



JABALPUR
SMART CITY LIMITED

Request for Proposal

Selection of System Integrator for Implementation of Intelligent Traffic Management System (ITMS) Solutions in Jabalpur (AMENDED)

RFP Ref. No. JSCL/2018/551/ADM/130, Dated 13 July 2018

Amended after Pre-Bid Meeting of 2 July 2018

Jabalpur Smart City Limited

The information contained in this Request for Proposal (“RFP”) Document, whether communicated in verbal or in documentary or in any other form, by or on behalf of the Jabalpur Smart City Limited (the “JSCL”) or any of their employees or advisors, on the terms and conditions set out in this RFP Document and such other terms and conditions as the JSCL may prescribe in this behalf, has been prepared and issued by Jabalpur Smart City Limited (“JSCL”) solely to assist prospective Bidders in making their decision of whether or not to submit a bid.

This RFP Document is not an agreement and is not an offer or invitation by JSCL to any party. As mentioned above, the purpose of this RFP Document is to provide the Bidder with information to assist in the formulation of their proposals. This RFP Document does not purport to contain all the information each Bidder may require. This RFP Document may not be appropriate for all persons, and it is not possible for JSCL, their employees or advisors to consider the investment objectives, financial situation and particular needs of each party who reads or uses this RFP Document. Each Bidder should conduct its own investigations and analysis and should check the accuracy, reliability and completeness of the information in this RFP Document and where necessary obtain independent advice from appropriate sources.

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This RFP Document is provided for information purposes only and upon the express understanding that such parties will use it only for the purpose set forth above.

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This RFP Document has not been filed, registered or approved in any jurisdiction. Recipients of this document should inform themselves of and observe any applicable legal requirements. Information provided in this RFP Document to the Bidders is on a wide range of matters, some of which may depend upon interpretation of law. The information given is not an exhaustive account of statutory requirements and should not be regarded as a complete or authoritative statement of law. JSCL, or their employees and advisors accept no responsibility for the accuracy or otherwise for any interpretation of law expressed herein.

JSCL may, in its absolute discretion, but without being under any obligation to do so, update, amend or supplement the information in this RFP Document. Any change to the RFP Document will be notified through mail. No part of this RFP Document and no part of any subsequent correspondence by JSCL, its employees and advisors shall be taken either as providing legal, financial or other advice or as establishing a contract or contractual obligation. Contractual obligations would arise only if and when definitive agreements have been

approved and executed by the appropriate parties having the authority to enter into and approve such agreements. JSCL reserves the right to reject all or any of the Proposal submitted in response to this RFP Document at any stage without assigning any reasons whatsoever and the issue of this RFP Document does not imply that JSCL is bound to select a Bidder.

All Bidders are responsible for all costs and expenses incurred by them when evaluating and responding to this RFP Document in connection with or relating to or in making their Proposal including any negotiation or other costs incurred by them thereafter. All such costs and expenses will remain with the Bidder and JSCL, or their employees and advisors shall not be liable in any manner whatsoever for the same or for any other costs or expenses incurred by a Bidder in preparation or submission of its Proposal, regardless of the conduct or outcome of the Bidding Process. JSCL may, in its sole discretion, proceed in the manner it deems appropriate which may include deviation from its expected evaluation process, the waiver of any requirements, and the request for additional information. Unsuccessful Bidders will have no claim whatsoever against JSCL or their employees and advisors.

This version of RFP has been amended after Pre-Bid meeting held on 2 July 2018. Bidders' queries/ clarification/ suggestions have been incorporated (as found suitable by JSCL) in this Amended RFP. This Amended RFP replaces RFP dated 13 June 2018.

RFP Structure

Part 1	Instructions to Bidders (ITB)
Part 2	Scope of Work and Requirement Specifications

**Part 1 – Instructions to Bidders
(ITB)**

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List of Abbreviations

Abbreviations	Definitions/Description
ANPR	Automatic Number Plate Recognition
BG	Bank Guarantee
BoQ/BoM	Bill of Quantity/ Bill of Material
CCNA	Cisco Certified Network Associate
CCNP	Cisco Certified Network Professional
DD	Demand Draft
EMD	Earnest Money Deposit
FDR	Fixed Deposit Receipt
FY	Financial Year
Goi	Government of India
ICCC	Integrated Command Control Centre
ICT	Information & Communication Technology
ITB	Instructions to Bidders
ITCS	Intelligent Traffic Control System
ITMS	Intelligent Traffic Management System
JSCL	Jabalpur Smart City Limited
LOA	Letter of Award
LS	Lump Sum
MCSA	Microsoft Certified Solutions Associate
MoHUA	Ministry of Housing & Urban Affairs
NIT	Notice Inviting Tender
O&M	Operations & Maintenance
OEM	Original Equipment Manufacturer
PA system	Public Address system
RFP	Request for Proposal
RLVD	Red Light Violation Detection
SI	System Integrator
SLA	Service Level Agreement
SVD	Speed Violation Detection
SWM	Solid Waste Management
TCC	Traffic Control Center

UAT	User Acceptance Testing
UPS	Uninterruptible Power Supply
VaMS	Variable Message Sign

Bid Summary

Sl. #	Particular	Details
1.	Date of Issue of RFP	13 June 2018
2.	Last date and time for submission of written Queries for clarifications	2 July 2018
3.	Date & Time of Pre-bid Meeting	2 July 2018, 15:00 hrs
4.	Date of Issue of Amended RFP	13 July 2018
5.	Last date and time for submission of Online Proposals (Proposal Due Date)	24 July 2018, 15:00 hrs
6.	Last date and time for Hard copy Submissions	25 July 2018, 15:00 hrs
7.	Date and time of opening of Technical Proposals (Proposal Opening Date)	25 July 2018, 15:30 hrs
8.	Date of opening of Price Proposals	To be intimated to technically shortlisted Bidders
9.	Address for Submission & Opening of Proposals and other relevant purposes	Jabalpur Smart City Limited, Smart City Office, Manas Bhawan, Wright Town, Jabalpur, Madhya Pradesh, 482002
10.	Bid Security/EMD	Rs. 50,00,000/- (Rupees Fifty Lakhs) in form of Bank Guarantee as per format prescribed in this RFP or Demand Draft or FDR or Online Payment
11.	Cost of RFP Document	Rs. 10,000/- (Rupees Ten Thousand only) (non-refundable) to be paid online on e-procurement portal www.mpeproc.gov.in
12.	Single Point of Contact from JSCL regarding RFP	Chief Executive Officer, Jabalpur Smart City Limited, Manas Bhawan, Wright Town, Jabalpur, Madhya Pradesh, 482002 Contact No. – 7611136805
13.	Email Id for correspondence	Email ID – abhishek.dubey@jscljabalpur.org ceojscl@mpurban.gov.in

1. INTRODUCTION

1.1. General

Jabalpur is among the first 20 cities selected in first round of smart cities challenge under Smart City Mission by Ministry of Housing and Urban Affairs, Government of India (formerly, Ministry of Urban Development). In this context, Jabalpur has incorporated a special purpose vehicle (SPV) – Jabalpur Smart City Limited (JSCL) to plan, design, implement, coordinate and monitor the smart city projects in Jabalpur. It has been incorporated under Company Act, 2013 on 14th March 2016.

JSCL invites sealed proposals for selection of System Integrator for Implementation of Intelligent Traffic Management System (ITMS) Solutions in Jabalpur. The ITMS System Integrator is proposed to be selected through an open, transparent and competitive bidding process, which is declared as the Successful Bidder in terms of this RFP Document.

1.1.1. The broad scope of work to be carried out by the ITMS System Integrator during the Contract Period are as below:

- Develop, supply, install, commission, integrate and implement the following ITMS solutions:
 1. Intelligent Traffic Control System at Junctions
 2. Public Address (PA) system
 3. Variable Message Sign (VaMS) System
 4. Red Light Violation Detection (RLVD) System
 5. Automatic Number Plate Recognition (ANPR) System
 6. Speed Violation Detection (SVD) System
 7. Triple Riding Detection System
 8. No Helmet Detection System
 9. E-Challan System
 10. Solution for Remote Monitoring of Weighbridge of SWM Vehicles entry/exit at the Kathonda Plant, Jabalpur
 11. Drone Camera based surveillance
- Undertake operation, maintenance and other incidental activities relating to the ITMS solutions.

The detailed scope of work for the ITMS System Integrator is provided in **Part 2 - Scope of Work and Requirement Specifications**. The ITMS System Integrator shall have to comply with the Standards of Performance as provided in Part 2.

1.1.2. An agreement (“Master Service Agreement”) shall be executed between JSCL or any Assigned entity as nominated by JSCL and the Successful Bidder for the Project.

1.2. Brief Description of Bidding Process

1.2.1. The RFP document can be viewed / downloaded from website <https://www.mpeproc.gov.in> and www.jscljabalpur.org. The document can be purchased from <https://www.mpeproc.gov.in>. The Technical Proposal and Price Proposal shall be submitted online as per the provisions of this RFP. Hardcopy of Technical Proposal also needs to be submitted in physical form to JSCL.

1.2.2. RFP document follows a two-step approach comprising:

- **Qualification Phase:** Technical evaluation of Bidders based on pre-qualification and Technical qualification criteria as set out in Section 3.1 and Section 4.5.
- **Proposal Phase:** Price evaluation of Bidders who have been found to be technically qualified.

As a part of the bidding process, as physical submission, the eligible entities and interested parties are required to submit one envelope containing:

(i) **Packet 1:** Bid Security & RFP Document Fee receipt and (ii) **Packet 2:** Technical Proposal.

Packet 3: Price Proposal is required to be submitted online **ONLY** through the e-Procurement portal www.mpeproc.gov.in.

Hard copy of the Price Proposal is NOT to be submitted.

- 1.2.3. JSCL reserves the right to reject any Proposal in case the hardcopies of Packet 1 and Packet 2 as set out in clause 1.2.2 above are not received by due date and time for hard copy submission as mentioned in the Bid Summary section.
- 1.2.4. In case of any discrepancy between Technical Proposal submitted physically (hard copies) and Technical Proposal submitted online, the Technical Proposal submitted online shall be taken into consideration for bid evaluation.
- 1.2.5. Technical Proposal of the Bidders will be opened to check their eligibility to participate, to test their responsiveness, bid security and other such compliances and further to evaluate the technical capability and financial capability in accordance with the criteria set out in this RFP Document.
- 1.2.6. Price Proposal of only those bidders who are found technically qualified shall be opened.
- 1.2.7. Details of the schedule of Bidding Process is provided in Bid Summary section.

2. Instructions to Bidders

2.1. Definitions

2.1.1. In this RFP Document, the following words and expressions shall, unless repugnant to the context or meaning thereof and unless the document so specifically provides, have the meaning hereinafter respectively assigned to them:

- (a) **“Bidder”** means an eligible entity that submits a proposal in terms of this RFP Document.
- (b) **“Bidding Process”** shall mean the single stage competitive bidding process with two envelopes system comprising (i) the Technical Proposal and (ii) the Price Proposal for selecting System Integrator for Implementation of Intelligent Traffic Management System (ITMS) Solutions in Jabalpur as part of the Project.
- (c) **“Go-Live”** shall mean
 - i. Successful deployment, commissioning and UAT of the ITMS application modules implemented
 - ii. Procurement, deployment and commissioning of the hardware items and desired connectivity at the identified locations required to support the functioning of ITMS modules/components
 - iii. Acceptance/Sign-off from JSCL or its constituted committees or representatives
- (d) **“ITMS System Integrator”** shall mean the bidder selected through tender process for Implementation of Intelligent Traffic Management System (ITMS) Solutions in Jabalpur as per the requirements set out in this RFP.
- (e) **“JSCL”** shall mean Jabalpur Smart City Limited.
- (f) **“Letter of Award”** shall mean the letter issued by JSCL to the Successful Bidder.
- (g) **“Project”** shall mean design, development, testing, procurement, deployment, commissioning, integration and operation & maintenance of Intelligent Traffic Management System (ITMS) solutions in Jabalpur.
- (h) **“Project site”** or **“Project location”** shall mean the locations such as traffic junctions, TCC, ICCC and other locations mentioned in the RFP where proposed ITMS equipment/devices as described in the RFP are physically located.
- (i) **“Proposal”** shall mean the documents received by JSCL from an interested party who is eligible to submit its proposal in response to this RFP Document for the Project.
- (j) **“RFP Document”** shall mean the documents set out in Clause 2.7 including all the Appendices, Annexures and Schedules thereof and any amendments thereto made in accordance with the provisions contained in this document.
- (k) **“Successful Bidder”** shall mean the Bidder selected for award of the contract for Implementation of Intelligent Traffic Management System (ITMS) Solutions in Jabalpur.

Any other term(s), not defined herein above but defined elsewhere in this RFP shall have the meaning(s) ascribed to such term(s) therein and shall be deemed to have been included in this Section.

