance Company incorporated and registered in India or jointly with a company of International repute and an Insurance Company incorporated and registered in India.

Indemnity

85. The System Integrator shall execute and furnish to the Client a Deed of Indemnity in favour of the Client in a form and manner acceptable to the Client indemnifying the Client from and against any costs, loss, damages, expense, claims, patents, trademarks, copyrights including those from third parties or liabilities of any kind howsoever suffered, arising or incurred inter alia during and after the Contract period out of:
86. any negligence or wrongful act or omission by the System Integrator or the System Integrator's Team or any sub-System Integrator/ third party in connection with or incidental to this Contract; or
87. Any breach of any of the terms of the System Integrator's Bid as agreed, the Tender and this Contract by the System Integrator, the System Integrator's Team or any sub-System Integrator/ third party.
88. The indemnity shall be to the extent of 100% in favour of the Client.

Confidentiality

89. The System Integrator shall not use Confidential Information (Biometric Records etc.), the name or the logo of the Client except for the purposes of providing the Service as specified under this Contract;
90. The System Integrator may only disclose Confidential Information in the following circumstances: with the prior written consent of the Client; to a member of the System Integrator's Team ("Authorized Person") if:
    a) the Authorized Person needs the Confidential Information for the performance of obligations under this Contract;
    b) the Authorized Person is aware of the confidentiality of the Confidential Information and is obliged to use it only for the performance of obligations under this Contract
91. The System Integrator shall do everything reasonably possible to preserve the confidentiality of the Confidential Information including execution of a confidentiality agreement with the members of the, sub Implementation Agencies and other System Integrator's team members to the satisfaction of the Client.
92. The System Integrator shall sign a Non-Disclosure Agreement (NDA) with the Client. The System Integrator, its antecedents and the sub-Contractor shall be bound by the NDA. The System Integrator will be held responsible for any breach of the NDA by its antecedents, delegates or sub-Implementation Agencies
93. The System Integrator shall notify the Client promptly if it is aware of any disclosure of the Confidential Information otherwise than as permitted by this Contract or with the authority of the Client.
94. The System Integrator shall be liable to fully recompense the Client for any loss of revenue arising from breach of confidentiality. The Client reserves the right to adopt legal proceedings, civil or criminal, against the System Integrator in relation to a dispute arising out of breach of obligation by the System Integrator under this clause.

Term and Extension of the Contract

95. The term of this Contract shall be initially for a period of three years from the date of Go-Live issued by Client.
96. After the expiry of Contract period, Client may extend the Contract term by 3 months twice subject to maximum of 6 months at the discretion of the Client, for which payment may be made at the same rate

of quarterly payment as specified in the last payment milestones / payments made to the SI. The System Integrator will have to compulsorily provide support for the extended term. After that if mutually agreed it can further be extended for 3 months twice. For this mutually agreed extended period, the amount will be paid on mutually agreed rate. The Client shall reserve the sole right to grant any extension to the term above mentioned and shall notify in writing to the System Integrator, at least 3 months before the expiration of the Term hereof, whether it will grant the System Integrator an extension of the Term. The decision to grant or refuse the extension shall be at the Client discretion.

97. Where the Client is of the view that no further extension of the term be granted to the System Integrator, the Client shall notify the System Integrator of its decision at least 3 (three) months prior to the expiry of the Term. Upon receipt of such notice, the System Integrator shall continue to perform all its obligations hereunder, until such reasonable time beyond the Term of the Contract within which, the Client shall either appoint an alternative System Integrator/System Integrator or create its own infrastructure to operate such Services as are provided under this Contract.

98. In case Client decides to renew the O&M for the SI, the same shall be at the rates per year which shall be the minimum of:

a) The rate for O&M per year quoted by the System Integrator in the Commercial Bid for the Last such Time Period (Year)
b) Rate of maintenance as specified in the Payment Milestones.

Prices

99. Prices quoted must be firm and shall not be subject to any upward revision on any account whatsoever throughout the period of Contract.

Alteration / Variation

100. The System Integrator agrees that the requirements given in specifications of the Bidding Documents are broad requirements and are in no way exhaustive and guaranteed by the Client.

101. It shall be the responsibility of the System Integrator to meet all the requirements contained in the Bidding Documents and any upward revisions and / or additions of quantities / specifications / sizes given in Specifications and drawings etc. of the Bidding Documents required to be made during commissioning of ICCC and department offices shall not constitute a change order and shall be carried out without a change order and shall be carried out without any time and cost effect to Client.

102. Further upward revisions and or additions required to make System Integrator's selected space, facilities, equipment and installation procedures to meet Bidding Documents requirements expressed and to make entire facilities safe, operable and as per specified codes and standards shall not constitute a change order and shall be carried out without any time and cost effect to Client.

103. Any upward revision and/or additions consequent to errors, omissions, ambiguities, discrepancies in the specification, etc. of the Bidding Documents which the System Integrator had not brought out to the Client notice in his tender shall not constitute a change order and such upward revisions and/or addition shall be carried out by System Integrator without any time and cost effect to Client.

Change Order

104. The change order will be initiated only in case

a) The Client directs in writing the System Integrator to include any addition to the scope of work covered under this Contract or delete any part of the scope of the work under the Contract,
b) SI requests to delete any part of the work which will not adversely affect the operational capabilities of the facilities and if the deletions proposed are agreed to by the Client and for which cost and time benefits shall be passed on to the Client
c) The Client directs in writing the System Integrator to incorporate changes or additions to the various requirements already covered in the Contract.

105. Any changes required by the Client over and above the minimum requirements given in the specifications and drawings etc. included in the Bidding Documents before giving its approval to detailed design or Engineering for complying with design criteria and changes required to ensure systems compatibility and reliability for safe (As per codes, standards and recommended practices referred in the Bidding Documents) and trouble free operation shall not be construed to be change in the Scope of work under the Contract.
106. Any change order comprising an alteration which involves change in the cost of the works (which sort of alteration is hereinafter called a "Variation") shall be the Subject of an amendment to the Contract by way of an increase or decrease in the Contract Price and adjustment of the implementation schedule if any.
107. If there is a different of opinion between the System Integrator and Client Representative whether a particular work or part of the work constitutes a change order or not, the matter shall be handled in accordance with the procedures set forth in Clause "Procedures for Change Order"
108. Within 14 working days of receiving the comments from the Client or the drawings, specification, purchase requisitions and other documents submitted by the System Integrator for approval, the System Integrator shall respond in writing, which item(s) of the Comments is/are potential changes(s) in the "Scope of work" of the RFP covered in the Contract and shall advise a date by which change request (if applicable) will be submitted to the Client.

Procedures for Change Order

109. During detailed Engineering and subsequently, if the System Integrator observes that any new requirement which other than that required for meeting the design criteria is not specific or intended by the Contract has been stipulated by the Client while approving the specifications, calculations, purchase requisitions, other documents etc. he would verbally discuss the matter with Client Representative. Any addition of modules/sub-modules in the Client software as required by the department during implementation or O&M phase shall not constitute a change order.
110. In case such requirement arises from the side of the System Integrator, he would also verbally discuss the matter with Client Representative giving reasons thereof.
111. The representatives of both the parties will discuss on the new requirement for better understanding and to mutually decide whether such requirement constitutes a change order or not.
112. If it is mutually agreed that such Requirement constitutes a "Change Order" then a joint memorandum will be prepared and signed by the System Integrator and Client to confirm a "Change Order" and basic ideas of necessary agreed arrangement.
113. Upon completion of the joint memorandum referred to above the results along with all relevant details including the estimated time and cost effect thereof with supporting documents would be submitted to the Client to enable the Client to give a final decision whether System Integrator should proceed with the change order or not in the best interest of the works. The estimated cost and time impact indicated by System Integrator shall be considered as a ceiling limit and shall be provisionally considered for taking a decision to implement change order. The time impact applicable to the Contract shall be mutually agreed, subsequently, on the basis of the detailed calculations supported with all relevant back up documents. In case System Integrator fails to submit all necessary support and back up documents, the decision of the Client regarding time and cost shall be final and binding on the System Integrator.
114. If Client accepts the implementation of the change order above in writing, which would be considered as change order, then System Integrator shall commence to proceed with the relevant work stipulated in the change order pending final agreement between the parties with regard to adjustment of the Contract Price and the Construction Schedule.
115. In case, mutual agreement whether new requirement constitutes the change order or not, is not reached, then System Integrator in the interest of the works, shall take up the implementation of the work, if advised in writing to do so by Client Representative pending settlement between the two parties to the effect whether such requirement constitutes a change order or not as per the terms and conditions of Contract documents. The time and cost effects in such a case shall be mutually verified and recorded.

Should it establish that the said work constitutes a change order; the same shall be compensated as per the clause given below.

116. The System Integrator shall submit necessary back up documents for the change order showing the break-up of the various elements constituting the change order for the Client review. If no agreement is reached between the Client and System Integrator within 60 days after Client instruction in writing to carry out the change concerning the increase or decrease in the Contract price and all other matters described above, either party may refer the dispute to arbitration.

Change of Size / Quantities

117. The Client will have the option to increase or decrease the size of the dedicated and exclusive space at its offices as well as the related quantities of equipment/material to be provisioned by the System Integrator as mentioned in the Contract, at any time before work is initiated at the site, provided that such increase or decrease shall not exceed twenty five per cent (25%). The changes would be effected by using the unit price quoted by the System Integrator. In case the change required by the Client exceeds 25% of the total Contract Price, the said change would be subject to the System Integrator providing his written consent to the Client request.

Conditions for extra work / change order

118. The provisions of the Contract shall apply to extra work performed as if the Extra work / Change order has been included in the original Scope of work. However, the Contract Price shall increase / decrease and the Time Schedule shall be adjusted on account of the Extra work / Change orders as may be mutually agreed in terms of provisions set forth in this contract. The System Integrator's obligations with respect to such work remain in accordance with the Contract.

119. The rates provided by the System Integrator as part of its commercial quote will be considered as benchmark rates for placing change orders, if any.

Suspension of Work

120. The System Integrator shall, if ordered in writing by the Client Representative, temporarily suspend the works or any part thereof for such a period and such a time as ordered. The System Integrator shall not be entitled to claim compensation for any loss or damage sustained by him by reason of temporary suspension of the Works as aforesaid. An extension of time for completion, corresponding with the delay caused by any such suspension of the works as aforesaid shall be granted to the System Integrator, if request for same is made and that the suspension was not consequent to any default or failure on the part of the System Integrator. In case the suspension of works, is not consequent to any default or failure on the part of the System Integrator, and lasts for a period of more than 3 months, the System Integrator shall have the option to request the Client to terminate the Contract with mutual consent.

121. In the event that the Client suspends the progress of work for any reason not attributable to the System Integrator for a period in excess of 90 days in aggregate, rendering the System Integrator to extend his performance guarantee then Client shall bear only the cost of extension of such bank guarantee for such extended period restricted to the normal bank rates as applicable in the international banking procedures subject to the System Integrator producing the requisite evidence from the bank concerned.

Tenure of Contract

122. Unless terminated earlier, the Contract shall terminate on the completion of term as specified in the Contract and only after the obligations mentioned in the contract are fulfilled to the satisfaction of the Client.

Implementation Schedule

123. Implementation Schedule as per Annexure .

Payment Schedule

124. All payments under this Contract shall be made to the Lead Bidder only and will be made in Indian Rupees only. Client reserves the right to release the part payment for completed work against the milestone payment.
125. Payment Schedule as per Annexure
126. Price Bid as per Annexure .

Service Level Agreement

127. Service Level Agreements as per Annexure .

Penalty for Non-Fulfilment of Service Level Agreement

128. In case of non-conformity to SLA terms penalty will be deducted from the payment as mentioned in the SLA

Events of Default by the System Integrator

129. The failure on the part of the System Integrator to perform any of its obligations or comply with any of the terms of this Contract shall constitute an Event of Default on the part of the System Integrator. The events of default as mentioned above may include inter-alia the following:
130. the System Integrator has failed to perform any instructions or directives issued by the Client which it deems proper and necessary to execute the scope of work under the Contract, or
131. The System Integrator has failed to adhere to any of the key performance indicators as laid down in the Key Performance Measures / Contract, or if the System Integrator has fallen short of matching such standards/targets as the Client may have designated with respect to any task necessary for the execution of the scope of work under this Contract. The above mentioned failure on the part of the System Integrator may be in terms of failure to adhere to timelines, specifications, requirements or any other criteria as defined by the Client;
132. the System Integrator has failed to remedy a failure to perform its obligations in accordance with the specifications issued by the despite being served with a default notice which laid down the specific deviance on the part of the System Integrator to comply with any stipulations or standards as laid down by the Client; or
133. the System Integrator/System Integrator's Team has failed to conform with any of the Service/Facility Specifications/standards as set out in the scope of work of this Tender document or has failed to adhere to any amended direction, modification or clarification as issued by the Client during the term of this Contract and which the Client deems proper and necessary for the execution of the scope of work under this Contract

134. the System Integrator has failed to demonstrate or sustain any representation or warranty made by it in this Contract, with respect to any of the terms of its Bid, the Tender and this Contract
135. There is a proceeding for bankruptcy, insolvency, winding up or there is an appointment of receiver, liquidator, assignee, or similar official against or in relation to the System Integrator.
136. The System Integrator/System Integrator's Team has failed to comply with or is in breach or contravention of any applicable laws.
137. Where there has been an occurrence of such defaults inter alia as stated above, the Client shall issue a notice of default to the System Integrator, setting out specific defaults / deviances / omissions and providing a notice of Sixty (60) days to enable such defaulting party to remedy the default committed.
138. Where despite the issuance of a default notice to the System Integrator by the Client the System Integrator fails to remedy the default to the satisfaction of the System Integrator, the Client may, where it deems fit, issue to the defaulting party another default notice or proceed to adopt such remedies as may be available to the Client.
139. If the System Integrator is given a penalty of more than 25% of any milestone payment, it constitutes a default and the Client has the right to consider the termination at any time after the default.

Consequences in Event of Default

140. Where an Event of Default subsists or remains uncured the Client may/shall be entitled to:
141. Impose any such obligations and conditions and issue any clarifications as may be necessary to inter alia ensure smooth continuation of Services and the project which the System Integrator shall be obliged to comply with which may include unilateral re-determination of the consideration payable to the System Integrator hereunder. The System Integrator shall in addition take all available steps to minimize loss resulting from such event of default.
142. The Client may, by a written notice of suspension to the System Integrator, suspend all payments to the System Integrator under the Contract, provided that such notice of suspension:
    a) shall specify the nature of the failure; and
    b) shall request the System Integrator to remedy such failure within a specified period from the date of receipt of such notice of suspension by the System Integrator
143. Where the Client deems necessary, it shall have the right to require replacement of any of the System Integrator's agents / sub-Contractors / vendors with another suitable member. The System Integrator shall in such case terminate forthwith all their agreements/Contracts other arrangements with such member and find of the suitable replacement for such outgoing member with another member to the satisfaction of the Client who shall execute such Contracts with the Client as the Client may require. Failure on the part of the System Integrator to find a suitable replacement and/or terminate all agreements/Contracts with such member, shall amount to a breach of the terms hereof and the Client in addition to all other rights, have the right to claim damages and recover from the System Integrator all losses/ or other damages that may have resulted from such failure.

Termination of the Contract:

144. In case of termination of the Contract, Client retains the right to

    c) Retain such amounts from the payment due and payable by the Client to the System Integrator as may be required to offset any losses caused to the Client as a result of such event of default and the System Integrator shall compensate the Client for any such loss, damages or other costs, incurred by the Client in this regard. Nothing herein shall effect the continued obligation of the agents / sub-Contractor / other members of its Team to perform all their obligations and responsibilities under this Contract in an identical manner as were being performed before the occurrence of the default.
    d) Invoke the Security Deposit and other Guarantees furnished hereunder, enforce the Deed of Indemnity, recover such other costs/losses and other amounts from the System Integrator may have resulted from such default and pursue such other rights and/or remedies that may be available to the Client under law.

Termination

145. The Client may, terminate this Contract in whole or in part by giving the System Integrator prior and written notice indicating its intention to terminate the Contract under the following circumstances

a) Where the Client is of the opinion that there has been such Event of Default on the part of the System Integrator which would make it proper and necessary to terminate this Contract and may include failure on the part of the System Integrator to respect any of its commitments with regard to any part of its obligations under its Bid, the Tender or under this Contract.
b) Where it comes to the Client's attention that the System Integrator (or the System Integrator's Team) is in a position of actual conflict of interest with the interests of the Client in relation to any of terms of the System Integrator's Bid, the Tender or this Contract
c) Where the System Integrator's ability to survive as an independent corporate entity is threatened or is lost owing to any reason whatsoever, including inter-alia the filing of any bankruptcy proceedings against the System Integrator, any failure by the System Integrator to pay any of its dues to its creditors, the institution of any winding up proceedings against the System Integrator or the happening of any such events that are adverse to the commercial viability of the System Integrator. In the event of the happening of any events of the above nature, the Client shall reserve the right to take any steps as are necessary, to ensure the effective transition of the project to a successor System Integrator/System Integrator, and to ensure business continuity
d) Termination for Insolvency: The Client may at any time terminate the Contract by giving written notice to the System Integrator, without compensation to the System Integrator, if the System Integrator becomes bankrupt or otherwise insolvent, provided that such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to the Client.
e) Termination for Convenience: The Client may, by prior written notice sent to the System Integrator at least 6 months in advance, terminate the Contract, in whole or in part at any time for its convenience. The notice of termination shall specify that termination is for the Client convenience, the extent to which performance of work under the Contract is terminated, and the date upon which such termination becomes effective.
f) The System Integrator may, subject to approval by the Client terminate this Contract before the expiry of the term by giving the Client a prior and written notice at least 6 months in advance indicating its intention to terminate the Contract by paying losses to the Client as estimated by the Client.

Consequences of Termination

146. In the event of termination of this Contract due to any cause whatsoever except Termination for Convenience, Acts, Rules, Regulations, Procedures and Precedents shall be followed for further action on the SI, including up-to blacklisting of the SI. Before any adverse action is taken, the System Integrator will be provided reasonable opportunity to explain its position.

147. In the event of termination of this Contract due to any cause whatsoever, [whether consequent to the stipulated Term of the Contract or otherwise] the Client shall be entitled to impose any such obligations and conditions and issue any clarifications as may be necessary to ensure an efficient transition and effective business continuity of the project which the System Integrator shall be obliged to comply with and take all available steps to minimize loss resulting from that termination/breach, and further allow and provide all such assistance to the Client and/or the successor System Integrator/System Integrator, as may be required, to take-over the obligations of the erstwhile System Integrator in relation to the execution/continued execution of the scope of this Contract.

148. Where the termination of the Contract is prior to its stipulated term on account of a Default on the part of the System Integrator or due to the fact that the survival of the System Integrator as an independent corporate entity is threatened/has ceased, or for any other reason, whatsoever, the Client through unilateral re-determination of the consideration payable to the System Integrator shall pay the System Integrator for that part of the Services which have been authorized by the Client and satisfactorily performed by the System Integrator up to the date of termination. Without prejudice any other rights, the Client may retain such amounts from the payment due and payable by the Client to the System

Integrator as may be required to offset any losses caused to the Client as a result of any act/omissions of the System Integrator. In case of any loss or damage due to default on the part of the System Integrator in performing any of its obligations with regard to executing the scope of work under this Contract, the System Integrator shall compensate the Client for any such loss, damages or other costs, incurred by the Client. Additionally, the sub System Integrator / other members of its team shall perform all its obligations and responsibilities under this Contract in an identical manner as were being performed before the collapse of the System Integrator as described above in order to execute an effective transition and to maintain business continuity. All third parties shall continue to perform all/any functions as stipulated by the Client and as may be proper and necessary to execute the scope of work under the Contract in terms of the System Integrator's Bid, the Tender and this Contract.

149. Nothing herein shall restrict the right of the Client to invoke the Bank Guarantee and other Guarantees furnished hereunder, enforce the Deed of Indemnity and pursue such other rights and/or remedies that may be available to the Client under law.

150. The termination hereof shall not affect any accrued right or liability of either Party nor affect the operation of the provisions of this Contract that are expressly or by implication intended to come into or continue in force on or after such termination.

Penalty

151. The System Integrator should sign the Contract with in the timelines as specified in this RFP. Any Delay in signing the Contract would attract a penalty of INR 50,000 per week.

Liquidated Damages for Non-Fulfilment of Commissioning Schedule

152. A penalty as per service level agreement of late completion beyond the stipulated commissioning schedule will be levied.

153. In the case it leads to termination, the Client shall give 30 days' notice to the System Integrator of its intention to terminate the Contract and shall so terminate the Contract unless during the 30 days' notice period, the System Integrator initiates remedial action acceptable to the Client.

154. The Client may without prejudice to its right to affect recovery by any other method, deduct the amount of liquidated damages from any money belonging to the System Integrator in its hands (which includes the Client right to claim such amount against System Integrator's Bank Guarantee) or which may become due to the System Integrator. Any such recovery or liquidated damages shall not in any way relieve the System Integrator from any of its obligations to complete the Works or from any other obligations and liabilities under the Contract.

Compliance with Statutory Requirements

155. The System Integrator shall have to comply with the Contract Labour Act (Regulation & Abolition Act), Apprentices Act 1961, Payment of Wages Act, Minimum Wages Act, Employee State insurance Act, Employee Provident Fund and Miscellaneous provision Act, Fatal Accident Act, and other applicable Labour and other Laws and Regulations in force from time to time.

Special Terms

156. Client reserves the right to reduce or increase the quantity requirement to an extent of 25% of tendered value at the time of releasing the work order or by issue of an amendment subsequently.

157. Any additional active devices that will be provided by Client, during the Contract period, which may be under warranty/AMC shall be deployed and monitored by the Successful Bidder as per the SLA and terms and conditions of the tender.

158. The System Integrator is allowed to sub-Contract some of the activities mentioned in the Contract scope only after approval from the Client. The sub-Contracting should be limited to only one level. In case of any deviations, penalties may be imposed.
159. During the Contract period, any additional internet bandwidth as required in the name of Client is to be provided by the System Integrator at the rates finalised in the tender.
160. During the Contract period, if any tariff reduction is announced by TRAI or the operators, the same has to be extended by the System Integrator to the internet bandwidth and services.
161. After the expiry of Contract period, it may be extended to maximum of two quarter at same quarterly cost in the Last Quarter, at the discretion of the Client. In case of any further extensions, the same may be done at a mutually agreed rate.