2.2. Scope of Proposal

- 2.2.1. JSCL invites proposals from eligible entities having the requisite technical and financial capabilities ("Proposal").
- 2.2.2. The Proposals would be evaluated on the basis of the evaluation criteria set out in this Request for Proposal (RFP) Document (hereinafter referred to as the "**Evaluation Criteria**") in order to identify the Successful Bidder for providing the services envisaged under the Master Service Agreement for the Project.
- 2.2.3. Terms used in this RFP Document which have not been defined herein shall have the meaning recognised thereto in the draft Master Service Agreement.
- 2.2.4. Pursuant to the release of this RFP Document, JSCL shall receive Proposals, prepared and submitted in accordance with the terms set forth in this RFP Document and other documents provided by JSCL pursuant to this RFP Document including annexure/ Appendix hereto (collectively referred to as the "Bid Documents"), as modified, altered, amended and clarified from time to time by JSCL.
- 2.2.5. This RFP Document and all attached documents are and shall remain the property of JSCL and are transmitted to the Bidders solely for the purpose of preparation and the submission of their respective Proposals in accordance herewith. Bidders shall not use it for any purpose other than for preparation and submission of their Proposals. JSCL will not return any Proposal or any information provided along therewith.
- 2.2.6. The statements and explanations contained in this RFP Document are intended to provide an understanding to the Bidders about the subject matter of this RFP Document and shall not be construed or interpreted as limiting, in any way or manner whatsoever, the scope of services, work and obligations of the Successful Bidder to be set forth in the Master Service Agreement or JSCL right to amend, alter, change, supplement or clarify the scope of service and work, the Master Service Agreement to be awarded pursuant to the RFP Document including the terms thereof, and this RFP Document including terms herein contained. Consequently, any omissions, conflicts or contradictions in the Bid Document are to be noted, interpreted and applied appropriately to give effect to this intent and no claim on that account shall be entertained by JSCL.
- 2.2.7. Bidders may note that JSCL will not entertain any material deviations from the RFP Document at the time of submission of the Proposal or thereafter. The Proposal to be submitted by the Bidders will be unconditional and the Bidders would be deemed to have accepted the terms and conditions of the RFP Document with all its contents including the terms and conditions of the draft Master Service Agreement. Any conditional Proposal is liable for outright rejection.
- 2.2.8. Conditional or incomplete proposals are liable to be treated as non-responsive and, therefore may be rejected at the sole discretion of JSCL.

2.3. Eligible Bidders

- 2.3.1. The Bidders eligible for participating in the Bidding Process shall be as follows:
 - a) A business entity incorporated in India under the Companies Act, 1956/2013, or a partnership firm registered under the Indian Partnership Act, 1936 or the Limited Liability Partnerships Act, 2008.
 - b) The Bidders are not allowed to bid in Consortium.
- 2.3.2. A Bidder who has earlier been barred by JSCL or any entity of Government of India or any state government or central government / department / agency in India from

participating in Bidding Process shall not be eligible to submit a Proposal if such bar subsists as on the Proposal Due Date.

Notwithstanding anything stated elsewhere in these documents, JSCL shall have the right to seek updated information from the Bidders to confirm their continued eligibility. Bidders shall provide evidence of their continued eligibility in a manner that is satisfactory to JSCL. A Bidder may be disqualified if it is determined by JSCL at any stage during the process that the Bidder will be unable to fulfil the requirements of the Contract or if a bidder fails to continue to satisfy the eligibility criteria. Supplementary information or documentations may be sought from Bidders at any time and must so be provided by such bidders within a reasonable timeframe as stipulated by JSCL.

2.4. Number of Proposals

2.4.1. Each Bidder shall submit only one (1) Proposal in response to this RFP Document. Any entity, which submits or participates in more than one Proposal will be disqualified.

2.5. Proposal Preparation Cost

2.5.1. The Bidder shall be responsible for all the costs associated with the preparation of its Proposal and its participation in the bidding process. JSCL will not be responsible or in any way liable for such costs, regardless of the conduct or outcome of bidding.

2.6. Verification of Documents

2.6.1. JSCL reserves the right to verify all statements, information and documents submitted by the Bidders in response to the RFP Document. Failure on the part of JSCL to undertake such verification shall not relieve the Bidders of their obligations or liabilities hereunder nor will it affect in any manner any of the rights of JSCL hereunder.

2.7. Contents of RFP Document

2.7.1. The RFP Document consists of two Parts as listed below and would include any addenda issued in accordance with Clause 2.8.1.

Part 1	Instructions to Bidders
Part 2	Scope of Work and Requirement Specifications

2.8. Amendment of RFP Document

2.8.1. At any time prior to the Proposal Due Date, JSCL may, for any reason whatsoever, modify the RFP Document by issue of Addenda.

2.8.2. In order to afford the Bidders reasonable time in which to take an Addendum into account, or for any other reason, JSCL may, at its own discretion, extend the Proposal Due Date.

2.8.3. JSCL may in its sole discretion and without assigning any reason modify, alter or amend all or any part of the schedule of Bidding Process by issue of addendum to the RFP Document.

2.9. Amended RFP after Pre-bid Meeting

2.9.1. To clarify and discuss issues with respect to the RFP Document, a Pre-bid meeting was held as per details provided in Bid Summary section. Post Pre-bid meeting, the RFP document has been amended and released.

2.10. Miscellaneous – Other Provisions

- 2.10.1. The Bidding Process shall be governed by, and construed in accordance with, the laws of India and only the Courts at Jabalpur shall have jurisdiction over all disputes arising under, pursuant to and / or in connection with the Bidding Process.
- 2.10.2. JSCL, in its sole discretion and without incurring any obligation or liability, reserves the right to:
- (a) suspend and / or cancel the Bidding Process and / or amend and / or supplement the Bidding Process and / or modify the dates or other terms and conditions relating thereto;
 - (b) qualify or disqualify any Bidder and/or to consult with any Bidder in order to receive clarification or further information;
 - (c) retain any information and/or evidence submitted to JSCL by, on behalf of, and / or in relation to any Bidder;
 - (d) independently verify, disqualify, reject and / or accept any and all submissions or other information and / or evidence submitted by or on behalf of any Bidder;
- 2.10.3. It shall be deemed that by submitting the Proposal, the Bidder agrees and releases JSCL, its employees, agents, assigns and advisers, irrevocably, unconditionally, fully and finally from any and all liabilities for claims, losses, damages, costs, expenses or liabilities in any way related to or arising from the exercise of any rights and / or performance of any obligations hereunder, pursuant hereto and / or in connection herewith and waives any and all rights and / or claims it may have in this respect, whether actual or contingent, whether present or future.

2.11. Disqualification

- 2.11.1. Even if the Bidder meets the guidelines as set forth in this RFP Document, JSCL at its sole discretion can disqualify the Bidder, if the Bidder:
- (a) has been debarred by any state or central government or government agency in India; or
 - (b) has made misleading or false representation in the forms, statements and attachments submitted; or
 - (c) or any of its constituents or its predecessor entity has a record of poor performance such as default in statutory compliances, consistent history of litigation / arbitration award against the Bidder / any of its constituents or financial failure due to bankruptcy, etc.; or
 - (d) any of its key personnel such as Director/owners/partners etc. have a criminal history or have been convicted by any court of law for any criminal offences other than minor offences.
- 2.11.2. Upon submission of the Proposal it would be deemed that the Bidder has prior to the submission thereof:
- (a) made a complete and careful examination of the terms and conditions/ requirements, and other information set forth in this RFP Document and other Bidding Documents;
 - (b) received all such relevant information as it has requested from JSCL;
 - (c) acknowledged and accepted the risk of any inadequacy, error or mistake in the information provided in any of the Bidding Documents or furnished by or on behalf of JSCL relating to any of the matters referred to in the Bidding Process including Bidding Documents;

- (d) acknowledged and agreed that any inadequacy, lack of completeness or incorrectness of information provided in the Bidding Documents or ignorance of any of the matters referred to in the RFP, and any amendments thereof, shall not be a basis for any claim for compensation, damages, extension of time for performance of its obligations, loss of profits etc. from JSCL or a ground for termination of the Master Service Agreement; and
 - (e) agreed to be bound by the undertakings provided by it under this RFP Document and in terms hereof.
- 2.11.3. JSCL shall not be liable for any mistake or error or neglect by the Bidders in respect of the above.
- 2.11.4. The Bidders and their respective officers, employees, agents and advisers shall observe the highest standard of ethics during the Bidding Process and subsequent to the issue of the LoA and during the subsistence of the Master Service Agreement. Notwithstanding anything to the contrary contained herein or in the LoA or the Agreement, JSCL shall reject a Proposal, withdraw the LoA, or terminate the Agreement, as the case may be, without being liable in any manner whatsoever to the Bidder, if it determines that the Bidder has, directly or indirectly or through an agent, engaged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice in the Bidding Process. In such an event, JSCL shall forfeit and appropriate the Bid Security or Performance Security, as the case may be, as mutually agreed genuine pre-estimated compensation and damages payable to JSCL towards, *inter alia*, time, cost and effort of JSCL, without prejudice to any other right or remedy that may be available to JSCL hereunder or otherwise.
- 2.11.5. Without prejudice to the rights of JSCL under Clause 2.11.4 hereinabove and the rights and remedies which JSCL may have under the LoA or the Agreement, if Bidder is found by JSCL to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice during the Bidding Process, or after the issue of the LoA or execution of the Agreement, such Bidder shall not be eligible to participate in any tender or RFP Document issued by JSCL during a period of five years from the date such Bidder, is found by JSCL to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practices, as the case may be.
- 2.11.6. For the purposes of Clauses 2.11.4 and 2.11.5 above, the following terms shall have the meaning hereinafter respectively assigned to them:
 - (a) “corrupt practice” means (i) the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the actions of any person connected with the Bidding Process (for avoidance of doubt, offering of employment to or employing or engaging in any manner whatsoever, directly or indirectly, any official of JSCL who is or has been associated in any manner, directly or indirectly with the Bidding Process or the LoA or has dealt with matters concerning the Agreement or arising there-from, before or after the execution thereof, at any time prior to the expiry of one year from the date such official resigns or retires from or otherwise ceases to be in the service of JSCL, shall be deemed to constitute influencing the actions of a person connected with the Bidding Process); or (ii) engaging in any manner whatsoever, whether during the Bidding Process or after the issue of the LoA or after the execution of the Agreement, as the case may be, any person in respect of any matter relating to the LoA or the Master Service Agreement, who at any time has been or is a legal, financial or technical adviser of JSCL in relation to any matter concerning the tender;

- (b) “fraudulent practice” means a misrepresentation or omission of facts or suppression of facts or disclosure of incomplete facts, in order to influence the Bidding Process;
- (c) “coercive practice” means impairing or harming, or threatening to impair or harm, directly or indirectly, any person or property to influence any person’s participation or action in the Bidding Process;
- (d) “undesirable practice” means establishing contact with any person connected with or employed or engaged by JSCL with the objective of canvassing, lobbying or in any manner influencing or attempting to influence the Bidding Process.

2.11.7. A Bidder shall not have a conflict of interest (the “Conflict of Interest”) that affects the Bidding Process. Any Bidder found to have a Conflict of Interest shall be disqualified. In the event of disqualification, JSCL shall forfeit and appropriate the Bid Security or Performance Security, as the case may be, as mutually agreed genuine pre-estimated compensation and damages payable to JSCL for, *inter alia*, the time, cost and effort of JSCL, including consideration of such Bidder’s Proposal, without prejudice to any other right or remedy that may be available to JSCL hereunder or otherwise. Without limiting the generality of the foregoing, a Bidder shall be considered to have a Conflict of Interest that affects the Bidding Process, if:

- (a) such Bidder, or any constituent thereof, and any other Bidder or any constituent thereof have common controlling shareholders or other common ownership interest by any third party, whether direct or indirect, or such Bidder or any constituent thereof is holding paid up capital, directly or indirectly, in other Bidder or any constituent thereof. Provided that this disqualification shall not apply (a) in case of common controlling shareholding or other common ownership interest by any third party, if such shareholding or ownership interest in one of the Bidders is less than 5% of its paid up and subscribed capital, or (b) in case of the direct or indirect shareholding in a Bidder by the other Bidder on any constituent thereof if such shareholding is less than 5% of that other Bidder’s paid up and subscribed capital. Provided further that this disqualification shall not apply to any ownership by a bank, insurance company, pension fund or a public financial institution referred to in sub-section (72) of section 2 of the Companies Act, 2013; or
- (b) a constituent of such Bidder is also a constituent of another Bidder; or
- (c) such Bidder receives or has received any direct or indirect subsidy from any other Bidder, or has provided any such subsidy to any other Bidder; or
- (d) such Bidder has the same legal representative for purposes of this Proposal as any other Bidder; or
- (e) such Bidder has a relationship with another Bidder, directly or through common third parties, that puts them in a position to have access to each other’s information about, or to influence the Proposal of either or each of the other Bidder.

2.12. Language

2.12.1. The Proposal and all related correspondence and documents shall be written in the English language. The supporting documents and printed literature furnished by the Bidder with the Proposal may be in any other language provided that they are accompanied by a true and correct translation into English and duly signed, stamped and certified by the Bidder to be true and correct. Supporting materials that are not translated into English shall not be considered for evaluation of the Proposal. For the purpose of interpretation and evaluation of the Proposal, the English language translation shall prevail.

2.13. Currency

2.13.1. The currency for the purpose of the Proposal shall be the Indian Rupee (INR).

2.14. Bid Security

2.14.1. Proposals shall be accompanied by a Bid Security for an amount as specified in Bid Summary section.

2.14.2. No relaxation of any kind in Bid Security shall be given to any Bidder.

2.14.3. The Bid Security shall remain valid for a period of 90 days beyond the Proposal Validity Period, and would need to be extended, if so required by JSCL, for any extension in Proposal Validity Period.

2.14.4. The Bid Security shall be in the form of an irrevocable Bank Guarantee issued by a Scheduled Commercial Bank authorized to handle transactions of Government of India in India, in favour of “**Executive Director, Jabalpur Smart City Limited**” valid at Jabalpur, as per the format set out in **Appendix 9** or in the form of a demand draft or FDR issued by Scheduled Commercial Bank in India, drawn in favour of “**Executive Director, Jabalpur Smart City Limited**” and payable at Jabalpur or Online Payment through e-Procurement portal.

JSCL shall not be liable to pay any interest on the Bid Security and the same shall be interest free. For avoidance of any doubt, ‘Scheduled Bank’ shall mean a Bank as defined under Section 2(e) of the Reserve Bank of India Act, 1934.

2.14.5. The Bid Security shall be returned to unsuccessful Bidders on the signing of Agreement. The Bid Security, submitted by the Successful Bidder, shall be released:

(a) upon furnishing a Performance Security for an amount mentioned in the Master Service Agreement; and

(b) upon signing of the Agreement with the Successful Bidder.

2.14.6. The Bid Security shall be liable to be forfeited and Proposal shall be liable to be rejected in the following cases:

(a) If the Bidder withdraws its Proposal except as provided in Clause 2.21.1; or

(b) If the Bidder modifies or withdraws its Proposal during the interval between the Proposal Due Date and expiration of the Proposal Validity Period; or

(c) If the Bidder fails to accept the LoA within the stipulated time period as provided in Clause 4.10.1; or

(d) In case of the Successful Bidder, if it fails to sign the Master Service Agreement within the specified time limit or any extension thereof; or

(e) In case of the Successful Bidder, if it fails to furnish the Performance Security within the specified time limit prescribed in the LoA; or

(f) If any information or document furnished by the Bidder turns out to be misleading or untrue in any material respect; or

(g) If a Bidder engages in a corrupt, fraudulent, coercive, undesirable or restrictive practice as specified in Clauses 2.11.4 to 2.11.6 of this ITB.

2.15. Validity of Proposal

2.15.1. The Proposal shall indicate that it would remain valid for a period not less than **180 days** from the Proposal Due Date (hereinafter “Proposal Validity Period”). JSCL reserves the right to reject any Proposal that does not meet this requirement.

2.15.2. Prior to expiry of the Proposal Validity Period, JSCL may request that the Bidders extend the period of validity for a specified additional period. A Bidder may refuse to comply with the request without forfeiting its Bid Security. A Bidder agreeing to the request will not be allowed to modify its Proposal but would be required to extend the validity of its Bid Security for the period of extension and comply with Clause 2.14 of this document in all respects. A Bidder refusing to comply with the request shall not be eligible to participate in the Bidding process and his Proposal shall be returned and his Bid Security released.

2.16. Bidder's Responsibility

2.16.1. The Bidder is expected to examine carefully the contents of the RFP Documents. Failure to comply with the requirements of RFP Documents will be at the Bidder's own risk.

2.16.2. It would be deemed that prior to the submission of Proposal, the Bidder has:

- (a) made a complete and careful examination of requirements and other information set forth in the RFP Documents;
- (b) received all such relevant information as it has requested from JSCL; and
- (c) made a complete and careful examination of the various aspects of the Draft Master Service Agreement including but not limited to:
 - i. all matters that might affect the Bidder's performance under the terms of the RFP Documents;
 - ii. a diligent scrutiny and is in conformity with the terms and conditions of the draft Master Service Agreement;
 - iii. clearances required to be obtained under the Draft Master Service Agreement; and
 - iv. applicable laws and regulations in force in India.

2.16.3. JSCL shall not be liable for any mistake or error or neglect by the Bidder in respect of the above.

2.17. Format and Signing of Proposal

2.17.1. Bidders shall provide all the information as required / can be inferred from this RFP Document and in the specified formats. JSCL reserves the right to reject any Proposal that is not in the specified formats.

2.17.2. The Proposal should be submitted in three packets:

I. Packet 1: Bid Security & RFP Document Fee receipt

This Packet shall carry a cover with text "**Packet 1: Bid Security & RFP Document Fee receipt**" written/printed on it. Original/ Hardcopy of Bid Security (bank guarantee as per Appendix 9 or in the form of demand draft or FRD or Online Payment Receipt) need to be provided in accordance with the provisions set out in the RFP.

II. Packet 2: Technical Proposal, which would include:

- (a) Covering Letter as per Appendix 2 stating the Proposal Validity Period.
- (b) Format for Pre-Qualification Checklist as per Appendix 3
- (c) Details of Bidder together with supporting documents required as prescribed in Appendix 4.
- (d) Power of Attorney for Signing of the Proposal as prescribed in Appendix 5.

- (e) Project Citations executed by the Bidder in the past together with certificates etc. as prescribed in Appendix 6.
- (f) Chartered Accountant/ Statutory Auditor Certificate for ongoing projects as per format in Appendix 7
- (g) Affidavit on Non-Debarred as per format provided at Appendix 8
- (h) Proposed Solution as per structure provided in Appendix 11
- (i) CV as per format in Appendix 12
- (j) Certificate of Incorporation of the Bidder under Companies Act, 1956 or 2013 issued by Registrar of Companies or Certificate of commencement of business in case of public limited company or Partnership Deed, as applicable.
- (k) Supporting documents as per requirement of Clause 3.1 and Clause 4.5 of RFP Document.
- (l) Details of GST Registration No., PAN No. and valid bank account. Bidder should submit supporting documents as proof.
- (m) Manufacturer's Authorisation Form as per format in Appendix 13
- (n) Compliance to Requirement (Technical / Functional Specifications) of proposed solutions, as per Appendix 18
- (o) Unpriced BoQ with Make and Model no., as per Appendix 19
- (p) No Deviation Certificate, as per Appendix 20
- (q) Project Credential Summary, as per Appendix 21

Note: All pages of aforesaid document shall be duly signed by Authorized Representative of the Bidder. This Packet (Hardcopy) shall carry a cover with text "**Packet 2: Technical Proposal**" written/printed on it.

III. Packet 3: Price Proposal (To be submitted online only)

- (a) Price Proposal as per the format set out in Appendix 14, 14A and 14 B and is to be submitted online only through e-Procurement portal <https://www.mpeproc.gov.in>
- 2.17.3. The Proposal shall be typed or printed in indelible ink and the Bidder shall initial each page. All the alterations, omissions, additions, or any other amendments made to the Proposal shall be initialled by the person signing the Proposal. All pages of the Proposal must be serially numbered.
- 2.18. Sealing, Marking and Submission of Proposal**
- 2.18.1. The Bidders will submit the Proposal online and also in a single hard copy in single envelope excluding Packet-3 (Price Proposal) through Hand Delivery or RPAD/Speed post only, the details for which are specified below.
- 2.18.2. Online Submission
- Bidder(s) shall upload the soft copies of its entire Technical Proposal consisting of scan copies of Bid Security & RFP Document Fee receipt, Eligibility and Qualification details/ Technical submissions & all other documents, certificates etc. as required under the terms of the RFP;

Registration:

Bidders are required to register themselves in the e-Procurement portal. The process of enrolling is given as below:

- ☞ Enter e-Procurement portal - www.mpeproc.gov.in.
- ☞ Click on "New User" link.
- ☞ Fill up all the relevant information and proceed further.
- ☞ Any of the supporting documents like PAN Card, Company registration, passport, driving license, etc. can be uploaded for portal registration.

Presently the registration fee is Rs.500/- + applicable taxes. The bidder should note that the registration is valid for one year.

Digital Signature:

Digital Signature Certificate of Class 2 or Class 3 categories issued by a licensed Certifying Authority (CA) needs to be obtained for use on the e-Tendering Portal. The e-Procurement portal has user manuals with detailed guidelines on enrolment and participation in the online bidding process. The user manuals can be downloaded for ready reference.

2.18.3. General Guidelines for Online Submission

- (a) E-tendering process will be conducted through <https://www.mpeproc.gov.in/> the e-Procurement portal of Government of Madhya Pradesh.
- (b) To participate in e-tendering, the intending participants shall register themselves in the website of <https://www.mpeproc.gov.in> Detail information for registration and submission of offers through e-tendering process are available in the website <https://www.mpeproc.gov.in>. Bidders are advised to go through the FAQs, guidelines, instructions, manuals, policies, system setting procedures etc. as provided in the e-Procurement portal.
- (c) Tender form and relevant documents will not be sold /issued manually from offices.
- (d) The date and time for online submission of envelope shall be strictly followed in all cases. The bidder should ensure that their tender is submitted online before the expiry of the scheduled date and time. No delay on account of any cause will be entertained. **Tender(s) not submitted online will not be entertained.**
- (e) If for any reason, any interested bidder fails to complete any online stages during the complete tender cycle, JSCL shall not be responsible for that and any grievance regarding that shall not be entertained.
- (f) Tender shall consist of three Packets i.e. Bid Security & RFP Document Fee receipt in Packet-1, Technical Proposal in Packet-2 & Price Bid in Packet-3 through e-Tendering procedure only on <https://www.mpeproc.gov.in> portal.
- (g) The Bids offer must be submitted along with document(s) as per the guidelines given in tender document by e-Tendering procedure only.
- (h) The documents uploaded in the technical bid will be scrutinized by the Technical Evaluation Committee as per the document asked in the tender notice and tender document. The decision of the Tender Evaluation Committee shall be final in this regard.

- (i) BG/DD/FDR/ Online Payment through e-Procurement portal for the purpose of bid security should be scanned and attached to the tender during online submission. The originals should be submitted to the department before tender opening.
- (j) For any query related to e-Tendering process, the e-Procurement Helpdesk can be reached through below mentioned ways:

Through telephone:

Toll free landline - 18002588684

Please note that this is a Toll-free number and can be accessed from all the mobile and landlines. Kindly ask for your ticket number from the helpdesk.

Through Email:

Email ID - eproc_helpdesk@mpsedc.com

Direct access:

Bidders can also walk in to TCS office on the below mentioned address and get the query/issues resolved.

Address:

Tata Consultancy Services

5th Floor, Corporate block

DB Mall, Arera Hills

Bhopal, M.P. – 462011

If by any chance the issues or queries are not resolved by the Helpdesk associates then an email may be sent to **eproc.esc@gmail.com**. Bidders to note that the mail sent to this ID should also include the ticket no. and details of the problem.

2.18.4. Hard Copy Submission

The Bidder(s) shall also submit 1 (one) original set of the Technical Proposal (together with originals/ copies of documents required to be submitted along therewith pursuant to this RFP) as per Clause 2.17.2 and the instructions given below.

- 2.18.5. The Bidder shall seal the Packet 1: RFP Document Fees receipt & Bid Security” and Packet 2: Technical Proposal” in separate envelopes, duly marking the envelopes as “Packet 1: **Bid Security & RFP Document Fee receipt**” and “**Packet 2: Technical Proposal**” respectively. **These envelopes shall then be sealed in an outer envelope.**

Price Proposal as per the format set out in Appendix 14, 14A and 14B (Packet 3) needs **to be submitted online only.**

- 2.18.6. Technical Proposal envelope shall indicate the name and address of the Bidder.

- 2.18.7. All the envelopes shall clearly bear the following identification:

“Proposal for Selection of System Integrator for Implementation of Intelligent Traffic Management System (ITMS) Solutions in Jabalpur”

“Submitted by _____”

(Name, Address and Contact Phone No. of the Bidder)

2.18.8. The above envelope shall be addressed to:

ATTENTION OF Executive Director, JSCL

ADDRESS: Jabalpur Smart City Limited
Smart City Office, Manas Bhawan, Wright Town,
Jabalpur, Madhya Pradesh, 482002, India

2.18.9. If the envelope is not sealed and marked as instructed above, the Proposal may be deemed to be non-responsive and would be liable for rejection. JSCL assumes no responsibility for the misplacement or premature opening of such Proposal.

2.19. Proposal Due Date

2.19.1. Proposals shall be submitted on or before the Proposal Due Date and time mentioned in the Bid Summary section to the address provided in Clause 2.18.8 in the manner and form as detailed in this RFP Document. For the purposes of this RFP Document, the "Proposal Due Date" shall mean the time and date for submission of the Proposal as set out in the Bid Summary section. Proposals submitted by facsimile transmission or telex or email will not be acceptable.

2.19.2. JSCL, at its sole discretion, may extend the Proposal Due Date by issuing an Addendum in accordance with Clause 2.8.

2.20. Late Proposals

2.20.1. Any Proposal received by JSCL after the prescribed dead-line (Proposal Due Date as mentioned in Bid Summary section) will be summarily rejected and the hard copies of Packet 1 & 2 shall be returned unopened to the Bidder.

2.21. Modification and Withdrawal of Proposals

2.21.1. A Bidder may withdraw its Bid or re-submit its Bid (technical and/ or financial) before the Proposal Due Date as per the instructions/ procedure mentioned at e-Procurement portal. No Proposal shall be modified or withdrawn by the Bidder after the Proposal Due Date.

2.21.2. Bids withdrawn shall not be opened and processed further.

2.22. Confidentiality

2.22.1. Except as provided herein, information relating to the examination, clarification, evaluation and recommendation for the shortlisted Bidders shall not be disclosed to any person who is not officially concerned with the process or is not a retained professional adviser advising JSCL in relation to or matters arising out of or concerning the Bidding Process. JSCL will treat all information submitted as part of Proposal in confidence and will take all reasonable steps to ensure that individuals having access to such material treat the same in confidence. JSCL will not reveal any such information unless it is ordered to do so by a court or by any statutory, regulatory or Government authority or agency that has legal jurisdiction to require its disclosure or unless it is necessary to do so in order to enforce or assert any claim, right or privilege of JSCL or to defend any claim, action or proceedings against JSCL.

2.23. Clarifications Sought by JSCL

2.23.1. To assist in the process of evaluation of Proposals, JSCL may, at its sole discretion, ask any Bidder for any clarification on or with respect to its Proposal. The request for clarification and the response shall be communicated by Letter/Fax/Email. The Bidder in such cases would need to provide the requested clarification / documents promptly

and within one (01) day of such communication, or such time frame as given by JSCL for the same, to the satisfaction of JSCL. It is in the interest of the bidder to provide reply within the timeframe failing which JSCL may not accept the said information and no change in the substance of the Proposal would be permitted by way of such clarifications.