Dispute Resolution

162. The Client and the System Integrator shall make every effort to resolve amicably by direct informal negotiations, any disagreement or disputes, arising between them under or in connection with the Contract.
163. If, after Thirty (30) days from the commencement of such direct informal negotiations, the Client and the System Integrator have been unable to resolve amicably a Contract dispute, either party may require that the dispute be referred for resolution to the formal mechanism specified in Clauses.
164. In the case of a dispute or difference arising between the Client and the System Integrator relating to any matter arising out of or connected with this Contract, such dispute or difference shall be resolved in accordance under The Arbitration and Conciliation Act, 1996 (amended in 2015) and as amended from time to time.
165. The party raising the dispute shall bear the costs related to filing and proceedings of the Arbitration.
166. The Client may terminate this Contract, by giving a written notice of termination of minimum 30 days, to the System Integrator, if the System Integrator fails to comply with any decision reached consequent to this process.
167. Continuance of the Contract: Notwithstanding the fact that settlement of dispute(s) (if any) under any proceedings, the parties hereto shall continue to be governed by and perform the work in accordance with the provisions under the Scope of Work to ensure continuity of operations.

Limitation of the System Integrator's Liability towards the Client

168. Except in case of gross negligence or wilful misconduct on the part of the System Integrator or on the part of any person or company acting on behalf of the System Integrator in carrying out the Services, the System Integrator, with respect to damage caused by the System Integrator to Client property, shall not be liable:
    a) for any indirect or consequential loss or damage; and
    b) For any direct loss or damage that exceeds (A) the total payments payable under his Contract to the System Integrator hereunder, or (B) the proceeds the System Integrator may be entitled to receive from any insurance maintained by the System Integrator to cover such a liability, whichever of (A) or (B) is higher.
169. This limitation of liability shall not affect the System Integrator liability, if any, for damage to Third Parties caused by the System Integrator or any person or firm / company acting on behalf of the System Integrator in carrying out the Services.

Conflict of interest

170. The System Integrator shall disclose to the Client in writing, all actual and potential conflicts of interest that exist, arise or may arise (either for the System Integrator or the System Integrator's Team) in the course of performing the Services as soon as practical after it becomes aware of that conflict.

Severance

171. In the event any provision of this Contract is held to be invalid or unenforceable under the applicable law, the remaining provisions of this Contract shall remain in full force and effect.

Governing Language

172. The Agreement shall be written in English language. All correspondence and other documents pertaining to the Contract that are exchanged by parties shall be written in English language only.

"No Claim" Certificate

173. The System Integrator shall not be entitled to make any claim, whatsoever against the Client under or by virtue of or arising out of, this Contract, nor shall the Client entertain or consider any such claim, if made by the System Integrator after he shall have signed a "No claim" certificate in favour of the Client in such forms as shall be required by the Client after the works are finally accepted.

Publicity

174. The System Integrator shall not make or permit to be made a public announcement or media release about any aspect of this Contract unless the Client first gives the System Integrator its written consent.

Force Majeure

175. Force Majeure shall not include any events caused due to acts/omissions of such Party or result from a breach/contravention of any of the terms of the Contract, Bid and/or the Tender. It shall also not include any default on the part of a Party due to its negligence or failure to implement the stipulated/proposed precautions, as were required to be taken under the Contract.

176. The failure or occurrence of a delay in performance of any of the obligations of either party shall constitute a Force Majeure event only where such failure or delay could not have reasonably been foreseen, or where despite the presence of adequate and stipulated safeguards the failure to perform obligations has occurred. In such an event, the affected party shall inform the other party in writing within five days of the occurrence of such event. The Client will make the payments due for Services rendered till the occurrence of Force Majeure. However, any failure or lapse on the part of the System Integrator in performing any obligation as is necessary and proper, to negate the damage due to projected force majeure events or to mitigate the damage that may be caused due to the abovementioned events or the failure to provide adequate disaster management/recovery or any failure in setting up a contingency mechanism would not constitute force majeure, as set out above.

177. In case of a Force Majeure, all Parties will endeavour to agree on an alternate mode of performance in order to ensure the continuity of service and implementation of the obligations of a party under the Contract and to minimize any adverse consequences of Force Majeure.

Exit Management

178. For the completion of the Contract period or extension thereof, the current System Integrator shall follow the Exit Management Plan given below.

a) Selection of the System Integrator for the period beyond the current Contract (hereinafter referred to as 'New SI'') by Client. The current System Integrator can also bid for the same.

b) Submission of reports on the history of physical infrastructure / IT hardware / software by the Current System Integrator to Client.
c) Specification of configuration changes (based on the approval of Client) with necessary document proof by the current SI.
d) Submission of documentation on the current configuration to IDMS application, hardware, etc.
e) Verification and acceptance of documentation with respect to the physical inventory by Client.
f) Deployment of resources at the Client and ICCC, etc. by the New System Integrator to meet the SLA requirements.
g) Current System Integrator has to co-ordinate with the New System Integrator for smooth rollout.
h) Parallel run by the New System Integrator and Current System Integrator for a period of 1 month to 3 months. The Current System Integrator has to provide necessary training to the New System Integrator for smooth takeover of operations.
i) The Current System Integrator shall transfer in good and working condition, all equipment (without any liability) necessary for the proper and normal operation of the ICCC, etc. to Client.
j) Any confidential Information relating to the current services rendered and performance data relating to the performance of the services; Documentation relating to Client, Project's Intellectual Property Rights; any other project data and confidential information related to Client shall be transferred to Client. A due diligence may be carried out by Client or New System Integrator on the transition of all the information (including but not limited to documents, records and agreements) relating to the Office to the Client.
k) In case of any Contract extension beyond the Contract period, the same shall be made effect as per the clause mentioned in the "Special terms"

Exit Management Purpose

179. This Schedule sets out the provisions, which will apply on expiry or termination of the SLA, the Project Implementation, Operation and Management SLA. The Parties shall ensure that their respective associated entities carry out their respective obligations set out in this Exit Management Schedule.

Transfer of Assets

180. SI shall be entitled to use the Assets for the duration of the exit management period, which shall be the four month period from the date of expiry of Contract, or termination of the SLA. All the assets / software / licenses procured shall be the property of the Client at all times.

Cooperation and Provision of Information

181. Except as otherwise provided elsewhere in this Agreement or the SLA, each Party ("Providing Party") to this Agreement or to the SLA undertakes promptly to provide the other Party ("Receiving Party") with all such information and co-operation which the Receiving Party reasonably requests, provided that such information and cooperation:
a) does not require material expenditure by the Providing Party to provide the same;
b) is reasonably required by the Receiving Party in order for it to comply with its obligations under this Agreement or the SLA;
c) cannot be construed to be Confidential Information; and
d) is capable of being provided by the Providing Party.
182. Further, each Party agrees to co-operate with the contractors and subcontractors of the other Party as reasonably requested in order to accomplish the purposes of this Agreement.
183. During the exit management period System Integrator will allow Client access to information reasonably required to define the then current mode of operation associated with the provision of the services to enable the client to assess the existing services being delivered.

Confidential Information, Security and Data

184. The System Integrator will promptly on the commencement of the exit management period, supply to the Client or its nominated agencies the following:
   a) Information relating to the current services rendered and performance data relating to the performance of the services; Documentation relating to Project's Intellectual Property Rights; any other data and confidential information related to Client;
   b) Project data as is reasonably required for purposes of the Project or for transitioning of the services to its Replacing System Integrator in a readily available format.
185. All other information (including but not limited to documents, records and agreements) relating to the services reasonably necessary to enable the Client and its nominated agencies, or its Replacing System Integrator to carry out due diligence in order to transition the provision of the Services to Client or its nominated agencies, or its Replacing System Integrator (as the case may be).

Employees

186. Promptly on reasonable request at any time during the exit management period or earlier, the System Integrator shall, subject to applicable laws, restraints and regulations (including in particular those relating to privacy) provide to Client a list of all employees (with job titles and communication address and mobile numbers, including all personal details available) of the SI, dedicated to providing the services at the commencement of the exit management period;
187. To the extent that any Transfer Regulation does not apply to any employee of the SI, Client or Replacing System Integrator may make an offer of employment or Contract for services to such employee of the System Integrator and the System Integrator shall not enforce or impose any Contractual provision that would prevent any such employee from being hired by the Client or any Replacing SI.

Rights of Access to Information

188. At any time during the exit management period, the System Integrator will be obliged to provide an access of information to Client and / or any Replacing System Integrator in order to make an inventory of the Assets (including hardware / Software / Active / passive), layouts, diagrams, schematics, documentations, manuals, catalogue, archive data, IP addressing, Live data, policy documents or any other material related to Client Project.

Exit Management Plan

189. SI shall provide Client with a recommended exit management plan ("Exit Management Plan") which shall deal with at least the following aspects of exit management in relation to the SLA as a whole and in relation to the Project Implementation, the Operation and Management SLA and Scope of work definition.
   a) A detailed program of the transfer process that could be used in conjunction with a Replacement Successful Bidder including details of the means to be used to ensure continuing provision of the services throughout the transfer process or until the cessation of the services and of the management structure to be used during the transfer;
   b) Plans for the communication with such of the SI, staff, suppliers, customers and any related third party as are necessary to avoid any material detrimental impact on Project's operations as a result of undertaking the transfer;
   c) Plans for provision of contingent support to Client Project and Replacement System Integrator for a reasonable period (minimum one month) after transfer.
190. SI shall re-draft the Exit Management Plan annually thereafter to ensure that it is kept relevant and up to date.
191. Each Exit Management Plan shall be presented by the System Integrator to and approved by Client or its nominated agencies.

192. The terms of payment as stated in the Terms of Payment Schedule include the costs of the System Integrator complying with its obligations under this Schedule.
193. In the event of termination or expiry of SLA, Project Implementation, Operation and Management SLA or Scope of Work each Party shall comply with the Exit Management Plan.
194. During the exit management period, the System Integrator shall use its best efforts to deliver the services.
195. Payments during the Exit Management period shall be made in accordance with the Terms of Payment Schedule.
196. This Exit Management plan shall be furnished in writing to Client or its nominated agencies within 15 days from the receipt of notice of termination or one month prior to the expiry this Agreement.

General

Relationship between the Parties

197. Nothing in this Contract constitutes any fiduciary relationship between the Client and System Integrator/System Integrator's Team or any relationship of employer employee, principal and agent, or partnership, between the Client and System Integrator.
198. No Party has any authority to bind the other Party in any manner whatsoever except as agreed under the terms of this Contract.
199. The Client has no obligations to the System Integrator's Team except as agreed under the terms of this Contract.

No Assignment

200. The System Integrator shall not transfer any interest, right, benefit or obligation under this Contract without the prior written consent of the Client.

Survival

201. The provisions of the clauses of this Contract in relation to documents, data, processes, property, Intellectual Property Rights, indemnity, publicity and confidentiality and ownership survive the expiry or termination of this Contract and in relation to confidentiality, the obligations continue to apply unless the Client notifies the System Integrator of its release from those obligations.

Entire Contract

202. The terms and conditions laid down in the Tender and all annexure thereto as also the Bid and any attachments/annexes thereto shall be read in consonance with and form an integral part of this Contract. This Contract supersedes any prior Contract, understanding or representation of the Parties on the subject matter.

Governing Law

203. This Contract shall be governed in accordance with the laws of India.

Jurisdiction of Courts

204. The Competent court in Ujjain have exclusive jurisdiction to determine any proceeding in relation to this Contract.

Compliance with Laws

205. The System Integrator shall comply with the laws in force in India in the course of performing this Contract.

Notices

206. A "notice" means:

a) a notice; or
b) a consent, approval or other communication required to be in writing under this Contract.