2.24. Cost of RFP Document

- 2.24.1. The non-refundable cost of the RFP Document, as specified in Bid Summary section, needs to be paid online on the e-Procurement Portal <https://www.mpeproc.gov.in>.

2.25. Right to Vary Quantity

- 2.25.1. At the time of award of contract or during the Contract Period, the quantity of goods, works, scope or services originally specified in the RFP document may be changed by JSCL by a written order to the ITMS System Integrator. It shall be without any change in the unit prices or other terms and conditions of the Bid and the RFP document.
- 2.25.2. If JSCL does not procure any line item(s) as specified in the Bill of Materials for procurement or procures less than the quantity specified in the RFP Document due to change in circumstances, the bidder shall not be entitled for any claim or compensation except otherwise provided in the bidding document.
- 2.25.3. Repeat orders for extra items or additional quantities may be placed on the rates and conditions given in the contract. Delivery or completion period may also be proportionally increased on mutually agreed terms.
- 2.25.4. JSCL may choose to procure additional material for any of the line item specified in Bill of Materials of the quantities per line item during the Contract Period. The successful Bidder shall hold the same prices quoted herewith.
- 2.25.5. Payment for additional quantities for line items shall be made on pro-rata basis as per unit rates mentioned in the bid. The unit rates quoted by bidder shall be valid for at least two years from the date of Contract signing. Thereafter, the unit rates may be escalated up to 10% on year on year basis on mutually agreed terms.
- 2.25.6. At the time of procurement, the ITMS System Integrator may propose product with same or higher specification. The right to choose the vendor for additional quantities at any point during the Implementation or O&M phase rests with JSCL.

2.26. Right to Amend Project Scope

- 2.26.1. JSCL retains the right to amend the Project Scope without assigning any reason at any time during the Contract Period. JSCL makes no commitments, express or implied, that the full scope of work as described in this RFP will be commissioned.
- 2.26.2. JSCL, may at any time, at its sole discretion defer the implementation of certain components of the project as per its requirements. Appropriate time extensions (but no cost extensions) shall be provided in case of delay owing to deferment by JSCL.

2.27. Site Visit

- 2.27.1. The Bidder may wish to visit and examine the site or sites and obtain for itself, at its own responsibility and risk, all information that may be necessary for preparing the bid and entering into the Contract. The costs of visiting the site or sites shall be at the Bidder's own expense.
- 2.27.2. JSCL will arrange for the Bidder and any of its personnel or agents to gain access to the relevant site or sites, provided that the Bidder gives JSCL adequate notice of a proposed visit of at least three (3) days. Failure of a Bidder to make a site visit will not be a cause for its disqualification.

2.27.3. No site visits shall be arranged or scheduled after the deadline for the submission of the Bids and prior to the award of Contract.

2.28. Sub-Contracting

Any service agreement or sub-contract by the ITMS System Integrator may be entered into only with prior approval of JSCL. However, the responsibility to meet Standards of Performance will continue to be that of the ITMS System Integrator.

2.29. Insurance

The selected bidder shall be required to undertake the insurance for all components of the ITMS and ITCS Project which has been procured under this RFP during the contract period of the project.

2.30. Eligible Goods and Services, and OEM Criteria

2.30.1. For purposes of this clause, the term “goods” includes commodities, raw material, machinery, equipment, and industrial plants; and “related services” include services such as insurance, transportation, supply, installation, integration, and testing, commissioning, training, and initial maintenance.

2.30.2. The Bidder shall quote specific make and model of 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.

2.30.3. The OEM for each major product or technology quoted (such as ITCS equipment, Junction camera/equipment, RLVD camera/equipment, ANPR camera/equipment, SVD camera/equipment etc.) should be in the business of that product or solution or technology for at least 3 years as on the date of release of the RFP.

2.30.4. All the OEMs for major product or technology quoted (such as ITCS equipment, Junction camera/equipment, RLVD camera/equipment, ANPR camera/equipment, SVD camera/equipment etc.) should have authorized presence in India either directly or through channel partner(s) as on the date of release of RFP.

2.30.5. The OEM for all active components should give a declaration that products or technology quoted/proposed shall not reach end-of-life for a minimum of 3 Years from the last date of Bid Submission and end of support for minimum of 3 years from the date of Go-Live.

2.30.6. The OEM for RLVD, ANPR and SVD cameras should have minimum installation base of at least 50 cameras in India in the last 3 years.

2.30.7. Each of the proposed OEMs should either have existing capability and infrastructure to provide 24x7 technical support in India across the year or should provide an undertaking that they would establish the requisite infrastructure and capability to provide 24x7 technical support in India across the year, on emerging a winner in this bidding process, within 3 months of issue of Letter of Award.

2.30.8. Bidder must quote products in accordance with above clause “Eligible goods and related services”.

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

2.31. Amended RFP

- 2.31.1. This version of RFP amended after Pre-Bid meeting held on 2 July 2018, after taking into consideration bidders' queries /clarification/ suggestions (as found suitable by JSCL). This amended RFP replaces previous RFP dated 13 June 2018.
- 2.31.2. All conditions and provisions mentioned in this amended RFP will be applicable for further bidding process, contractual obligations and project implementation (by the Successful Bidder).

3. Pre-Qualification Criteria

3.1. Pre-qualification criteria

The Technical Proposals of the Bidders shall be evaluated for meeting the eligibility and pre-qualification criteria based on the parameters listed below:

Sl. #	Requirement Parameter	Pre-qualification Criteria	Supporting Document required
1.	Legal Entity	<p>(a) The Bidder must be a business entity incorporated in India under the Companies Act, 1956/2013 or partnership firm registered under the Indian Partnership Act, 1936 or the Limited Liability Partnerships Act, 2008.</p> <p>(b) The Bidder should be registered with GST in India.</p> <p>The Bidders are not allowed to bid in Consortium.</p>	<ol style="list-style-type: none"> 1. Copy of Certificate of Incorporation / Registration under Companies Act, 1956/2013 or partnership deed as applicable 2. GST Registration Certificate
2.	Annual Turnover	<p>The Bidder should have an average annual turnover of minimum Rs. 50 crores during the last three (03) financial years (i.e. FY 2015-16, FY 2016-17 and FY 2017-18).</p> <p>For the purpose of this criterion, annual turnover of only the bidding entity will be considered. Annual turnover of any parent, subsidiary, associated or other related entity will not be considered.</p>	<ol style="list-style-type: none"> 1. Certificate from the Chartered Accountant / Statutory Auditor clearly specifying the annual turnover for the specified years 2. Audited and Certified copies of Balance Sheet and Profit/Loss Account of last 3 Financial Years last three (03) financial years (i.e. FY 2015-16, FY 2016-17 and FY 2017-18). <p>In case of non-availability of Audited Balance Sheet and Profit/Loss Account for FY 2017-18, a certificate from Chartered Accountant/ Statutory Auditor clearly specifying provisional annual turnover for FY 2017-18.</p>
3.	Net worth	<p>The Bidder must have positive Net worth in Indian Rupees as on 31 March, 2018.</p> <p>For the purpose of this criterion, net-worth of only the bidding entity will be considered. Net worth of any parent, subsidiary, associated or other related entity will not be considered.</p>	<ul style="list-style-type: none"> • Certificate from the Chartered Accountant / Statutory Auditor clearly specifying the net worth of the firm as on 31 March 2018. <p>In case the accounts for FY 2017-18 have not been audited, a certificate from Chartered Accountant/ Statutory Auditor specifying provisional net worth as on 31 March, 2018.</p>
4.	Project Experience: Specified Value of Project for Traffic Enforcement / ITMS	<p>The Bidder should have the experience of Traffic Enforcement / ITMS Project implementation of at least one project of contract value of minimum Rs. 10 Crore during last 7 years as on the Proposal Due Date. Note: For the purpose of evaluation, project will be defined as a project for a Government Authority/Undertaking</p>	<ol style="list-style-type: none"> 1. Work order/ Contract clearly highlighting the scope of work, solutions relevant to this project, Bill of Material and value of the contract/order. <p>AND</p> <ol style="list-style-type: none"> 2. Completion Certificate issued & signed by the competent authority of the client entity on letterhead OR, Completion certificate certified by Chartered

Sl. #	Requirement Parameter	Pre-qualification Criteria	Supporting Document required
		<p>in India including at least one or more of the following components:</p> <ul style="list-style-type: none"> • RLVD system • SVD System • E-Challan 	<p>Accountant/ Statutory Auditor.</p> <p>AND</p> <p>3. Project Citation as per the format given in Appendix 6 for each project.</p> <p>Note: In case of on-going Project, it must have achieved 80% of capex completion from financial and physical perspective. In such case, a certificate from Chartered Accountant/ Statutory Auditor certifying that requisite work/ contract value in terms of at least 80% of capex is completed along with proof of payment received from the client in the Bank Account. Required format is provided in Appendix 7.</p>
5.	Project Experience of Traffic Enforcement	The Bidder should have the experience of implementing at least one project including installation of RLVD or SVD cameras for minimum 5 locations for a Government Authority/Undertaking in India	<p>1. Work order/ Contract clearly highlighting the scope of work, solutions relevant to this project, Bill of Material and value of the contract/order.</p> <p>AND</p> <p>2. Completion Certificate issued & signed by the competent authority of the client entity on letterhead OR, Completion certificate certified by Chartered Accountant/ Statutory Auditor.</p> <p>AND</p> <p>3. Project Citation as per the format given in Appendix 6 for each project.</p> <p>Note: In case of on-going Project, it must have achieved 80% of capex completion from financial and physical perspective. In such case, a certificate from Chartered Accountant/ Statutory Auditor certifying that requisite work/ contract value in terms of at least 80% of capex is completed along with proof of payment received from the client in the Bank Account. Required format is provided in Appendix 7.</p>
6.	Affidavit for Non-Debarred from Participating in tender	The Bidder should not have been debarred from Participating in tender by any State / Central Government Department or Central /State PSUs as on Proposal Due Date.	<ul style="list-style-type: none"> • Affidavit certifying Non-debarred from Participating in tender as per format given in Appendix 8.

Note:

- (a) The Bidders are not allowed to bid in Consortium.
- (b) An OEM / Product Company can be part of multiple bids, if participating only as the Solution provider for the respective Product / Solution. An OEM can be part of multiple bids as OEM / sub-contractors.

4. Evaluation Methodology

4.1. General

- 4.1.1. The Bidder must possess the technical know-how and the financial wherewithal that would be required to successfully provide the services sought by JSCL, for the entire contract duration. The Bidder's Bid must be complete in all respects, conform to all the requirements, terms and conditions and specifications as stipulated in the RFP Document.
- 4.1.2. JSCL will appoint a Tender Evaluation Committee (TEC) to scrutinize and evaluate the prequalification of bidders, technical and commercial bids received. The TEC will examine the Bids to determine whether they are complete, responsive and whether the Bid format conforms to the RFP Document requirements. JSCL may waive off any informality or nonconformity in a Bid which does not constitute a material deviation according to JSCL.
- 4.1.3. The technical bids of only those bidders shall be opened which meet all the criteria of the pre-qualification criteria mentioned in Section 3.1 as per format provided in **Appendix 3**.
- 4.1.4. There should be no mention of bid prices in any part of the Technical Proposal. The Proposal is liable to be rejected if price bid / or any price information is included in the Technical Proposal.

4.2. Opening of Proposal

- 4.2.1. JSCL shall open the envelope labelled "Packet 1: Bid Security & RFP Document Fee receipt" and "Packet 2: Technical Proposal" on the Proposal Opening Date as mentioned in Bid Summary section, or at an appropriate time on the extended date for submission of Proposals as may be notified.
- 4.2.2. In the event of the Proposal Opening Date being declared a holiday for JSCL, the Proposals shall be opened at the same time on the next working day.
- 4.2.3. Any Proposal not accompanied with valid Bid Security in the acceptable form as per Clause 2.14 will be summarily rejected by JSCL as being non-responsive.
- 4.2.4. JSCL will subsequently examine and evaluate the Proposals in accordance with the provisions set out in this Section 4.
- 4.2.5. To facilitate evaluation of Proposals, JSCL may, at its sole discretion, seek clarifications in writing from any Bidder regarding its Proposal.

4.3. Test of Responsiveness

- 4.3.1. Prior to evaluation of Proposals, JSCL will determine whether each Proposal is responsive to the requirements of the RFP Document. A Proposal shall be considered responsive if it satisfies all the criteria stated below:
 - (a) It contains the information and documents as requested in the RFP Document.
 - (b) It mentions the Proposal Validity Period as set out in Clause 2.15.1.
 - (c) It is accompanied by the Bid Security as set out in Clause 2.14.1.
 - (d) It provides the information in reasonable detail. ("Reasonable Detail" means that, but for minor deviations, the information can be reviewed and evaluated by JSCL without communication with the Bidder). JSCL reserves the right to determine whether the information has been provided in reasonable detail.
 - (e) There are no inconsistencies between the Proposal and the supporting documents.

(f) It does not affect in any substantial way the scope, obligations, quality, specifications, standards, rules, controls and performance of the Project.

(g) It does not contain any condition.

4.3.2. Bidders are expected to submit proposals complete in all respects. All the required documents and details must be included. In the absence of the same, leading to material deviation or reservation, the Proposal is liable to be rejected.