207. All notices, requests or consents provided for or permitted to be given under this Contract shall be in writing and shall be deemed effectively given when personally delivered or mailed by pre-paid certified / registered mail, return receipt requested, addressed as follows and shall be deemed received two days after mailing or on the date of delivery if personally delivered to Client, at:

Chief Executive Officer
Ujjain Smart City Limited
Mela Office, Kothi Road, Ujjain – 464010
ujjainsmartcity@gmail.com

To System Integrator at:

<Address>
<Phone:>
<Fax :>

208. Any Party may change the address to which notices are to be directed to it by notice to the other parties in the manner specified above. A notice served on a Representative is taken to be notice to that Representative's Party.

Waiver

209. Any waiver of any provision of this Contract is ineffective unless it is in writing and signed by the Party waiving its rights.

210. A waiver by either Party in respect of a breach of a provision of this Contract by the other Party is not a waiver in respect of any other breach of that or any other provision.

211. The failure of either Party to enforce at any time any of the provisions of this Contract shall not be interpreted as a waiver of such provision.

Modification

212. Any modification of this Contract shall be in writing and signed by an authorized representative of each Party.

Application

213. These General Conditions shall apply to the extent that provisions in other parts of the Contract do not supersede them.

IT Act 2000

214. Besides the terms and conditions stated in this document, the Contract shall also be governed by the overall acts and guidelines as mentioned in IT Act 2000, as amended time to time by the Government of India and rules framed thereunder.

IN WITNESS WHEEOF BOTH THE PARTIES OF THIS AGREEMENT have hereunto set their hands and seal the day, month, and year first above written.

Signed, sealed and delivered for and on behalf of

**M/s**

NAME

DESIGNATION

In the presence of Witnesses:

1. Signature
   Name:
   Address

2. Signature
   Name:
   Address

Signed, sealed and delivered for and on behalf of

**UJJAIN SMART CITY LIMITED**

EXECUTIVE DIRECTOR

In the presence of Witnesses:

1. P.D.M.C.,
   Ujjain

2.
   Ujjain Municipal Corporation.
   Ujjain

3.
   Police Department

| | |
|---|---|
| | Ujjain |
| 4. | Ujjain Smart City Limited<br>Ujjain |

# 6 Bid Forms

## 6.1 Instructions to Bidders for Preparing the Bid Forms

The Bidders are requested to prepare their Bid documents in the formats as mentioned below. In preparing its bid, the Bidder must ensure all such information is provided and that the typographical aides are removed.

The Bidders are required to ensure that all documents provided are verifiable authentic documents. Any forging of documents may lead to immediate disqualification and other legal penalties. When requested by the Purchaser, the Bidders must supply originals of the documents so as to be verified against the submitted documents and should supply references so as to have the authenticity of the documents submitted verified.

The Bidders should also note that they should submit all documents to meet the requirements under this RFP. The Client would not accept any documents or amendments to documents, except as per the procedure specified in this RFP.

Bidders need not provide the Performance Security Bank Guarantee with their bids. Only the Bidder selected for award by the Client will be required to provide these securities.

All the pages (including documentary proofs and other documents that may be attached) should contain page numbers and would have to be uniquely serially numbered

The forms should be prepared in such a way so as to enable the evaluation committee to easily assess the bid documents.

## 6.2 Bid Checklist

| | | **Requirement** | | **To be filled in by the Bidder** | |
|---|---|---|---|---|---|
| **Sl. No.** | **Check List Item** | **Online** | **Hard Copy** | **Available with the bid** | **Page Number of the Bid** |
| *A* | *General* | | | | |
| 1 | Filled In Bid Checklist | ✓ | ✓ | | |
| 2 | Document Fees | ✓ | Copy only | | |
| 3 | EMD Copy | ✓ | Copy only (if B.G. has been requested and submitted then original) | | |
| 4 | Signed Bid Document | - | ✓ | | |
| *B* | *Eligibility / Eligibility Bid / Proposal* | | | | |
| 1 | Cover Letter | ✓ | ✓ | | |

| | | Requirement | | To be filled in by the Bidder | |
|---|---|---|---|---|---|
| **Sl. No.** | **Check List Item** | **Online** | **Hard Copy** | **Available with the bid** | **Page Number of the Bid** |
| 3 | Copy of Registration Certificate | ✓ | ✓ | | |
| 4 | Copy of GST Registration | ✓ | ✓ | | |
| 5 | Certificate as to Turnover and Positive Net Worth | ✓ | ✓ | | |
| 6 | Experience Credentials supporting the Eligibility | ✓ | ✓ | | |
| *C* | *Technical Bid / Technical Proposal* | | | | |
| 1 | General Information | ✓ | ✓ | | |
| 2 | Relevant Past Experience | ✓ | ✓ | | |
| 3 | Proposed Personnel | ✓ | ✓ | | |
| 4 | Hardware and Software List | ✓ | ✓ | | |
| 5 | Manufacturers Authorization Forms | ✓ | ✓ | | |
| 6 | Technical Approach and Methodology | ✓ | ✓ | | |
| 7 | Unpriced Bill of Material | ✓ | ✓ | | |
| 8 | Marketing Material / Literature for all products mentioned | ✓ | ✓ | | |
| *D* | *Financial Bid / Financial Proposal* | | | | |
| | Financial Bid to be submitted online only. | ✓ | - | - | - |

### 6.3 Eligibility / Eligibility Bid / Proposal Forms

## 1. Bid Cover Letter

To

Executive Director
Ujjain Smart City Limited (USCL)
Simhastha Mela Office, Kothi Road,
Ujjain (M.P)

Date:

Subject: Proposal / Bid for <<INSERT NAME OF ASSIGNMENT>>

RFP Reference No: XX

Dear Sir or Madam,

With reference to your RFP Reference No. XX, Title " ", we hereby submit our Proposal for the same.

We have carefully read and understood the terms and conditions of the RFP and the conditions of the contract applicable to the RFP. We do hereby undertake to provision as per these terms and conditions.

We hereby acknowledge and unconditionally accept that the Authority can at its absolute discretion apply the criteria it deems appropriate, not just limiting to those criteria set out in the RFP and related documents, in short listing of bidder for providing services.

We understand that the Authority may cancel the bidding process at any time and that Authority is not bound to accept any bid that it may receive without incurring any liability towards the bidder.

We hereby declare that all information and details furnished by us in the Bid are true and correct, and all documents accompanying such application are true copies of their respective originals.

We agree to abide by our offer for a period of 180 days from the date of opening of prequalification bid prescribed by Authority and that we shall remain bound by a communication of acceptance within that time.

*EMD and Tender Fee*

We have submitted EMD of INR [ ] in the form of […….] and Tender fee of INR [ ] online through e-Tendering Portal (www.mpeproc.gov.in),

We further confirm that our firm has no legal case pending in any court for winding up the company in India or elsewhere.

*Declaration regarding Blacklisting*

We hereby confirm that our firm has not been blacklisted any public sector body in India. We confirm that we do not have any terminated contracts during the past 5 years due to non-performance from the following:

- The Central, State and Local Government bodies in India,
- Any Smart City SPV,
- Any Public Sector Undertaking

We also confirm that the above applies to all parent and subsidiary organizations of the applicant firm.

*Firm Prices*

We affirm that the prices quoted are inclusive of design, development, delivery, installation, commissioning, training, providing facility management and handholding support, and inclusive of all out of pocket expenses, taxes, levies discounts etc.

*Declaration regarding Technical Mam-power*

We declare that our organization has <INSERT NUMBER (IN WORDS)> Full-time professional (Technical/Engineering, Managerial, Other required professionals) staff engaged in Similar projects.

*Complaints against Competition*

We declare that in case we have any objections towards any other bidder participating in this tender, we shall communicate in detail the same, in writing, within seven calendar days from the date of opening of Technical Bids.

*Relationship with Clients and Consultants*

We declare that we do not have any existing business or other relations with the following entities and that we are not engaged in any activities that will otherwise affect the execution of the assignment:

1. Client: Ujjain Smart City Limited (Owned and Controlled by the Ujjain Municipal Corporation, the Government of Madhya Pradesh and Government of India).
2. Consultants: IPE Global Limited (CIN: U74140DL1998PLC097579)
3. Consultants: PricewaterhouseCoopers Pvt. Ltd. (CIN: U74140WB1983PTC036093) or any of the PwC network firms.

We also declare that should we become aware of any changes in our business relationships with the Consultants, the same shall be declared to you at the earliest possible opportunity, in writing.

*Bid Acceptance*

In the event of acceptance of our bid, we do hereby undertake:

- To supply the products and commence services as stipulated in the RFP document
- To undertake the project services for entire contract period from the date of signing of the contract as mentioned in the RFP document.

We do hereby undertake, that, until a formal contract is prepared and executed, this bid, together with your written acceptance thereof and notification of award of contract, shall constitute a binding contract between us.

We hereby declare that in case the contract is awarded to us, we shall submit the contract Bank Guarantee in the form prescribed within 15 days of issue of LOA.

*No Deviations*

We confirm that no technical deviations or any other conditions are attached here with our financial offer.

We fully understand and agree to comply that on verification, if any of the information provided in our bid is found to be misleading the selection process, we are liable to be dismissed from the selection process or termination of the contract during the project, if selected to do so, and further being barred / black-listed by the Authority for doing business with it.

We hereby declare that our bid is made in good faith, without collusion or fraud and the information contained in the bid is true and correct to the best of our knowledge and belief.

In case of any clarifications please contact _____ email _____, Mobile Number _____.

Thanking you,

Yours sincerely,

(Signature of the Lead bidder)
Printed Name
Designation
Seal
Date:
Place:
Business Address:

CERTIFICATE AS TO AUTHORISED SIGNATORIES

I_____, the [OFFICE HOLDER - Company Secretary / Managing Director] of _____, certify that_____ who signed the above Bid is authorized to do so and bind the company by authority of its board / governing body.

Date:

Signature:

(Company Seal)

(Name)

Alternately, a copy of the Board Resolution as to the Authorized signatory may be attached.

## 2. Copy of Certificate as to Legal Entity

Bidders are requested to attach a copy of the Registration Certificate under the laws of the country. In case the Bidder organization(s) have gone any Name change, a copy of the Name Change Certificate should also be attached.

## 3. Copy of GST Registration Certificate and PAN

Bidders are requested to attach a copy of the (provisional) GST Registration Certificate and the PAN.

## 4. Certificate as to Turnover and Positive Net Worth

Bidders are requested to attach a copy of the certificate from the Chartered Accountant certifying the turnover of the Lead Member. The following format may be considered:

| Sl. No. | Financial Year | Turnover | Remarks |
|---|---|---|---|
| 1 | 2016-17 | | In case of provisional figures, please specify so. |
| 2 | 2015-16 | | |
| 3 | 2014-15 | | |
| 4 | 2013-14 | | |

Also certified that the net worth as on 31-March-2017 is Indian Rupees <<INSERT AMOUNT>>

## 5. Experience

The following documents should be submitted as part of the Experience

A. A project information sheet.
B. Copies of documentary evidence, including but not limited to agreements, contracts, work orders, client certificates, completion certificates (if applicable) CA or CS certificates, etc. The supporting documents submitted should clearly highlight the scope of the works to include the eligibility conditions.