4.3.3. A material deviation or reservation is one:

- a) which affects in a substantial way, the scope, quality, and / or performance of the services under the Master Service Agreement, or
- b) which limits in a substantial way, inconsistent with the RFP Document, JSCL rights or the Bidder's obligations under the Master Service Agreement, or
- c) which would affect unfairly the competitive position of other Bidders presenting substantially responsive bids.

4.3.4. JSCL reserves the right to reject any Proposal which in its opinion is non-responsive and no request for modification or withdrawal shall be entertained by JSCL in respect of such Proposals.

4.4. Evaluation of Proposals

4.4.1. The Proposals shall be evaluated by Tender Evaluation Committee (TEC) of JSCL. JSCL may appoint any external agency/ consultants, if required, for evaluation of bids.

4.4.2. The evaluation of the Proposals shall be carried out in the following two stages:

- **Stage I** – Evaluation of Technical Proposals of the Bidders.
- **Stage II** – Evaluation of Price Proposals of the Bidders who have qualified in Stage I evaluation.

4.4.3. In each stage of evaluation, the respective Proposals shall be first checked for responsiveness with the requirements of the RFP Document. JSCL reserves the right to reject the Proposal of a Bidder if the contents of the Proposal are not substantially responsive with the requirements of this RFP Document.

4.4.4. In Stage I of Proposal Evaluation, the Proposals submitted by the Bidders shall be checked for valid Bid Security, meeting the eligibility and pre-qualification criteria specified in the RFP document and other technical evaluation criteria set out in RFP document.

4.4.5. In Stage II, the Price Proposals of the Bidders who have qualified in the Stage I evaluation would be opened and evaluated as per the criteria set out in the RFP Document.

4.5. Evaluation of Technical Proposals

4.5.1. The Technical Proposals of only such Bidders shall be evaluated whose Proposals have been found to be substantially responsive as per Clause 4.3.

Only those Bidders who meet all the Eligibility Criteria as set out in Section 2.3 and Pre-qualification criteria as set out in Section 3.1 shall be considered for further evaluation of their Technical Proposals. The Technical Proposals of the Bidders shall be evaluated based on the Technical Evaluation Framework as listed in the Table below:

(a) Technical Evaluation Framework:

Section #	Evaluation Criteria	Total Marks
A	Bidder Profile	15
B	Relevant Project Experience	50
C	Approach & Methodology, Presentation / Demonstration	25
D	Proposed Key Project Team	10
Overall Technical Score Total		100

(b) Evaluation Parameters for Technical Proposal

SL. #	TECHNICAL EVALUATION CRITERIA	MAX. MARKS	SUPPORTING DOCUMENT REQUIRED						
A.	Bidder Profile	15							
A1	<p>Average annual turnover of the Bidder per annum during the last three (03) financial years (i.e. FY 2015-16, FY 2016-17 and FY 2017-18).</p> <p>Marks shall be allotted as given below:</p> <ul style="list-style-type: none"> • More than INR 75 Crore = 15 marks • More than INR 60 Crore and up to INR 74.99 Crore = 12 marks • INR 50 Crore and up to INR 59.99 Crore = 10 marks 	15	Certificate from the Chartered Accountant / Statutory Auditor clearly specifying the annual turnover for the specified years.						
B.	Relevant Project Experience	50							
B1	<p>Experience of implementing project(s) on ITCS/ Vehicle actuated signals with minimum 10 traffic junctions for a Government Authority/Undertaking in India in the last 7 years from the Proposal Due Date. Marks shall be allotted as below:</p> <table border="1"> <thead> <tr> <th>No. of locations/ junctions for ITCS/ Vehicle actuated signals</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>One Project having minimum 10 traffic junctions</td> <td>2</td> </tr> <tr> <td>One Project having 20 or more traffic junctions OR Two Project each having minimum 10 traffic junctions</td> <td>5</td> </tr> </tbody> </table>	No. of locations/ junctions for ITCS/ Vehicle actuated signals	Marks	One Project having minimum 10 traffic junctions	2	One Project having 20 or more traffic junctions OR Two Project each having minimum 10 traffic junctions	5	5	<ol style="list-style-type: none"> 1. Work order/ Contract clearly highlighting the scope of work, solutions relevant to this project, Bill of Material and value of the contract/order. <p>AND</p> <ol style="list-style-type: none"> 2. Completion Certificate issued & signed by the competent authority of the client entity on letterhead OR, Self-completion certificate certified by Chartered Accountant/ Statutory Auditor. <p>AND</p> <ol style="list-style-type: none"> 3. Project Citation as per the format given in Appendix 6 for each project.
No. of locations/ junctions for ITCS/ Vehicle actuated signals	Marks								
One Project having minimum 10 traffic junctions	2								
One Project having 20 or more traffic junctions OR Two Project each having minimum 10 traffic junctions	5								

SL. #	TECHNICAL EVALUATION CRITERIA	MAX. MARKS	SUPPORTING DOCUMENT REQUIRED						
B2	Experience of implementing project(s) on installation of RLVD system for a Government Authority/Undertaking in India in the last 7 years from the Proposal Due Date. Marks shall be allotted as below:	5	1. Work order/ Contract clearly highlighting the scope of work, solutions relevant to this project, Bill of Material and value of the contract/order. AND 2. Completion Certificate issued & signed by the competent authority of the client entity on letterhead OR, Self-completion certificate certified by Chartered Accountant/ Statutory Auditor. AND 3. Project Citation as per the format given in Appendix 6 for each project.						
	<table border="1"> <thead> <tr> <th>No. of locations/ junctions for RLVD</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>One Project having RLVD at minimum 5 locations/ junctions</td> <td>2</td> </tr> <tr> <td>One Project having RLVD at 10 or more locations/ junctions OR Two or more projects, each having RLVD at 5 or more locations/ junctions</td> <td>5</td> </tr> </tbody> </table>			No. of locations/ junctions for RLVD	Marks	One Project having RLVD at minimum 5 locations/ junctions	2	One Project having RLVD at 10 or more locations/ junctions OR Two or more projects, each having RLVD at 5 or more locations/ junctions	5
	No. of locations/ junctions for RLVD			Marks					
One Project having RLVD at minimum 5 locations/ junctions	2								
One Project having RLVD at 10 or more locations/ junctions OR Two or more projects, each having RLVD at 5 or more locations/ junctions	5								
B3	Experience of implementing project(s) on installation of ANPR system for a Government Authority/Undertaking in India in the last 7 years from the Proposal Due Date. Marks shall be allotted as below:	5	1. Work order/ Contract clearly highlighting the scope of work, solutions relevant to this project, Bill of Material and value of the contract/order. AND 2. Completion Certificate issued & signed by the competent authority of the client entity on letterhead OR, Self-completion certificate certified by Chartered Accountant/ Statutory Auditor. AND 3. Project Citation as per the format given in Appendix 6 for each project.						
	<table border="1"> <thead> <tr> <th>No. of locations/ junctions for ANPR</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>One Project having ANPR at minimum 5 locations/ junctions</td> <td>2</td> </tr> <tr> <td>One Project having ANPR at 10 or more locations/ junctions OR Two or more projects, each having ANPR at 5 or more locations/ junctions</td> <td>5</td> </tr> </tbody> </table>			No. of locations/ junctions for ANPR	Marks	One Project having ANPR at minimum 5 locations/ junctions	2	One Project having ANPR at 10 or more locations/ junctions OR Two or more projects, each having ANPR at 5 or more locations/ junctions	5
	No. of locations/ junctions for ANPR			Marks					
One Project having ANPR at minimum 5 locations/ junctions	2								
One Project having ANPR at 10 or more locations/ junctions OR Two or more projects, each having ANPR at 5 or more locations/ junctions	5								
B4	Experience of implementing project(s) on installation of SVD system for a Government Authority/Undertaking in India in the last 7 years from the Proposal Due Date. Marks shall be allotted as below:	5	1. Work order/ Contract clearly highlighting the scope of work, solutions relevant to this project, Bill of Material and value of the contract/order. AND 2. Completion Certificate issued & signed by the competent authority of the client entity on letterhead OR, Self-completion certificate certified by Chartered Accountant/ Statutory Auditor. AND 3. Project Citation as per the format given in Appendix 6 for each project.						
	<table border="1"> <thead> <tr> <th>No. of locations/ junctions for SVD</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>One Project having SVD at minimum 5 locations/ junctions</td> <td>2</td> </tr> <tr> <td>One Project having SVD at 10 or more locations/ junctions OR Two or more projects, each having SVD at 5 or more locations/ junctions</td> <td>5</td> </tr> </tbody> </table>			No. of locations/ junctions for SVD	Marks	One Project having SVD at minimum 5 locations/ junctions	2	One Project having SVD at 10 or more locations/ junctions OR Two or more projects, each having SVD at 5 or more locations/ junctions	5
	No. of locations/ junctions for SVD			Marks					
One Project having SVD at minimum 5 locations/ junctions	2								
One Project having SVD at 10 or more locations/ junctions OR Two or more projects, each having SVD at 5 or more locations/ junctions	5								
B5	Experience of implementing project(s) Public Address (PA) system for a Government Authority/Undertaking in India in the last 7 years from the Proposal Due Date.	5	1. Work order/ Contract clearly highlighting the scope of work, solutions relevant to this project, Bill of Material and value of the						

SL. #	TECHNICAL EVALUATION CRITERIA	MAX. MARKS	SUPPORTING DOCUMENT REQUIRED						
	<p>Marks shall be allotted as below:</p> <table border="1"> <thead> <tr> <th>No. of locations/ junctions for Public Address (PA) system</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>One Project having Public Address (PA) system at minimum 5 intersections/ junctions/locations</td> <td>2</td> </tr> <tr> <td>One Project having Public Address (PA) system at 10 or more intersections/ junctions/locations OR Two or more projects, each having Public Address (PA) system at 5 or more intersections/ junctions /locations</td> <td>5</td> </tr> </tbody> </table>	No. of locations/ junctions for Public Address (PA) system	Marks	One Project having Public Address (PA) system at minimum 5 intersections/ junctions/locations	2	One Project having Public Address (PA) system at 10 or more intersections/ junctions/locations OR Two or more projects, each having Public Address (PA) system at 5 or more intersections/ junctions /locations	5		<p>contract/order. AND</p> <ol style="list-style-type: none"> Completion Certificate issued & signed by the competent authority of the client entity on letterhead OR, Self-completion certificate certified by Chartered Accountant/ Statutory Auditor. AND Project Citation as per the format given in Appendix 6 for each project.
No. of locations/ junctions for Public Address (PA) system	Marks								
One Project having Public Address (PA) system at minimum 5 intersections/ junctions/locations	2								
One Project having Public Address (PA) system at 10 or more intersections/ junctions/locations OR Two or more projects, each having Public Address (PA) system at 5 or more intersections/ junctions /locations	5								
B6	<p>Experience of implementing project(s) Variable Message Sign (VMS) Board system for a Government Authority/Undertaking in India in the last 7 years from the Proposal Due Date. Marks shall be allotted as below:</p> <table border="1"> <thead> <tr> <th>No. of locations/ junctions for Variable Message Sign (VMS) Board system</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>One Project having VMS Board system at minimum 5 locations/ junctions, and up to 10 locations/junctions</td> <td>2</td> </tr> <tr> <td>One Project having VMS Board system at 10 or more locations/ junctions OR Two or more projects, each having VMS Board system at 5 or more locations/ junctions</td> <td>5</td> </tr> </tbody> </table>	No. of locations/ junctions for Variable Message Sign (VMS) Board system	Marks	One Project having VMS Board system at minimum 5 locations/ junctions, and up to 10 locations/junctions	2	One Project having VMS Board system at 10 or more locations/ junctions OR Two or more projects, each having VMS Board system at 5 or more locations/ junctions	5	5	<ol style="list-style-type: none"> Work order/ Contract clearly highlighting the scope of work, solutions relevant to this project, Bill of Material and value of the contract/order. AND Completion Certificate issued & signed by the competent authority of the client entity on letterhead OR, Self-completion certificate certified by Chartered Accountant/ Statutory Auditor. AND Project Citation as per the format given in Appendix 6 for each project.
No. of locations/ junctions for Variable Message Sign (VMS) Board system	Marks								
One Project having VMS Board system at minimum 5 locations/ junctions, and up to 10 locations/junctions	2								
One Project having VMS Board system at 10 or more locations/ junctions OR Two or more projects, each having VMS Board system at 5 or more locations/ junctions	5								
B7	<p>Experience of implementing project on Traffic e-Challan for a Government Authority/Undertaking in India during last 7 years (as on the Proposal Due Date) Marks shall be allotted as below: Any qualifying project – 5 marks</p>	5	<ol style="list-style-type: none"> Work order/ Contract clearly highlighting the scope of work, solutions relevant to this project, Bill of Material and value of the contract/order. AND Completion Certificate issued & signed by the competent authority of the client entity on letterhead OR, Self-Completion certificate certified by Chartered Accountant/ Statutory Auditor. AND Project Citation as per the format given in Appendix 6 for each project. 						