Format of Project Information Sheet:

| | | |
|---|---|---|
| Name of Firm: | | |
| Project Citation #: | | |
| 1. | Number of contract | |
| | Name of contract | |
| 2. | Name of Purchaser | |
| 3. | Purchaser address | |
| 4. | Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued | |
| 5. | Contract role (check one)<br><br>□Prime Implementing Agency □ Management Contractor □ Subcontractor □ Partner in a Joint Venture | |
| 6. | Amount of the total contract/subcontract/partner share (INR | |
| 8. | Date of award/completion | |
| 9. | Contract was completed _____ months ahead/behind original schedule (if behind, provide explanation). | |
| 10. | Contract was completed INR_____ under/over original contract amount (if over, provide explanation). | |
| 11. | Special contractual/technical requirements. | |
| 12. | Indicate the approximate percent of total contract value of Information System undertaken by subcontract, if any, and the nature of such Information System. | |

**6.4 Technical Bid / Proposal Forms**

## 1. General Information Form

All individual firms and each partner of a Joint Venture that are bidding must complete the information in this form. Nationality information should be provided for all owners or Bidders that are partnerships or individually owned firms.

Where the Bidder proposes to use named Subcontractors for highly specialized components of the Information System, the following information should also be supplied for the Subcontractor(s), together with the other relevant information Forms

| | | |
|---|---|---|
| 1. | Name of firm | |
| 2. | Head office address | |
| 3. | Contact Address | |
| 4. | Telephone | Contact |
| 5. | Fax | Telex |
| 6. | Website | |
| 7. | Place of incorporation / registration | Year of incorporation / registration |
| 8. | Name, Designation, Address and Contact Details (Telephone, E-Mail Address, FAX) of the contact person to whom all references shall be made regarding this RFP: | |

Contact Details of officials for future correspondence regarding the bid process:

| **Details** | **Authorized Signatory** | **Secondary Contact** |
|---|---|---|
| Name | | |
| Title | | |
| Company Address | | |
| Mobile | | |
| Fax | | |
| Email Id | | |

| Qualification of the Firm (Certifications, etc.) | | |
|---|---|---|
| Name | | |
| 1. | | |
| 2. | | |

| | | |
|---|---|---|
| 5. | | |

<<Attach Copy of ISO Certificate and other certificates as applicable. Certificate should be valid as on Bid submission date and the selected bidder should agree to have the certificate valid till the contract period. >>

*List of Proposed Sub-Contractors*

| # | Item | Proposed Subcontractor | Place of Registration & Qualifications |
|---|---|---|---|
| | | | |
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## 2. Relevant Past Experience

The following documents should be submitted as part of the Experience

A. A project information sheet.
B. Copies of documentary evidence, including but not limited to contracts, work orders, client certificates, completion certificates, etc. The supporting documents submitted should clearly highlight the scope of the works to include the eligibility condition.

Format of Project Information Sheet:

| |
|---|
| Name of Bidder / JV partner: |
| Project Citation #: |
| **Criteria addressed as per RFP (Evaluation Criteria):** |

| | | |
|---|---|---|
| 1. | Number of contract | |
| | Name of contract | |
| | Country | |
| 2. | Name of Purchaser / Client | |
| 3. | Purchaser / Client address | |
| 4. | Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued | |
| 5. | Contract role (check one)<br><br>Prime Implementing Agency  Management Contractor  Subcontractor  Partner in a Joint Venture | |
| 6. | Amount of the total contract/subcontract/partner share in INR | |
| 8. | Date of award/completion | |
| 9. | Contract was completed _____ months ahead/behind original schedule (if behind, provide explanation). | |
| 10. | Contract was completed INR _____ under/over original contract amount (if over, provide explanation). | |
| 11. | Special contractual/technical requirements. | |
| 12. | Indicate the approximate percent of total contract value of Information System undertaken by subcontract, if any, and the nature of such Information System. | |
| 13. | Project Outcomes and Deliverables | |

### 3. Proposed Personnel, Candidate Summary and CV's

| | |
|---|---|
| 1. | Title of position |
| | Name of candidate |
| | Name of Firm (Bidder / Joint Venture Partner / Contracted Individually) |
| | Educational Qualification's |
| | Total Experience |
| | Relevant Experience |

| | |
|---|---|
| 2. | Title of position |
| | Name of candidate |
| | Name of Firm (Bidder / Joint Venture Partner / Contracted Individually) |
| | Educational Qualification's |
| | Total Experience |
| | Relevant Experience |
| 3. | Title of position |
| | Name of candidate |
| | Name of Firm (Bidder / Joint Venture Partner / Contracted Individually) |
| | Educational Qualification's |
| | Total Experience |
| | Relevant Experience |

*Candidate Summary*

Detailed CV for each position as mentioned above should be provided. No CV should be more than 5 pages.

| | | |
|---|---|---|
| Position | | |
| Candidate information | Name of candidate | Date of birth |
| | Professional qualifications, including Training and Certifications | |
| | Language Proficiency | |
| Present employment | Name of Employer | |
| | Address of Employer | |
| | | |

| | | |
|---|---|---|
| | Telephone | Contact (manager / personnel officer) |
| | Fax | Telex |
| | Job title of candidate | Years with present Employer |
| Past employment<br><br>(Please repeat as required) | Name of Employer | |
| | Address of Employer | |
| | | |
| | Telephone | Contact (manager / personnel officer) |
| | Fax | Telex |
| | Job title of candidate | Years with present Employer |
| | | |

Summarize professional experience over the last twenty years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project. Highlights of relevant assignments handled and significant accomplishments (Use following format for each project)

| | |
|---|---|
| **Name of assignment or project:** | |
| **Year:** | |
| **Location:** | |
| **Client:** | |
| **Main project features:** | |
| **Positions held:** | |
| **Activities performed:** | |

## 4. Hardware and Software List

| | | | |
|---|---|---|---|
| Sr. | | (select one per item) | (select one per item) |

| No. | Software Item | System Software | General- Purpose Software | Application Software | Standard Software | Custom Software |
|---|---|---|---|---|---|---|
| | | | | | | |
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| Hardware Item | Model, Make, Identifying Information | Key Configurations Details (Please attach data sheet) | Quantity Proposed |
|---|---|---|---|
| | | | |
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| Custom Materials (Hardware and Software) |
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| |

## 5. Manufacturers Authorization Form

Manufacturers Authorization Form is required for any material bidder proposes as part of the contract but is not manufactured by them.

Date:

Tender No and Name:

To: Executive Director,
Ujjain Smart City Limited

WHEREAS _____ who are official producers of _____ and having production facilities at _____ do hereby authorize _____ located at _____ (hereinafter, the "Bidder") to submit a bid and subsequently negotiate and sign a Contract with you for resale of the following Products produced by us, for the quantities, specifications and delivery schedule called for by the Supply Requirements associated with the above Invitation for Bids: .

We hereby extend to you a full guarantee and warranty, Defect Liability, of the Conditions of Contract and with our own standard product warranty, and duly authorize the Bidder to act on our behalf in fulfilling all warranty obligations with respect to the above-listed products offered for resale by the Bidder in relation to this Invitation for Bids.

We also certify that the Bidder is qualified by us to provide the following maintenance, technical or help desk support, new version upgrade and/or other services related to the above-listed Products in accordance with Scope of the System, and the Conditions of Contract:

Name

In the capacity of

Signed

Duly authorized to sign the authorization for and on behalf of: _____

Dated on _____ day of _____, _____.

**Note**: This letter of authority must be on the letterhead of the Producer, must be signed by a person competent and having the power of attorney to bind the Producer, and must be included by the Bidder in its bid as specified in the Instructions to Bidders. Minor variations in wordings of the letter may be allowed.

## 6. Technical Approach and Methodology

The Bidder shall provide adequate information to demonstrate clearly that it has the technical capability to meet the requirements for the Information System. With this form, the Bidder should summarize important certifications, proprietary methodologies, and/or specialized technologies which the Bidder proposes to utilize in the execution of the Contract or Contracts.

Key details on the following are required as part of this section:

- Detailed Approach and Methodology
    - Approach to Project and Delivery Management
    - Development and Roll out methodology
    - Use of existing infrastructure and resources
    - Database Design and Data Modelling
    - Security Features and Architecture
    - Approach for Information Security
    - Approach to Testing and Roll out
    - Operations and Maintenance Support
    - Other discussions as required by the Bidder
- Key learnings from similar projects and how do you propose to incorporate them in execution of this assignment
- Enhancement to Specifications Provided / Suggested
- Work Plan
- Operations and Maintenance Plan
    - Escalation Matrix
- Quality Control Plan
- Training Plan
- Reports, etc.
    - Sample Reports generated from MIS
    - Dashboards
    - Business Intelligence

- Reports generated from System
- Testing - Load Testing / Performance Testing
- Other Items as required.

- Service Level Agreements
  - A brief note on each of the Service Level Agreements, how the Bidder proposes to meet it, any additional better SLA's that the bidder proposes to meet as part of Contract
  - New SLA's that the bidder proposes to bear.
  - Other discussions as required by the Bidder.
- Identification of Major Risks and Mitigation Plans
- Innovative Ideas in Project Execution
- Any other information

## 7. Un-priced Bill of Material

The Bidder is requested to provide the entire Bill of Material, without any price information in this table. A detailed unpriced Bill of Material is required to be provided.

The Bidders should note that even if some of the items are not mentioned in this unpriced Bill of Material, if required to perform the works as stated in the RFP, the same would be required to be provided.

| Sl. No. | Equipment / Material / Software Description | Make / Model | Manufacturer | Quantity Proposed. |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |

For each item in the Bill of Material, the Bidder is requested to enclose in the hard copy, any copies of relevant marketing literature / brochure / presentations, etc. that can help the committee to evaluate the item being proposed.

## 8. Compliance to Specifications

The Bidders are requested to provide compliance to all specifications as mentioned in the RFP document.

## 9. Specifications, Marketing Literature and other relevant Material regarding items mentioned in the Bill of Material

### 6.5 Financial Bid Forms

a. Bidder should provide all prices as per the prescribed format.
b. All the prices are to be entered in Indian Rupees (INR) only
c. Prices indicated in the schedules shall be exclusive of all taxes, Levies, duties etc. and shall be quoted separately. The prices should also specify three year support cost as per provided formats.
d. USCL reserves the right to ask the Implementing Agency to submit proof of payment against any of the taxes, duties, levies indicated.
e. The Implementing Agency needs to account for all Out of Pocket expenses due to Boarding, Lodging and other related items.
f. The Unit Rate as mentioned in the following formats may be used for the purpose of 'Change Order' for respective items, if any. However, based on the market trends, USCL retains the right to negotiate this rate for future requirement
g. The variation in individual item of quantities permitted. The successful bidder shall not object to the upward or downward variation in quantities of any item within the variation limits.
h. Payment for additional quantities within the variation limit shall be made at tender rates and the tender rates shall be valid for entire duration of the contract.
i. No claim shall be entertained or become payable for price variation of additional quantities, until it is approved through Change Management process as explained in this RFP
j. Bidder shall be bound to give same or more % of discount on the list price of the OEMs on the future purchases (additional purchases within the contract period) by USCL. Bidder shall ensure that the future products supplied are of latest specifications as per the OEM roadmap.
k. For the purpose of evaluation of Financial Bids, USCL shall make appropriate assumptions to arrive at a common Bid price for all the bidders. This however shall have no co-relation with the Contract value or actual payment to be made to the Bidder.
l. USCL also intends to utilize various rates obtained through this tender for requirements across various departments. Bidders are requested to factor this larger demand and give the best possible rate to USCL.
m. Implementing Agency should refer Annexures of the Tender for details on the functional requirements of the system and the benchmark specifications for the items mentioned in the FinancialBid Formats.
n. Line items mentioned in the FinancialBid Formats are for representation purpose and Implementing Agency may propose alternate technology / solution (with proper justification). Bidders are required to suitably add line items / merge the cost components depending upon their proposed solution.
o. No escalations of prices will be considered under any circumstances.
p. Bidders must carefully read the Scope, Technical & Functional Requirements and the SLAs mentioned in this RFP and accordingly propose the software, hardware, accessories and services and their respective quantities required to completely meet the requirements of this RFP. To meet the requirements of this RFP, no request for Change Order shall be entertained.

q. The Implementing Agency/bidder has to ensure that their financial proposal is structured in such a way that the Capital Cost quoted in the project does not exceed 65% of total costs of the project. In case the bidder quotes higher figures towards capital costs the same shall be restricted to 65% while making payments towards Capex. Any value quoted towards Capex over and above 65% limit will be paid in equal quarterly instalments for next three years along with quarterly payment for each quarter.

r. The Scope of work should be as per the RFP and the QUANTITIES ARE FOR GUIDANCE PURPOSES ONLY. In case the Bidders estimate a higher quantity for certain item or require certain new items to meet the requirements of the RFP, they should put in those items and / or values against them.

The following Financial Bid Form is provided for guidance purposes only. The Bidders are requested to fill ONLY the form available ONLINE.

| | | | | **All amounts in Indian Rupees only, including all Levies, Taxes and Duties, except GST. GST shall be paid at the prevailing rates at the time of payment,** | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sr. No.** | **Item** | **Units** | **Total Quantity** | **CAPEX Rate** | **CAPEX Amount** | **OPEX Year 1 Rate** | **OPEX Year 1 Amount** | **OPEX Year 2 Rate** | **OPEX Year 2 Amount** | **OPEX Year 3 Rate** | **OPEX Year 3 Amount** |
| 1. | Supply ,Installation and Commissioning of Gantry for Integrated Traffic Management System (at Junctions and Entry / Exit Points) | No's | 69 | | | | | | | | |
| 2. | Installation and Commissioning of Public Address System | No's | 69 | | | | | | | | |
| 3. | Installation and Commissioning of Emergency Call Box | No's | 69 | | | | | | | | |
| 4. | Software for Traffic controller | Lump-Sum | 1 | | | | | | | | |
| 5. | Installation and Commissioning of Variable message system with two hour back up with mounting and earthing arrangements | No's | 40 | | | | | | | | |
| 6. | Red Light Violation Detection (RLVD) System with complete hardware including ANPR cameras, Overview Cameras, IR Illuminator, Network Switch , Local Processing Unit, with cabling, ODC , earthing , Surge protector ,accessories & mounting infrastructure as required<br>RLVD - Software + Licenses (At Traffic Junctions) | No's | 16 | | | | | | | | |
| 7. | Speed Detection System for covering lanes in both directions/carriageways of arm with complete subcomponents including ANPR camera, wide angle evidence camera, IR illuminator, Network Switch, non-intrusive speed sensors, with cabling, ODC ,earthing , Surge protector & mounting infrastructure as required Speed Detection - Software + Licenses At Locations | No's | 12 | | | | | | | | |
| 8. | Installation and Commissioning of Surveillance Cameras – Outdoor bullet Cameras including IR illuminator subcomponents , with cabling, ODC | No's | 69 | | | | | | | | |

| | | | | All amounts in Indian Rupees only, including all Levies, Taxes and Duties, except GST. GST shall be paid at the prevailing rates at the time of payment, | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sr. No.** | **Item** | **Units** | **Total Quantity** | **CAPEX Rate** | **CAPEX Amount** | **OPEX Year 1 Rate** | **OPEX Year 1 Amount** | **OPEX Year 2 Rate** | **OPEX Year 2 Amount** | **OPEX Year 3 Rate** | **OPEX Year 3 Amount** |
| | ,earthing , Surge protector & mounting infrastructure as required | | | | | | | | | | |
| 9. | Installation and Commissioning of Outdoor PTZ Camera including IR illuminators with cabling, ODC ,earthing , Surge protector & mounting infrastructure as required | No's | 69 | | | | | | | | |
| 10. | Online External UPS at all locations | No's | 23 | | | | | | | | |
| 11. | Online Internal UPS | Lump sum | 1 | | | | | | | | |
| 12. | Provision of Electrical Power (At all specified locations) | Lump sum | 1 | | | | | | | | |
| 13. | Router, Firewall, Racks, L3 Switches, Core Switch, etc. – Complete Implementation of Server Room / ICCC | Lump sum | 1 | | | | | | | | |
| 14. | Supply of Servers (including Failover Server), OS and other relevant server solution infrastructure: (including but not limited to):<br>· Surveillance Cameras-Management & Recording<br>· RLVD<br>· Speed Violation Detection<br>· Public Address (PA) System<br>· Variable Messaging Sign (VMS)<br>· EMS<br>· Database<br>· e-Challan System<br>· ATCS server<br>· ECB call management software<br>· Other applications such as IBMS etc. as required (Please specify) | Lot | 1 | | | | | | | | |
| 15. | Storage – 200 TB | No's | 1 | | | | | | | | |

| | | | | **All amounts in Indian Rupees only, including all Levies, Taxes and Duties, except GST. GST shall be paid at the prevailing rates at the time of payment,** | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sr. No.** | **Item** | **Units** | **Total Quantity** | **CAPEX Rate** | **CAPEX Amount** | **OPEX Year 1 Rate** | **OPEX Year 1 Amount** | **OPEX Year 2 Rate** | **OPEX Year 2 Amount** | **OPEX Year 3 Rate** | **OPEX Year 3 Amount** |
| 16. | EMS Solution inclusive of Client Licenses | Lump Sum | 1 | | | | | | | | |
| 17. | NMS Solution inclusive of Client Access Licenses | Lump Sum | 1 | | | | | | | | |
| 18. | Anti-Virus Solution covering all devices | Lump-Sum | 1 | | | | | | | | |
| 19. | Laser Printer as per specifications (including consumables as stationery, toner, etc.) | No's | 2 | | | | | | | | |
| 20. | E-Challan System Software with integration with transport and other databases as per SOW defined | Lump sum | 1 | | | | | | | | |
| 21. | Customized GUI- Dashboard for Ujjain Traffic Police/USCL Department (for various levels) with all required integrations as per SOW defined | Nos | 1 | | | | | | | | |
| 22. | Network / Bandwidth Costs | Lump sum | 1 | | | | | | | | |
| 23. | MIS | Lump sum | 1 | | | | | | | | |
| 24. | Security Audit | Lump sum | 1 | | | | | | | | |
| 25. | Training – As required | Lump sum | 1 | | | | | | | | |
| 26. | Help Desk setup with Software and Telephone | Lump sum | 1 | | | | | | | | |
| 27. | Personnel Costs | Lump sum | 1 | | | | | | | | |
| 28. | Documentation | Lump sum | 1 | | | | | | | | |
| 29. | Miscellaneous and OTHERS | Lump sum | 1 | | | | | | | | |
| | TOTAL | | | | | | | | | | |
| | GRAND TOTAL | | | | | | | | | | |
| | GRAND TOTAL (in words) | | | | | | | | | | |

# 7 Miscellaneous

## 7.1 Deed of Indemnity

<<To be executed by the Implementing Agency on a Non-Judicial Stamp Paper>>

Subject to Conditions mentioned below, the Implementing Agency(the "Indemnifying Party") undertakes to indemnify *Ujjain Smart City Limited and other associated entities* (the "Indemnified Party or Parties" as the case maybe) from and against all Losses on account of bodily injury, death or damage to tangible personal property arising in favour of any person, corporation or other entity attributable to system Integrator's negligence or wilful default in performance or non-performance under this Agreement. If Client promptly notifies Implementing Agency in writing of a third party claim against Client that any Service provided by the Implementing Agency infringes a copyright, trade secret or patents incorporated in India of any third party, Implementing Agency will defend such claim at its expense and will pay any costs or damages that may be finally awarded against Client. The Implementing Agency shall hold Client harmless towards any claim or damage or infringement from any third parties in relation in case of any breach of IPR / Patent rights etc.

**Conditions**

The indemnities set out in shall be subject to the following conditions:

I. the Indemnified Party as promptly as practicable informs the Indemnifying Party in writing of the claim or proceedings and provides all relevant evidence, documentary or otherwise;

II. the Indemnified Party shall, at the cost of the Indemnifying Party, give the Indemnifying Party all reasonable assistance in the Defence of such claim including reasonable access to all relevant information, documentation and personnel provided that the Indemnified Party may, at its sole cost and expense, reasonably participate, through its attorneys or otherwise, in such Defence;

III. if the Indemnifying Party does not assume full control over the Defence of a claim as provided in this Article, the Indemnifying Party may participate in such Defence at its sole cost and expense, and the Indemnified Party will have the right to defend the claim in such manner as it may deem appropriate, and the cost and expense of the Indemnified Party will be included in Losses;

IV. the Indemnified Party shall not prejudice, pay or accept any proceedings or claim, or compromise any proceedings or claim, without the written consent of the Indemnifying Party;

A. all settlements of claims subject to indemnification under this Clause will:

B. be entered into only with the consent of the Indemnified Party, which consent will not be unreasonably withheld and include an unconditional release to the Indemnified Party from the claimant or plaintiff for all liability in respect of such claim; and

V. include any appropriate confidentiality agreement prohibiting disclosure of the terms of such settlement;

VI. the Indemnified Party shall account to the Indemnifying Party for all awards, settlements, damages and costs (if any) finally awarded in favour of the Indemnified Party which are to be paid to it in connection with any such claim or proceedings;

VII. the Indemnified Party shall take steps that the Indemnifying Party may reasonably require to mitigate or reduce its loss as a result of such a claim or proceedings;

VIII. in the event that the Indemnifying Party is obligated to indemnify an Indemnified Party pursuant to this Article, the Indemnifying Party will, upon payment of such indemnity in full, be subrogated to all rights and defences of the Indemnified Party with respect to the claims to which such indemnification relates; and

If a Party makes a claim under the indemnity in respect of any particular Loss or Losses, then that Party shall not be entitled to make any further claim in respect of that Loss or Losses (including any claim for damages).

## 7.2 Non-Disclosure Agreement

This Non-Disclosure Agreement ("Agreement") is made and entered into ____ day of <<Month>>, 2017 by and between

Ujjain Smart City Limited having its office at Mela Karbala, Kothi Road, Ujjain 464010, Madhya Pradesh (hereinafter referred to as "USCL" which expression shall include its successors and permitted assignees) of the First Part.

and

[INSERT COMPLETE LEGAL NAME OF THE SYSTEM INTEGRATOR] having its registered office at [INSERT THE REGISTERED ADDRESS OF THE Implementing Agency] (hereinafter referred to as "Implementing Agency" which expression shall include its successors and permitted assignees) of the Second Part.

USCL and Implementing Agency are hereinafter collectively referred to as "Parties" and individually as a "Party".

WHEREAS, through a competitive bidding process USCL has selected the Implementing Agency to implement [INSERT PROJECT NAME] for USCL and have entered into an Agreement dated…….. (hereinafter the "Master Agreement") in this regard.