SL. #	TECHNICAL EVALUATION CRITERIA	MAX. MARKS	SUPPORTING DOCUMENT REQUIRED						
B8	<p>Experience of implementing project(s) on No Helmet Detection system for Traffic enforcement for a Government Authority/Undertaking in India in the last 7 years from the Proposal Due Date. Marks shall be allotted as below:</p> <table border="1"> <thead> <tr> <th>No. of locations/ junctions for No Helmet Detection System</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>One Project having No Helmet Detection System at minimum 5 locations/ junctions, and up to 10 locations/junctions</td> <td>2</td> </tr> <tr> <td>One Project having No Helmet Detection System at 10 or more locations/ junctions OR Two or more projects, each having No Helmet Detection System at 5 or more locations/ junctions</td> <td>5</td> </tr> </tbody> </table>	No. of locations/ junctions for No Helmet Detection System	Marks	One Project having No Helmet Detection System at minimum 5 locations/ junctions, and up to 10 locations/junctions	2	One Project having No Helmet Detection System at 10 or more locations/ junctions OR Two or more projects, each having No Helmet Detection System at 5 or more locations/ junctions	5	5	<ol style="list-style-type: none"> 1. Work order/ Contract clearly highlighting the scope of work, solutions relevant to this project, Bill of Material and value of the contract/order. AND 2. Completion Certificate issued & signed by the competent authority of the client entity on letterhead OR, Self-completion certificate certified by Chartered Accountant/ Statutory Auditor. AND 3. Project Citation as per the format given in Appendix 6 for each project.
No. of locations/ junctions for No Helmet Detection System	Marks								
One Project having No Helmet Detection System at minimum 5 locations/ junctions, and up to 10 locations/junctions	2								
One Project having No Helmet Detection System at 10 or more locations/ junctions OR Two or more projects, each having No Helmet Detection System at 5 or more locations/ junctions	5								
B9	<p>Experience of implementing project(s) on Triple Riding Detection (On 2-Wheeler) System for traffic enforcement for a Government Authority/Undertaking in India in the last 7 years from the Proposal Due Date. Marks shall be allotted as below:</p> <table border="1"> <thead> <tr> <th>No. of locations/ junctions for Triple Riding Detection (On 2-Wheeler) System</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>One Project having Triple Riding Detection (On 2-Wheeler) System at minimum 5 locations/ junctions, and up to 10 locations/junctions</td> <td>2</td> </tr> <tr> <td>One Project having Triple Riding Detection (On 2-Wheeler) System at 10 or more locations/ junctions OR Two or more projects, each having Triple Riding Detection (On 2-Wheeler) System at 5 or more locations/ junctions</td> <td>5</td> </tr> </tbody> </table>	No. of locations/ junctions for Triple Riding Detection (On 2-Wheeler) System	Marks	One Project having Triple Riding Detection (On 2-Wheeler) System at minimum 5 locations/ junctions, and up to 10 locations/junctions	2	One Project having Triple Riding Detection (On 2-Wheeler) System at 10 or more locations/ junctions OR Two or more projects, each having Triple Riding Detection (On 2-Wheeler) System at 5 or more locations/ junctions	5	5	<ol style="list-style-type: none"> 1. Work order/ Contract clearly highlighting the scope of work, solutions relevant to this project, Bill of Material and value of the contract/order. AND 2. Completion Certificate issued & signed by the competent authority of the client entity on letterhead OR, Self-completion certificate certified by Chartered Accountant/ Statutory Auditor. AND 3. Project Citation as per the format given in Appendix 6 for each project.
No. of locations/ junctions for Triple Riding Detection (On 2-Wheeler) System	Marks								
One Project having Triple Riding Detection (On 2-Wheeler) System at minimum 5 locations/ junctions, and up to 10 locations/junctions	2								
One Project having Triple Riding Detection (On 2-Wheeler) System at 10 or more locations/ junctions OR Two or more projects, each having Triple Riding Detection (On 2-Wheeler) System at 5 or more locations/ junctions	5								
B10	<p>Experience of implementing project(s) on Drone Camera based Surveillance system for Government Authority/Undertaking in India in the last 7 years from the Proposal Due Date. Marks shall be allotted as below:</p> <table border="1"> <thead> <tr> <th>No. of Drone Camera based Surveillance system</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>One Project on Drone Camera based Surveillance system for Government Authority/Undertaking in India</td> <td>2</td> </tr> </tbody> </table>	No. of Drone Camera based Surveillance system	Marks	One Project on Drone Camera based Surveillance system for Government Authority/Undertaking in India	2	5	<ol style="list-style-type: none"> 1. Work order/ Contract clearly highlighting the scope of work, solutions relevant to this project, Bill of Material and value of the contract/order. AND 2. Completion Certificate issued & signed by the competent authority of the client entity on letterhead OR, Self-completion certificate certified by Chartered Accountant/ Statutory Auditor. 		
No. of Drone Camera based Surveillance system	Marks								
One Project on Drone Camera based Surveillance system for Government Authority/Undertaking in India	2								

SL. #	TECHNICAL EVALUATION CRITERIA	MAX. MARKS	SUPPORTING DOCUMENT REQUIRED
	Two or more projects on Drone Camera based Surveillance system for Government Authority/Undertaking in India	5	Auditor. AND 3. Project Citation as per the format given in Appendix 6 for each project.
C.	Approach & Methodology, Presentation / Demonstration	25	
C1	<ul style="list-style-type: none"> Understanding of requirement and Implementation Approach Proposed Solution Work break down schedule Manpower Deployment plan, Training & Capacity Building plan and Handholding plan 	10	Bidder to submit technical write up on the ITMS solutions proposed as per Structure provided in Appendix 11 .
C2	<p>Presentation / Demonstration</p> <p>Following parameters will be evaluated during presentation:</p> <ul style="list-style-type: none"> Understanding of requirements (functional and technical) and completeness of proposed solution Presentation of Approach & Methodology for Implementation Clarifications provided during Presentation 	15	Assessment to be based on the presentation made by Bidder
D.	Proposed Key Project Team	10	
D1	Project Manager	4	Bidder to submit CVs of Key Project Team as per format provided in Appendix 12 .
D2	Technical Expert- ITMS/ICT	2	
D3	Technical Expert – Network & Security	2	
D4	Technical Expert – Server, Storage, EMS & Application	2	

Notes:

- i. In case of on-going Project, it must have achieved 80% of capex completion from financial and physical perspective. In such case, a certificate from Chartered Accountant/ Statutory Auditor certifying that requisite work/ contract value in terms of at least 80% of capex is completed along with proof of payment received from the client in the Bank Account. Required format is provided in **Appendix 7**.

ii. **Important: Minimum technical score to qualify for Price Proposal evaluation is 70 marks out of total 100 marks.**

iii. For projects where contract value has been received in any currency other than Indian Rupees, then the foreign currency conversion rate available on Reserve Bank of India's portal as on the date of release of the RFP document shall be used for conversion of amount in foreign currency to Indian Rupees equivalent.

iv. JSCL reserves the right to contact the competent authority of the client to verify the project credentials submitted by the Bidders.

(c) Key Personnel Criteria:

The ITMS System Integrator shall provide adequate number of personnel, each responsible for a specific role within the project.

Following table indicates the minimum qualification required for Key positions for evaluation for this project.

However, the ITMS System Integrator shall independently estimate the teams size required to meet the requirements of service Levels as specified as part of this RFP Document.

Sl. #	Name of Position/Role	Minimum Qualification & Experience
1.	Project Manager	<ul style="list-style-type: none"> BE / B. Tech 10+ Years of Experience 5+ Years of experience in large ICT project experience Minimum 1 large similar (similar to Intelligent Traffic Management Project) project experience
2.	Technical expert- ITMS/ICT	<ul style="list-style-type: none"> BE / B. Tech Minimum 5 years of experience, Min.3 years of experience in traffic domain Should have experience of at least one project in design implementation of Intelligent (preferably Intelligent) Traffic Management System Experience in setting up Command and Control Centre would be added advantage
3.	Technical Expert – Network & Security	<ul style="list-style-type: none"> BE / B.Tech. with CCNA/CCNP Minimum 5 years of experience, Min. 3 years of experience in IT Networks Should have experience of at least one project in design implementation of large IT Network for similar project Certification in Networking would be added advantage
4.	Technical Expert – Server, Storage, EMS & Application	<ul style="list-style-type: none"> BE / B.Tech. with CCNA/CCNP/MCSA Minimum 5 years of experience, Min. 3 years of experience in Server, Storage, EMS & Application Should have experience of at least one large project of Server, Storage, EMS & Application
5.	Technicians and Field Staff	<ul style="list-style-type: none"> ITI/ Diploma / Senior Secondary Examination with technical experience
6.	TCC Operators (O&M Phase)	<ul style="list-style-type: none"> ITI/ Diploma / Graduate with computer Training Minimum 2 years of relevant experience with proper trainings on ITMS

- 4.5.2. For an entity claiming experience for an activity for technical evaluation, only those projects would be considered where such entity was either the sole project executant or was responsible for implementation of the respective component of the Project.
- 4.5.3. The Bidders are advised that their Technical Proposals should be concise and precise and should contain only the relevant information.
- 4.5.4. Technical Proposal Presentations: The Bidders may be required by JSCL to make a presentation to JSCL at a date, time and venue decided by JSCL. In case, JSCL decides to invite Bidders for presentation, the Bidders will be required to present their Technical Proposals in the presentation ensuring that all aspects are covered properly and adequately.
- 4.5.5. JSCL may conduct Bidder-specific meeting(s) with individual Bidders to clarify aspects of the Bidder's Technical Proposal that require explanation in the opinion of JSCL.
- 4.5.6. The marks secured based on evaluation of the Technical Proposal as outlined above shall be the technical score of the Bidder ("Technical Score"). Only those Bidders who have secured Technical Score of 70 or more ("Threshold Score") shall be considered for opening and evaluation of their Price Proposal ("Shortlisted Bidders").

4.6. Evaluation of Price Proposal

- 4.6.1. The Price Proposals of all the Shortlisted Bidders will be opened at a date and time notified by JSCL, in the presence of the Bidders' representatives who choose to attend. The Bidders' authorised representatives who are present shall be required to sign and record their attendance.
- 4.6.2. Proposal of the Bidders would be evaluated on the basis of the "**Total Proposal Price**" quoted in the Price Proposal.
- 4.6.3. Price Proposals determined to be substantially responsive will be checked for any errors. If there is any discrepancy in the Price Proposal, it will be dealt as per the following:
 - (a) If, in the price structure quoted for the required goods/services/works, there is discrepancy between the unit price and total price (which is obtained by multiplying the unit price by the quantity), the unit price shall prevail and the total price corrected accordingly, unless in the opinion of the JSCL there is an obvious misplacement of the decimal point in the unit rate, in which case the total cost as quoted will govern and the unit rate corrected. Arithmetic errors will be rectified.
 - (b) If there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected.
 - (c) If there is a discrepancy between words and figures, the amount in words shall prevail.
 - (d) If there is such discrepancy in an offer, the same shall be conveyed to the bidder with target date up to which the bidder has to send his acceptance on the above lines and if the bidder does not agree to the decision of JSCL, the bid is liable to be disqualified.

The amount stated in the Price Proposal will be adjusted in accordance with the above-mentioned points for the correction of errors and, shall be considered as binding upon the bidder. If the bidder does not accept the corrected amount of bid, his bid will be rejected, and the Bid Security shall be forfeited.

- 4.6.4. The Bidder who has quoted the least Total Proposal Price shall be given a Financial Score of 100 marks. The Financial Scores of Bidders shall be computed as follows:

$$\text{Financial Score of a Bidder} = 100 \times \left[\frac{\text{lowest Total Proposal Price quoted (in INR)}}{\text{Total Proposal Price quoted by the Bidder (in INR)}} \right]$$

- 4.6.5. The marks secured based on evaluation of the Price Proposal as per the above shall be the Financial Score of the Bidder ("Financial Score").
- 4.6.6. Composite Score of the Bidders shall be worked out as under:

$$\text{Composite Score of a Bidder} = \text{Technical Score} \times 70\% + \text{Financial Score} \times 30\%$$

- 4.6.7. The CAPEX price quoted should not be more than 50% of overall value of the Total Price Proposal.

4.7. Award Criteria

Preferred Bidder shall be identified through following approach:

- (a) The Bidders shall be ranked based on their Composite Scores. The Bidder who has secured the highest Composite Score shall be considered to be the Preferred Bidder.
- (b) In case, two or more Bidders identified as per (a) above, secure identical Composite Score, the Bidder who has secured highest Technical Score shall be considered to be the Preferred Bidder.
- (c) Further, in case two or more Bidders identified as per (b) above, have identical Technical Scores, Preferred Bidder shall be determined through a draw of lots conducted in the presence of such Bidders.

Upon acceptance of the Proposal of the Preferred Bidder with or without negotiations, JSCL shall declare the Preferred Bidder as the Successful Bidder.

4.8. Notification

- 4.8.1. JSCL will notify the Successful Bidder by a Letter of Award (LOA) in the format set out in Appendix 17 ("Draft Letter of Award") that its Proposal has been accepted.

4.9. JSCL's Right to Accept or Reject Proposal

- 4.9.1. JSCL reserves the right to accept or reject any or all of the Proposals without assigning any reason and to take any measure as it may deem fit, including annulment of the bidding process, at any time prior to award of Contract, without any liability or obligation for such acceptance, rejection or annulment.
- 4.9.2. JSCL reserves the right to invite revised Price Proposals from Bidders with or without amendment of the RFP Document at any stage, without any liability or obligation for such invitation and without assigning any reason therefor.

- 4.9.3. JSCL reserves the right to reject any Proposal at any stage if:
- (a) the Bidder does not respond promptly and thoroughly to requests for supplementary information requested by JSCL for the evaluation of the Proposal; or
 - (b) one or more of the pre-qualification conditions has/have not been met by the Bidder; or
 - (c) the Bidder has made a material misrepresentation or such material misrepresentation is discovered at any time; or
 - (d) the Bidder engages in a corrupt, fraudulent, coercive, undesirable or restrictive practice.
- 4.9.4. If such disqualification / rejection occurs after the Price Proposals have been opened and the Bidder securing highest Composite Score gets disqualified / rejected, then JSCL reserves the right to:
- (a) consider the Bidder with next highest Composite Score as Preferred Bidder; or
 - (b) take any such measure as may be deemed fit in the sole discretion of JSCL, including annulment of the Bidding Process.
- 4.9.5. Proposals shall be deemed to be under consideration immediately after they are opened until such time that JSCL makes an official intimation of award/rejection to the Bidders. While the Proposals are under consideration, Bidders and/or their representatives or other interested parties are advised to refrain from contacting, by any means, JSCL and/or their employees/representatives on matters relating to the Proposals under consideration.
- 4.9.6. In case it is found, after the issue of the LOA or signing of the Master Service Agreement or after its execution and during the subsistence thereof, that:
- (a) one or more of the pre-qualification conditions have not been met by the Bidder; or
 - (b) the Bidder has made a material misrepresentation; or
 - (c) the Bidder has engaged in a corrupt, fraudulent, coercive, undesirable or restrictive practice;
- then the LOA or the Master Service Agreement, as the case may be, shall notwithstanding anything to the contrary contained therein or in this RFP Document, be liable to be terminated by a communication in writing by JSCL to the Successful Bidder without JSCL being liable in any manner whatsoever to the Successful Bidder. In such an event, JSCL shall forfeit Bid Security or Performance Security, as the case may be, without prejudice to any other rights or remedy that may be available to JSCL in this regard.

4.10. Acknowledgment of LOA and Execution of Master Service Agreement

- 4.10.1. Within seven (07) days from the date of issue of the LOA, the Successful Bidder shall accept the LOA and submit to JSCL the Letter of Acknowledgement in the format set out in Appendix 18.
- 4.10.2. The Successful Bidder shall execute the Master Service Agreement within fifteen (15) days of the issue of LOA or such time as indicated by JSCL.
- 4.10.3. JSCL will promptly notify other Bidders that their Proposals have been unsuccessful and their Bid Security will be released as promptly as possible upon signing of the

Master Service Agreement with the Successful Bidder /receipt of Acknowledgement of LOA from the Successful Bidder.

4.11. Performance Security

4.11.1. The Successful Bidder shall within fifteen (15) days of the issue of LOA or such time as indicated by JSCL furnish Performance Security as per draft Master Service Agreement and in terms of LOA, by way of an irrevocable Bank Guarantee issued by a Nationalized Bank or a Scheduled Bank authorized to handle transactions of Government of India in India, in favour of “**Executive Director, Jabalpur Smart City Limited**”, payable at Jabalpur as required under the Master Service Agreement. For the avoidance of any doubt, ‘Scheduled Bank’ shall mean a Bank as defined under Section 2 (e) of the Reserve Bank of India Act, 1934.

4.11.2. Failure of the Successful Bidder to comply with the requirements of Clause 4.11.1 shall constitute sufficient grounds for the annulment of the LOA, and forfeiture of the Bid Security. In such an event, JSCL reserves the right to:

(a) consider the second ranked Bidder (with next highest Composite Score) as Preferred Bidder provided it agrees to match the Total Proposal Price of the highest Composite Score Bidder if its Total Proposal Price is higher than that of the highest Composite Bidder. In case, the second ranked Bidder fails to match the above requirement or requirements of Clause 4.11.1, the next ranked Bidder shall be considered as Preferred Bidder provided:

- i. its Price Proposal Value is lower than that of the Bidders ranked higher than it, or
- ii. agrees to match the lowest of the Total Proposal Prices of the Bidders ranked higher than it.

The above process shall be reiterated until the identification of the Preferred Bidder or till the last ranked Bidder.

Appendix 1: Deleted

Appendix 2: Format for Covering Letter

(On the Letterhead of the Bidder)

Date: _____

To,

Executive Director

Jabalpur Smart City Limited,

Manas Bhawan, Wright Town,

Jabalpur, Madhya Pradesh - 482002

Sub: Proposal for Selection of System Integrator for Implementation of Intelligent Traffic Management System (ITMS) Solutions in Jabalpur

Dear Sir,

We have read and understood the Request for Proposal (RFP) Document for Selection of System Integrator for Implementation of Intelligent Traffic Management System (ITMS) Solutions in Jabalpur. We hereby submit our Proposal for the captioned subject as per the following details:

1. We are enclosing and submitting herewith our Proposal in original, along with the information and documents as per the requirements of the RFP Document, for your evaluation and consideration.
2. The Proposal is unconditional.
3. All information provided in the Proposal and in its Appendices is true and correct.
4. We shall make available to JSCL any additional information it may find necessary or require to clarify, supplement or authenticate the Proposal within such time as may be prescribed by JSCL.
5. We acknowledge the right of JSCL to reject our Proposal without assigning any reason or otherwise and hereby waive our right to challenge the same on any account whatsoever.
6. We certify that we or any of our constituents or our predecessor entity have neither failed to perform on any contract, as evidenced by imposition of a penalty or a judicial pronouncement or arbitration award, nor been expelled from any contract nor have had any contract terminated for breach on our part nor have we or any of our constituents or our predecessor entity defaulted in complying with any statutory requirements.
7. We declare that:
 - (a) We have examined and have no reservations to the RFP Documents, including the Addendum (if any) issued by JSCL.
 - (b) We have not directly or indirectly or through any agent engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice, as defined in clause 2.11.5 & 2.11.6 of the RFP Document, in respect of any tender or request for proposal issued by or any agreement entered into with JSCL or any other public sector enterprise or any government, Central or State; and
 - (c) We hereby certify that I / we have taken steps to ensure that, in conformity with the provisions of clause 2.11.4 to clause 2.11.6 of the RFP Document, no person acting for us or on our behalf has engaged or will engage in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice.

- (d) We do not have any conflict of interest in accordance with Clause 2.11.7 of the RFP Document.
8. We understand that you may cancel the Bidding Process at any time and that you are neither bound to accept any Proposal that you may receive nor to invite the Bidders to submit Proposals for implementation of Intelligent Traffic Management System solutions in Jabalpur, without incurring any liability to the Bidders, in accordance with Cause 2.10.2 of the RFP Document.
 9. We declare that we satisfy and meet the requirements as specified in the RFP Document and eligible to submit a Proposal in accordance with the terms of this RFP Document.
 10. We certify that we have not been convicted by a Court of Law or indicted or adverse orders passed by a regulatory authority in any matter which could cast a doubt on our ability to undertake implementation of Intelligent Traffic Management System solutions in Jabalpur, which relates to a grave offence that outrages the moral sense of the community.
 11. We further certify that in regard to matters relating to security and integrity of the India, we have not been charge-sheeted by any agency of the Government or convicted by a Court of Law for any offence committed by us.
 12. We undertake that in case, due to any change in facts or circumstances during the Bidding Process, we become liable to be disqualified in terms of the provisions of disqualification, we shall intimate JSCL of the same immediately.
 13. We hereby irrevocably waive any right which we may have at any stage at law or howsoever otherwise arising or accruing to challenge or question any decision taken by JSCL in connection with the selection of the Bidder, or in connection with the Bidding Process itself, in respect of the above-mentioned implementation of Intelligent Traffic Management System solutions in Jabalpur and the terms thereof.
 14. In the event of our being declared as the Successful Bidder, we agree to enter into a Master Service Agreement in accordance with the draft that has been provided to us as part of the RFP Document. We agree not to seek any changes in the aforesaid draft and agree to abide by the same.
 15. We have studied all the RFP Document carefully and also surveyed the requirements for ITMS solutions and related services and other matters mentioned in the RFP Document including in Clause 2.11.2 and 2.16.2 of the RFP Document). We understand that, except to the extent as expressly set forth in the Master Service Agreement, I/we shall have no claim, right or title arising out of any documents or information provided to us by JSCL or in respect of any matter arising out of or concerning or relating to the Bidding Process including the award of work.
 16. We undertake that we have not been barred by JSCL or any entity of GOI or any state government or government / department / agency in India from participating in tenders as on the Proposal Due Date.
 17. The Total Proposal Price have been quoted by us after taking into consideration all the terms and conditions stated in the RFP Document, draft Master Service Agreement, our own estimates of costs and after a careful assessment of the requirements, related services and all the conditions that may affect the Proposal.
 18. We confirm having submitted the Bid Security of Rs. 50,00,000 (Rupees Fifty Lakhs only) to JSCL in accordance with the RFP Document. The Bid Security in the form of a Bank Guarantee/Demand Draft is attached. (strike out whichever is not applicable)
 19. We agree and understand that the Proposal is subject to the provisions of the RFP Document. In no case, we shall have any claim or right of whatsoever nature if the contract is not awarded to us or our Proposal is not opened.

- 20. We undertake that none of the hardware/software/other component being proposed by us infringes on any patent or intellectual property rights as per the applicable laws.
- 21. We undertake that none of the hardware/software/other component being proposed by us is end-of-sale by the respective OEM at the time of submission of the Proposal or will be end-of-support by the respective OEM during the Contract Period.
- 22. We agree and undertake to abide by all the terms and conditions of the RFP Document.
- 23. We agree to keep our Proposal valid up to 180 days from Proposal Due Date.

Dated thisDay of, 2018.

Name of the Bidder

Signature of the Authorised Person

Name of the Authorised Person

Appendix 3: Format for Pre and Tech Qualification Checklist

A. Pre-Qualification Checklist

Sl. #	Compliance Criteria	Supporting Document required	Compliance (Yes/No)	Reference in the Technical Proposal (Section, Page no.)
1.	RFP Document fees	Online receipt copy		
2.	Bid Security	Demand Draft or BG as per format in Appendix 9 or FDR or Online Payment Proof		
3.	Details of Bidder(s)	As per Appendix 4		
4.	Power of Attorney for Signing of Proposal	As per Appendix 5		
5.	Legal entity	<ul style="list-style-type: none"> • Copy of Certificate of Incorporation / Registration under Companies Act, 1956/2013 or partnership deed as applicable • GST Registration Certificate 		
6.	Annual turnover	<ol style="list-style-type: none"> 1. Certificate from the Chartered Accountant/ Statutory Auditor clearly specifying the annual turnover for the specified years 2. Audited and Certified copies of Balance Sheet and Profit/Loss Account of last 3 Financial Years last three (03) financial years, i.e. FY 2015-16, FY 2016-17 and FY 2017-18 		
7.	Net worth	Certificate from the Chartered Accountant/ Statutory Auditor clearly specifying the net worth of the firm as on 31 March 2018		
8.	Project Experience: Specified Value of Project for Traffic Enforcement / ITMS as provided in PQ criteria	<ol style="list-style-type: none"> 1. Work order/ Contract clearly highlighting the scope of work, solutions relevant to this project, Bill of Material and value of the contract/order. <p>AND</p> <ol style="list-style-type: none"> 2. Completion Certificate issued & signed by the competent authority of the client entity on letterhead OR, Self-completion 		

Sl. #	Compliance Criteria	Supporting Document required	Compliance (Yes/No)	Reference in the Technical Proposal (Section, Page no.)
		<p>certificate certified by Chartered Accountant/ Statutory Auditor.</p> <p>In case ongoing projects, a certificate from Chartered Accountant/ Statutory Auditor as per the format provided in Appendix 7 along with proof of payment received from the client in the Bank Account.</p>		
9.	Project Experience of Traffic Enforcement as provided in PQ criteria	<p>1. Work order/ Contract clearly highlighting the scope of work, solutions relevant to this project, Bill of Material and value of the contract/order.</p> <p>AND</p> <p>2. Completion Certificate issued & signed by the competent authority of the client entity on letterhead OR, Self-completion certificate certified by Chartered Accountant/ Statutory Auditor.</p> <p>In case ongoing projects, a certificate from Chartered Accountant/ Statutory Auditor as per the format provided in Appendix 7 along with proof of payment received from the client in the Bank Account.</p>		
10.	Undertaking on Non-Debarred	Affidavit certifying non-Debarred as per format given in Appendix 8.		

Note: Please note that in absence of above mentioned proofs/ documents/ not providing any information, Proposal may not be considered at all.