AND WHEREAS USCL may disclose to the Implementing Agency certain information which is confidential and proprietary in nature and wishes to protect such information from unauthorized disclosure and use;

NOW, THEREFORE, in consideration of the foregoing and the covenants and agreements contained herein and in the Master Agreement, Parties agree as follows:

**1. Definitions**

a) The term "Confidential Information" shall include, without limitation, all information and materials, furnished by USCL to Implementing Agency, including information transmitted in writing, orally, visually, (e.g. video terminal display) or on magnetic or optical media, and including all proprietary information, customer & prospect lists, trade secrets, trade names or proposed trade names, logo, methods and procedures of operation, commercial or marketing plans, licensed document know-how, ideas, concepts, designs, drawings, flow charts, sales figures, diagrams, quality manuals, checklists, guidelines, processes, formulae, source code materials, specifications, programs, software packages, codes, bio-metric records and other intellectual property relating to the USCL's data, computer database, products and/or services. Confidential Information shall also include results of any tests, sample surveys, analytics, data mining exercises or usages etc. carried out by Implementing Agency in connection with the USCL's information or sensitive personal information as defined under any law for the time being in force.

b) The term, "USCL" shall include the officers, employees, agents, consultants, contractors and representatives of USCL, including other government departments for which USCL may be rendering its services, and its successors and permitted assignees.

c) The term, "Implementing Agency" shall include the directors, officers, employees, agents, consultants, contractors, sub-contractors, sub-implementation agencies and representatives of Implementing Agency, including its affiliates, subsidiary companies and permitted assigns and successors.

**2. Protection of Confidential Information**

With respect to any Confidential Information disclosed to Implementing Agency or to which Implementing Agency has access, Implementing Agency agrees that it shall:

a) Use the Confidential Information only for accomplishment of the services to be performed under the Master Agreement and in accordance with the terms and conditions contained herein;

b) maintain strict confidentiality of the Confidential Information and take all reasonable steps to enforce the confidentiality obligations imposed hereunder, but in no event shall take less care than it takes to protect the confidentiality of its own proprietary and confidential information and that of its clients;

c) Not make or retain copy of any Confidential Information except as necessary, under prior written permission from USCL, in connection with the services to be performed under the Master Agreement, and ensure that any such copy is immediately returned to USCL even without express demand from USCL to do so;

d) Not disclose or in any way assist or permit the disclosure of any Confidential Information to any person or entity without the express written consent of USCL except as provided in clause 6 below; and

e) Return to USCL, or destroy, at USCL's direction, any and all Confidential Information disclosed in a printed form or other permanent record, or in any other tangible form (including without limitation, all copies, notes, extracts, analyses, studies, summaries, records and reproductions thereof) immediately upon the earlier to occur of:

   (i) expiration or termination of the Master Agreement, or

   (ii) on request of USCL.

f) Not discuss with any member of public, media, press or any other person about the nature of arrangement entered between USCL and Implementing Agency or the nature of services to be provided by the Implementing Agency to USCL except with the written consent of USCL.

**3. Exception**

The aforesaid obligations of confidentiality shall not apply to the following information:

(i) which has become generally available in the public domain without breach of this Agreement by the Implementing Agency; or

(ii) which at the time of disclosure to Implementing Agency was known to Implementing Agency free of confidentiality restriction as evidenced by documentation in Implementing Agency's possession; or

(iii) which USCL agrees in writing is free of such confidentiality restrictions; or

(iv) which has been received from a third party who owes no obligation of confidence in respect of such information; and

(v) which is directed to be disclosed by a court of competent jurisdiction or by a governmental or regulatory authority provided that Implementing Agency have given prior prompt notice in writing to USCL of such disclosure;

**4. Onus**

Implementing Agency shall have the burden of proving that any disclosure or use inconsistent with the terms and conditions hereof falls within any of the exceptions provided in clause 3 above.

5. **Remedies**

Implementing Agency acknowledges and agrees that (a) any actual or threatened unauthorized disclosure or use of the Confidential Information by Implementing Agency would be a breach of this Agreement and may cause immediate and irreparable harm to USCL; (b) damages from such unauthorized disclosure or use may be impossible to measure accurately and injury sustained by USCL may be impossible to calculate and remedy fully. Implementing Agency acknowledges that in the event of such a breach, USCL shall be entitled to specific performance by Implementing Agency of Implementing Agency's obligations contained in this Agreement. Implementing Agency shall recompense USCL for any loss of revenue arising out of or in any way relate to, or result from breach of obligations under this Agreement by Implementing Agency. USCL reserves the right to adopt legal proceedings, civil or criminal, against the Implementing Agency in relation to a dispute arising out of breach of the confidentiality obligations of the Implementing Agency under this Agreement.

6. **Need to Know**

Implementing Agency shall restrict disclosure of Confidential Information to its employees and/or consultants and/or sub-consultants who have a need to know such information for accomplishment of services under the Master Agreement provided such employees and/or consultants and/or sub-consultants have agreed to abide by the terms and conditions of this Agreement and agree that they shall not disclose such Confidential Information to any affiliates, subsidiaries, associates and/or third party without prior written approval of USCL.

7. **Intellectual Property Rights Protection**

No license to Implementing Agency, under any trademark, patent, copyright, design right or any other intellectual property right is either granted or implied by the conveying of Confidential Information to Implementing Agency.

8. **Authority**

Parties represent and warrant that they have all necessary authority and power to enter into this Agreement and perform their obligations hereunder.

9. **GoverningLaw**

This Agreement shall be interpreted in accordance with and governed by the substantive and procedural laws of India and the parties hereby consent to submit to the exclusive jurisdiction of Courts and/or Forums situated at Ujjain, India only.

10. **Amendments**

No amendment, modification and/or discharge of this Agreement shall be valid or binding on the Parties unless made in writing and signed on behalf of each of the Parties by their respective duly authorized officers or representatives.

11. **Severability**

In the event any provision of this Agreement is held to be invalid or unenforceable under the applicable law, the remaining provisions of this Agreement shall remain in force and effect.

12. **Waiver**

If either party should waive any breach of any provision of this Agreement, it shall not thereby be deemed to have waived any preceding or succeeding breach of the same or any other provision hereof.

**13. Survival**

Implementing Agency agrees that all of its obligations undertaken herein with respect to Confidential Information received pursuant to this Agreement and obligations of indemnity shall survive for a period of 10 yearsafter any expiration or termination of the Master Agreement.

**14. Term**

This Agreement shall come into force on the date first written above and, subject to aforesaid clause 13, shall remain valid up to expiry or termination of the Master Agreement.

**IN WITNESS HEREOF**, and intending to be legally bound, the Parties have executed this Agreement to make it effective from the date and year first written above.

| | |
|---|---|
| For Ujjain Smart City Limited | For Implementing Agency |
| Name: | Name: |
| Title: | Title: |
| WITNESSES: | WITNESSES: |
| 1. | 1. |
| 2. | 2. |

### 7.3 Format for Performance Bank Guarantee

<<TO BE EXECUTED UPON A BANK IN UJJAIN>>

**FORM OF BANK GUARANTEE FOR PERFORMANCE SECURITY**

**BANK GUARANTEE NO. _____ DATE: _____**

This deed of performance guarantee made this …… (date / month / year) by (Name and address of the Bank) (herein referred to as the Bank) which expression shall unless repugnant to the context and meaning thereof includes its legal representatives, successors and assignees and the **M/s. UJJAIN SMART CITY LIMITED** (hereinafter referred to as the **USCL**) which expression shall unless repugnant to the context and meaning thereof include its legal representative, successors and assignees.

Whereas, **USCL,** has awarded a Contract bearing No. _ _ _ _ _ _ _ _ _ **dated _ _ _** on M/s. _____ (Name and address of the party) (Hereinafter referred to as the `Implementing Agency') [INSERT PROJECT NAME]. And whereas, the Implementing Agency has agreed to submit a performance guarantee in the form of a Bank Guarantee to the **USCL,** in terms and conditions of Letter of intent/Notification of award No. …….. dated …….., which will be kept valid up to **72 calendar months** from the date of Bank Guarantee. And whereas, the Bank and its duly constituted agent and officer has already read and understood the contract made between the **USCL,** and the Implementing Agency.

In consideration of the **USCL.,** having agreed to award the contract, we _____ name of the Bank), do hereby guarantee, undertake, promise and agree to with the **USCL**, its legal representatives, successors and assignees that the within named (name of the Implementing Agency) their legal representatives and assignees will faithfully perform and fulfil everything within the Bidding Document and the Contract on their part to be performed or fulfilled, at the time (time being the essence of the contract) and in the manner therein provided, do all obligations there under and we further undertake and guarantee to make payment to the **USCL,** of Rs._____ (Rupees only) being the 10% of the contract value, in case the Implementing Agency, their legal representatives and assignees do not faithfully perform and fulfil everything within the Letter of intent/Notification of award on their part to be performed or fulfilled, at the time and in the manner therein provided and do not wilfully and promptly do all obligations there under.

In case, the fails to perform or fulfil the Contract as per the terms and conditions agreed upon, the **USCL,** is entitled to demand an amount equal to 10% of the Contract value from the Implementing Agency and the demand made by the **USCL,** by itself will be conclusive evidence and proof that the Implementing Agency has failed to perform or fulfil his obligations and neither the Implementing Agency nor the Bank will be entitled to raise any dispute regarding the reasons for the failure of performance or fulfilment, on any ground.

We, (name of the Bank), do hereby undertake to an amount equal to 10% of the order value, being the amount due and payable under this guarantee without any demur, merely on a demand from the **USCL ,** stating that the amount claimed is due by way of non – performance of the contractual obligations as aforesaid by the Implementing Agency or by reason of the Implementing Agency's failure to perform the said contractual commitments, any such demand made on the Bank shall be

conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. _____ (Rupees only) being the amount equal to 10% of the total contract value.

We, (name of the Bank), further, agree that the performance guarantee herein contained shall remain in full force and effect for a period upto _____ from the date of Bank guarantee and till the **USCL ,** certifies that the terms and conditions of the said contract have been fully and properly carried out by the said Implementing Agency and accordingly discharge the guarantee, unless a demand or claim under this guarantee is made on us in writing by the **USCL,** on or before _____, we shall be discharged from all liabilities under this performance guarantee thereafter.

We, (name of the Bank), further agreed with the **USCL,** that the **USCL,** shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Bidding Document and the Contract to extend the time of performance by the said Implementing Agency from time to time or postpone for any time and any of the power exercisable by the **USCL,** against the Implementing Agency and to forebear or enforce any of the terms and conditions relating to the said Bidding Document and the Contract and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Implementing Agency, or for any forbearance, act or omission on the part of the **USCL,** to the said Implementing Agency by any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving us.

This guarantee shall be in addition to and without prejudice to any other securities or remedies which the **USCL,** may have or hereafter possess in respect of the goods supplied/work executed or intended, to be supplied/executed and the **USCL,** shall be under no obligation to marshal in favour of the Bank any such securities or funds or asset that the **USCL,** may be entitled to be receiving or have a claim upon and the **USCL,** at its absolute discretion may vary, exchange, renew, modify or refuse to complete to enforce or assign any security or instrument.

The Bank agrees that the amount hereby guaranteed shall be due and payable to the **USCL,** on serving us with a notice, requiring the payment of the amount and such notice shall be deemed to have been served on the Bank either by actual delivery thereof to the Bank or by dispatch thereof to the Bank by Registered Post at the address of the Bank.

Any notice sent to the bank at its address by Registered Post acknowledged due as proof having delivered shall be deemed to have duly served on the Bank not withstanding that the notice may not in fact have been delivered to the bank.

In order to give full effect to the provisions of this guarantee the Bank hereby waives all rights inconsistent with the above provisions and which the Bank might otherwise as a guarantor be entitled to claim and enforce.

We, _____, lastly undertake not to revoke this guarantee during its currency except with the previous consent of the **USCL,** in writing and the guarantee shall be a continuous and irrevocable guarantee up to a sum of Rs. _____ (Rupees only).

The Guarantee shall remain in force until _____ and a claim is performed against the bank within three months from the said date all rights of the Client under the guarantee shall cease and the Bank shall be released and discharged from all liabilities here under.

NOT WITH STANDING anything contained herein:

i. Over liability under this guarantee shall not exceed Rs. _____
ii. This bank guarantee shall be valid up to _____ and
iii. We, (name of the Bank), are liable to pay the guarantee amount or any part thereof under this bank guarantee only and if **USCL,** serve upon us (name of the Bank), a written claim or demand on or before _____

_____
(Signature with Seal)

Place:
Date:

Code No.

### 7.4 Format for Earnest Money Deposit Guarantee

<Bidders also have the choice to submit an original Fixed Deposit Receipt, in the name of Executive Director, Ujjain Smart City Limited in lieu of the EMD Bank Guarantee>

Date: dd/mm/yyyy

To,

Executive Director,
Ujjain Smart City Limited,
Mela Karyalaya, Kothi Road – Ujjain – 456010

Whereas M/s <<Name of Bidder>>, a company incorporated under the <<Act>>, its registered office at …….. or (hereinafter called 'the Bidder') has submitted its Proposal dated ---------- for "Selection of Implementation Agency for Integrated Traffic Management System (ITMS) in Ujjain City**"**

KNOW ALL MEN by these presents that WE <<Name of Bank>> of ---------- ---------- having our registered office at ---------- ---------- (hereinafter called "the Bank") are bound unto the Ujjain Smart City Limited (hereinafter called "the Client") in the sum of <<INSERT AMOUNT IN FIGURES AND IN WORDS>> for which payment well and truly to be made to the said Client, the Bank binds itself, its successors and assigns by these presents. Sealed with the Common Seal of the said Bank this ---------- day of ----------2017

THE CONDITIONS of this obligation are:

1. If the Bidder withdraws its bid during the period of bid validity specified by the Bidder in the Bid

2. If the Bidder, having been notified of the acceptance of its Proposal by the Client during the period of validity of Proposal, bidder:

   a. withdraws his participation from the Proposal during the period of validity of Proposal document;

   b. fails to extend the validity if required as requested or

   c. fails to produce Performance Bank Guarantee in case of award of tender within 15 days of award of LOI or awarding contract whichever is earlier

We undertake to pay to the Client up to the above amount upon receipt of its first written demand, without the Client having to substantiate its demand, provided that in its demand the Client will note that the amount claimed by it is due to it owing to the occurrence of one or any or a combination of the above conditions, specifying the occurred condition or conditions.

This guarantee will remain in force up to the period of bid validity and its validity should be extensible to 90 days beyond the bid validity date. Any demand in respect thereof should reach the Bank not later than the above date.

**(Authorized Signatory of the Bank)**

### 7.5 Draft Tripartite Services Agreement

The client shall have the right to waive off this agreement subject to its satisfaction and that the Vendor assurance that the same levels of service will be provided by the Vendor, who shall deal with the Confirming party.

**[On stamp paper of appropriate value]**

**This Tripartite Services Agreement (Agreement) is entered into this ____day of _____ 201__, having an effective date _____ (Effective Date) by and between the following parties. Supplier, Confirming Party and Customer are individually referred to as** "Party" **and collectively, the** "Parties"**:**

| **Customer Entity:** | **Supplier Entity:** | **Confirming Party Entity:** |
|---|---|---|
| | | |
| **Customer Registered/Business Address:** | **Supplier Registered/Business Address:** | **Confirming Party Corporate office /Business Address:** |
| | | |
| **Customer Contact:** | **Supplier Contact:** | **Confirming Party Contact:** |
| | | |
| **Customer Notice Address:** | **Supplier Notice Address:** | **Confirming Party Notice Address** |
| | | |

**IN WITNESS WHEREOF**, the parties have executed this Agreement as of the Effective Date.

| **For and on behalf of the President of India, the Customer** | **For and on behalf of Supplier** | **For and on behalf of Confirming Party** |
|---|---|---|
| | | |
| **Witness:** | **Witness:** | **Witness:** |

**WHEREAS:**

**A.**The Customer had issued Request For Proposal (the "RFP") in respect of as per RFP No. _____ (the "Project") to which the Supplier (defined hereinafter) had submitted its response/bid to the said RFP;

**B.** The Customer awarded the work in favour of Bidder in respect of the Project and the Customer and the Supplier had entered into an Agreement dated _____ related thereto (Customer Agreement with Supplier, as further defined hereinafter);

**C.** Pursuant to the aforementioned Customer Agreement with Supplier, the Customer awarded COF in favour of Supplier for the supply of Services which has been accepted by the Supplier;

**D.** The Parties now wish to enter into this Agreement to record the terms and conditions on the basis of which the Services would be provided by the Supplier to the Customer and the roles and responsibilities of Confirming

Party, if any, in connection therewith. Notwithstanding the provisions of Section _____ of Customer Agreement With Supplier, terms of the Customer Agreement with Supplier shall apply to the Supplier only to the extent applicable to Supplier's scope of Services with respect to the Project.

**1. DEFINITIONS**

Capitalized terms used in this Agreement but otherwise not defined shall have the following meaning:

**"Customer"** means the entity defined above. For the purposes of all remedies and limitations of liability set forth in this Agreement, Customer means Customer, its Affiliates and its and their employees, directors, officers, agents and representatives.

**"Customer Agreement With Bidder"** means agreement dated _____ in respect of the Project to which the Customer and Bidder are parties.

**"Customer Order Form"** or **"COF"** -means the purchase order dated _____ (including amendments thereto) for Service issued by Customer and accepted by Supplier setting out matters relating to Supplier's delivery of Services to Customer.

**"Customer Premises"** means the location or locations occupied by Customer or Customer's End Users (as applicable) to which Service is delivered.

**"End User"** means any person or entity deriving or making use of the Services through Customer including but not limited to, Customer, an Affiliate of Customer, an authorized vendor of Customer or a customer of Customer.

**"Service Schedules"** means the scope of work in respect of Services as set out in the Bidder Agreement which is incorporated into this Agreement by way of this reference.

**"Services"** means _____ set forth in the Supplier Agreement with respect to scope identified in Annexure A, B and C of the Bidder Agreement. For avoidance of doubt, internet services (as specified in Bidder Agreement) are excluded from the scope of Services.

**"Service Fees"** means the charges payable by Customer for the Services (including but not limited to monthly recurring charges and non-recurring charges) as identified in the COF(s) and Service Schedules and the Customer Agreement with the Supplier.

**"Supplier"** means the entity named above or in a COF, as applicable. For the purposes of all remedies and limitations of liability set forth in this Agreement, Supplier means Supplier, its Affiliates and its and their employees, directors, officers, agents and representatives.

**2. SERVICES**

2.1 The Supplier agrees to provide the Services as per the Service Schedules, in accordance with the terms and conditions of the Agreement with the Supplier to the extent such terms and conditions apply to the Supplier's provision of the Services. Confirming Party confirms that the Services Schedule covers the entire scope of Services to be provided by the Supplier under the Customer Agreement with the Supplier.

2.2 Term/Service Fees. This Agreement shall become effective on the Effective Date and shall be co-terminus with Customer Agreement with the Supplier.

2.3 Payment. Supplier will commence invoicing for Services as per the applicable payment terms of the Customer Agreement with Supplier. Invoices raised by Supplier shall be vetted and approved by the Confirming Party. Payment shall be made by the Customer to Supplier against the invoices duly vetted and approved by the Confirming Party for the Services in accordance with the payment terms mentioned in the Customer Agreement with Supplier, to the bank account designated by Supplier from time to time. Unless otherwise specified in the COF, all amounts shall be invoiced and paid in INR. Payment shall be made after deducting liquidated damages/penalties (related to Services to be supplied by the Supplier) taxes etc. as per the terms and conditions of the Customer Agreement with the Supplier.

**3. RESALE AND USE OF SERVICES**

3.1 Resale of Services. Customer shall not have any right to market and/or re-brand the Services purchased by it as its own product and services or to resell the Services to third parties unless it has all required legal and/or regulatory licenses and consents from all relevant Governmental Authorities. Customer shall strictly comply with all the legal and/or regulatory licenses and consents from all relevant Governmental Authorities with respect to any permitted resale of Services. Customer shall be solely responsible and liable for any misuse of Services by Customer's customers or any third parties in respect of Customer's resale of Services.

3.2 Customer's Obligation. In the event Customer resells the Services to a third party, it shall do so only under the conditions that (i) any and all of such third party's acts and omissions (including any failure by the third party to comply with any applicable law rule or regulation in the jurisdiction in which it uses or resells the Services) shall be attributable to Customer for the purposes of this Agreement; (ii) any resale or sublicense by Customer of the Services shall not relieve Customer of its obligations under any applicable Order Form or this Agreement; and (iii) such third party waives any liability by Supplier in connection therewith.

**4. LIMITATION OF LIABILITY**

4.1 Damages.Notwithstanding any other provision hereof or any other agreement, neither Customer nor Supplier shall be liable for (a) any indirect, incidental, special, consequential, exemplary or punitive damages including any damages for lost profits, lost revenues, loss of goodwill, loss of anticipated savings, loss of customers, loss of data, arising out of the performance or failure to perform under this Agreement, whether or not caused by the acts or omissions of its employees or agents, and regardless of whether such Party has been informed of the possibility or likelihood of such damages.

**5. MISCELLANEOUS**

5.1 Governing Law. This Agreement shall be governed by the laws of India and the Parties irrevocably submit to the exclusive jurisdiction of the courts at Ujjain in Madhya Pradesh and any court of appeal therefrom.

5.2 Severability; Waiver. In the event any provision of this Agreement is held by a court of competent jurisdiction to be invalid, void or unenforceable, such provision(s) shall be stricken and the remainder of this Agreement shall remain legal, valid and binding. The failure by either Party to exercise or enforce any right conferred by this Agreement shall not be deemed to be a waiver of any such right or to operate so as to bar the exercise or enforcement of any such or other right on any later occasion.

5.3 Notice. Any notice or communication required or permitted to be given hereunder may be delivered by hand, sent by overnight courier, email (with confirmation of delivery and followed up by registered post) or facsimile (with confirmation of delivery), at the addresses set forth on the Cover Page and/or the applicable COF or at such other address as may hereafter be furnished by either Party to the other by notice in accordance herewith. Such notice or communication will be deemed to have been given as of the date it is delivered, emailed, or faxed, as applicable.

5.5 Relationship of Parties. Supplier and Customer are independent contractors and this Agreement will not establish any relationship of partnership, joint venture, employment, franchise or agency between Supplier and Customer.

5.6 Dispute Resolution – Any dispute with respect to this Agreement shall be resolved as per the dispute resolution provisions agreed in the Customer Agreement with the Supplier.

5.7 Entire Understanding. This Agreement along with the Customer Agreement With the Supplier, Service Schedule, Supplier Agreement and COF constitutes the entire understanding of the Parties related to the subject matter hereof. As per clause 1.3 (e) of the Customer Agreement with the Supplier, this Agreement forms an integral part of the Customer Agreement with the Supplier. Except to the extent otherwise agreed in this Agreement, all terms and conditions of the Customer Agreement with the Supplier shall mutatis mutandis apply to this Agreement. This Agreement is without prejudice to (i) any rights that the Customer may have against the Confirming Party under the Customer Agreement with the Supplier and (ii) any and all obligations that the Confirming Party has under the Customer Agreement with the Supplier.

5.8 Amendment. This Agreement may be amended only in writing signed by a duly authorized representative of each of Confirming Party, Supplier and Customer.

# END OF DOCUMENT