B. Technical Qualification Checklist

	TECHNICAL EVALUATION CRITERIA	SUPPORTING DOCUMENT REQUIRED	COMPLIANCE (YES/NO)	REFERENCE IN THE TECHNICAL PROPOSAL (SECTION, PAGE NO.)
A.	Bidder Profile			
A1	Average annual turnover of the Bidder per annum during the last three (03) financial years (i.e. FY 2015-16, FY 2016-17 and FY 2017-18)	Certificate from the Chartered Accountant / Statutory Auditor clearly specifying the annual turnover for the specified years.		
B.	Relevant Project Experience			
B1	Experience of implementing project(s) on ITCS/ Vehicle actuated signals with minimum 10 traffic junctions for a Government Authority/Undertaking in India in the last 7 years from the Proposal Due Date.	<ol style="list-style-type: none"> 1. Work order/ Contract clearly highlighting the scope of work, solutions relevant to this project, Bill of Material and value of the contract/order. <p>AND</p> <ol style="list-style-type: none"> 2. Completion Certificate issued & signed by the competent authority of the client entity on letterhead OR, Self-completion certificate certified by Chartered Accountant/ Statutory Auditor. <p>AND</p> <ol style="list-style-type: none"> 3. Project Citation as per the format given in Appendix 6 for each project. 		
B2	Experience of implementing project(s) on installation of RLVD system for a Government Authority/Undertaking in India in the last 7 years from the Proposal Due Date.	<ol style="list-style-type: none"> 1. Work order/ Contract clearly highlighting the scope of work, solutions relevant to this project, Bill of Material and value of the contract/order. <p>AND</p> <ol style="list-style-type: none"> 2. Completion Certificate issued & signed by the competent authority of the client entity on letterhead OR, Self-completion certificate certified by Chartered Accountant/ Statutory Auditor. <p>AND</p>		

	TECHNICAL EVALUATION CRITERIA	SUPPORTING DOCUMENT REQUIRED	COMPLIANCE (YES/NO)	REFERENCE IN THE TECHNICAL PROPOSAL (SECTION, PAGE NO.)
		3. Project Citation as per the format given in Appendix 6 for each project.		
B3	Experience of implementing project(s) on installation of ANPR system for a Government Authority/Undertaking in India in the last 7 years from the Proposal Due Date.	<ol style="list-style-type: none"> 1. Work order/ Contract clearly highlighting the scope of work, solutions relevant to this project, Bill of Material and value of the contract/order. AND 2. Completion Certificate issued & signed by the competent authority of the client entity on letterhead OR, Self-completion certificate certified by Chartered Accountant/ Statutory Auditor. AND 3. Project Citation as per the format given in Appendix 6 for each project. 		
B4	Experience of implementing project(s) on installation of SVD system for a Government Authority/Undertaking in India in the last 7 years from the Proposal Due Date.	<ol style="list-style-type: none"> 1. Work order/ Contract clearly highlighting the scope of work, solutions relevant to this project, Bill of Material and value of the contract/order. AND 2. Completion Certificate issued & signed by the competent authority of the client entity on letterhead OR, Self-completion certificate certified by Chartered Accountant/ Statutory Auditor. AND 3. Project Citation as per the format given in Appendix 6 for each project. 		
B5	Experience of implementing project(s) Public Address (PA) system for a Government Authority/Undertaking in India in the last 7 years from the Proposal Due Date.	<ol style="list-style-type: none"> 1. Work order/ Contract clearly highlighting the scope of work, solutions relevant to this project, Bill of Material and value of the contract/order. AND 2. Completion Certificate 		

	TECHNICAL EVALUATION CRITERIA	SUPPORTING DOCUMENT REQUIRED	COMPLIANCE (YES/NO)	REFERENCE IN THE TECHNICAL PROPOSAL (SECTION, PAGE NO.)
		<p>issued & signed by the competent authority of the client entity on letterhead OR, Self-completion certificate certified by Chartered Accountant/ Statutory Auditor.</p> <p>AND</p> <p>3. Project Citation as per the format given in Appendix 6 for each project.</p>		
B6	<p>Experience of implementing project(s) Variable Message Sign (VMS) Board system for a Government Authority/Undertaking in India in the last 7 years from the Proposal Due Date.</p>	<p>1. Work order/ Contract clearly highlighting the scope of work, solutions relevant to this project, Bill of Material and value of the contract/order.</p> <p>AND</p> <p>2. Completion Certificate issued & signed by the competent authority of the client entity on letterhead OR, Self-completion certificate certified by Chartered Accountant/ Statutory Auditor.</p> <p>AND</p> <p>3. Project Citation as per the format given in Appendix 6 for each project.</p>		
B7	<p>Experience of implementing project on Traffic e-Challan for a Government Authority/Undertaking in India during last 7 years (as on the Proposal Due Date)</p>	<p>1. Work order/ Contract clearly highlighting the scope of work, solutions relevant to this project, Bill of Material and value of the contract/order.</p> <p>AND</p> <p>2. Completion Certificate issued & signed by the competent authority of the client entity on letterhead OR, Self-Completion certificate certified by Chartered Accountant/ Statutory Auditor.</p> <p>AND</p> <p>3. Project Citation as per the format given in Appendix 6 for each project.</p>		

	TECHNICAL EVALUATION CRITERIA	SUPPORTING DOCUMENT REQUIRED	COMPLIANCE (YES/NO)	REFERENCE IN THE TECHNICAL PROPOSAL (SECTION, PAGE NO.)
B8	Experience of implementing project(s) on No Helmet Detection system for Traffic enforcement for a Government Authority/Undertaking in India in the last 7 years from the Proposal Due Date.	<ol style="list-style-type: none"> 1. Work order/ Contract clearly highlighting the scope of work, solutions relevant to this project, Bill of Material and value of the contract/order. AND 2. Completion Certificate issued & signed by the competent authority of the client entity on letterhead OR, Self-completion certificate certified by Chartered Accountant/ Statutory Auditor. AND 3. Project Citation as per the format given in Appendix 6 for each project. 		
B9	Experience of implementing project(s) on Triple Riding Detection (On 2-Wheeler) System for traffic enforcement for a Government Authority/Undertaking in India in the last 7 years from the Proposal Due Date.	<ol style="list-style-type: none"> 1. Work order/ Contract clearly highlighting the scope of work, solutions relevant to this project, Bill of Material and value of the contract/order. AND 2. Completion Certificate issued & signed by the competent authority of the client entity on letterhead OR, Self-completion certificate certified by Chartered Accountant/ Statutory Auditor. AND 3. Project Citation as per the format given in Appendix 6 for each project. 		
B10	Experience of implementing project(s) on Drone Camera based Surveillance system for Government Authority/Undertaking in India in the last 7 years from the Proposal Due Date.	<ol style="list-style-type: none"> 1. Work order/ Contract clearly highlighting the scope of work, solutions relevant to this project, Bill of Material and value of the contract/order. AND 2. Completion Certificate issued & signed by the competent authority of the client entity on letterhead OR, Self-completion certificate certified by 		

	TECHNICAL EVALUATION CRITERIA	SUPPORTING DOCUMENT REQUIRED	COMPLIANCE (YES/NO)	REFERENCE IN THE TECHNICAL PROPOSAL (SECTION, PAGE NO.)
		Chartered Accountant/ Statutory Auditor. AND 3. Project Citation as per the format given in Appendix 6 for each project.		
C.	Approach & Methodology, Presentation / Demonstration			
C1	<ul style="list-style-type: none"> • Understanding of requirement and Implementation Approach • Proposed Solution • Work break down schedule • Manpower Deployment plan, Training & Capacity Building plan and Handholding plan 	Bidder to submit technical write up on the ITMS solutions proposed as per Structure provided in Appendix 11 .		
D.	Proposed Key Project Team			
D1	Project Manager	Bidder to submit CVs of Key Project Team as per format provided in Appendix 12 .		
D2	Technical Expert- ITMS/ICT			
D3	Technical Expert – Network & Security			
D4	Technical Expert – Server, Storage, EMS & Application			

Appendix 4: Format for Details of Bidder

1. General Information

- (a) Name
- (b) Country of incorporation/registration
- (c) Address of the registered office, corporate headquarters, and its branch office/s, if any, in India
- (d) Date of incorporation and/or commencement of business.

2. Brief description of the Bidder including details of its main lines of business.

3. Details of individual/s who will serve as the point of contact / communication for JSCL:

- (a) Name :
- (b) Designation :
- (c) Company :
- (d) Address :
- (e) Telephone Number :
- (f) E-Mail Address :
- (g) Fax Number :
- (h) Mobile Number :

4. Name, Designation, Address and Phone Numbers of Authorised Signatory of the Bidder:

- (a) Name :
- (b) Designation :
- (c) Company :
- (d) Address :
- (e) Telephone Number :
- (f) E-Mail Address :
- (g) Fax Number :
- (h) Mobile Number :

Appendix 5: Format for Power of Attorney for Signing of Proposal

(On Non – judicial stamp paper of appropriate value or such equivalent document duly attested by notary public)

Power of Attorney

Know all men by these presents, we (Name and address of the registered office) do hereby constitute, appoint and authorise Mr. / Ms..... (name and residential address) who is presently employed with us and holding the position of as our attorney, to do in our name and on our behalf, all such acts, deeds and things necessary in connection with or incidental to our Proposal for **Selection of System Integrator for Implementation of Intelligent Traffic Management System (ITMS) Solutions in Jabalpur**, including signing and submission of all documents and providing information / responses to Jabalpur Smart City Limited (“JSCL”), representing us in all matters before JSCL, and generally dealing with JSCL in all matters in connection with our bid for the said contract

We hereby agree to ratify all acts, deeds and things lawfully done by our said attorney pursuant to this Power of Attorney and that all acts, deeds and things done by our aforesaid attorney shall and shall always be deemed to have been done by us.

For

(Signature)

(Name, Title and Address)

Accepted

..... (Signature)

(Name, Title and Address of the Attorney)

Note:

- The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and when it is so required the same should be under common seal affixed in accordance with the required procedure.
- In case the Proposal is signed by an authorised Director of the Bidder, a certified copy of the appropriate resolution/ document conveying such authority may be enclosed in lieu of the Power of Attorney.

Appendix 6: Format for Project Citation by the Bidder

The details of projects executed by the Bidder:

Name of the Project & Location	
Role of the Bidder in the Project	
Client's Name and Complete Address	
Narrative description of project, including no. of ITCS junctions/PA system/ VMS/ e-Challan/ RLVD/ANPR/ No Helmet Detection/ Triple riding Detection system and other major ITMS components as sought in the Criteria	
Contract Value for the bidder (in INR)	
No. of locations/junctions, as applicable, where the relevant project component has been implemented as on the Proposal Due Date	
Date of Start of Project	
Date of Completion of Project	

*N.B - If the project is ongoing, bidder must clearly specify, the stages/phases/milestones and the no. of location/junctions which are completed and which are ongoing and at what stage of completion and produce a certificate as per the format provided in **Appendix – 7** along with proof of payment received from the client in the Bank Account.*

(Copies of Work orders/Agreement/Client certificate/CA certificate etc. to be attached)

Appendix 7: Format for Project Certificate by CA/Statutory Auditor

This is to certify that < Name of the Bidding entity > has been awarded with < Name of the Project > as detailed under:

Name of the Project	
Role of the Bidder in the Project	
Client's Name, Contact no. and Complete Address	
Contract Value for the bidder (in INR)	
Current status of the project (Completed/Ongoing)	
Narrative description of project, including no. of ITCS junctions/PA system/ VMS/ e-Challan/ RLVD/ANPR/ No /Helmet Detection/ Triple Riding Detection system and other major ITMS components as sought in the Criteria	
No. of locations/junctions, as applicable, where the relevant project component has been implemented as on the Proposal Due Date	
Value of Work completed for which payment has been received from the client.	
In case project is on-going Project, percent of capex completion from financial and physical perspective. Proof of payment received from the client in the Bank Account needs to be attached	
Date of Start of Project	
Date of Completion of Project	

Signature & Seal:

Name:

Designation:

Bidder's Name

Address:

Date:

Appendix 8: Format for Affidavit Certifying Non-Debarred

(On Non-Judicial stamp paper of appropriate value)

Affidavit

I, M/s., (the name and addresses of the registered office of the Bidder) hereby certify and confirm that we (as an entity) or any of our promoters/ directors are not barred by any state government or central government / department / agency in India from participating in projects, as on the (Not earlier than 3 days prior to the Proposal Due Date).

We undertake that, in the event of us or any of our entity or our promoters/directors being barred at any time post the date of this affidavit, we shall intimate JSCL of such bar.

We further confirm that we are aware that as per Clause 4.9.3 of the Request for Proposal for Selection of System Integrator for Implementation of Intelligent Traffic Management System (ITMS) Solutions in Jabalpur, our Proposal for the captioned Project would be liable for rejection in case any material misrepresentation is made or discovered with regard to the requirements of the RFP Document at any stage of the Bidding Process or thereafter the Agreement will be liable for termination.

Dated thisDay of, 2018.

Name of the Bidder

.....

Signature of the Authorised Signatory

.....

Name of the Authorised Signatory

Appendix 9: Format of Bid Security

(ON BANK'S LETTER HEAD WITH ADHESIVE STAMP)

To,
Executive Director
Jabalpur Smart City Limited,
Manas Bhawan, Wright Town,
Jabalpur, Madhya Pradesh - 482002

Bid No. _____

Date _____

KNOW ALL MEN by these present that we _____ of _____ (Name and address of Bank) having our registered office at _____ (hereinafter called "the Bank") are bound unto Executive Director, Jabalpur Smart City Limited (hereinafter called "JSCL") for the sum of Rs. _____ (Rupees _____ only) for which payment truly to be made to JSCL, the Bank hereby binds itself, its successors and assigns by these present.

Whereas..... (NAME OF BIDDER) has submitted its bid dated..... (date of submission of bid) for Selection of System Integrator for Implementation of Intelligent Traffic Management System (ITMS) Solutions in Jabalpur in terms of the Request for Proposal due on ----- issued by JSCL, (hereinafter called "the Bid").

AND WHEREAS the Bidder is required to furnish a Bank Guarantee for the sum of Rs. 50,00,000 (Rupees Fifty Lakhs only).

AND WHEREAS _____ (Name of Bank) have, at the request of the Bidder, agreed to give this guarantee as hereinafter contained without demur.

1. We agree as follows:

- (a) That JSCL may without affecting this guarantee grant time of or other indulgence to or negotiate further with the Bidder in regard to the conditions contained in the said bid and thereby modify these conditions or add thereto any further conditions as may be mutually agreed upon between JSCL and the Bidder.
- (b) That the guarantee hereinbefore contained shall not be affected by any change in the constitution of our Bank or in the constitution of the Bidder.
- (c) That any demand made by JSCL shall be conclusive evidence against us of the amount due hereunder and shall not be questioned by us.
- (d) That this guarantee commences from the date hereof and shall remain in force till:

- i. the Bidder, in case his Proposal is accepted by JSCL, executes a Master Service Agreement after furnishing the Performance Security as per the provisions of the RFP Document; or
 - ii. 90 (ninety) days from the Proposal Validity Period
 - (e) That the expression 'the Bidder' and 'the Bank' herein used shall, unless such an interpretation is repugnant to the subject or context, include their respective successor and assigns.
2. The Conditions on this obligation as per RFP Document are:
- (a) If the Bidder withdraws its Proposal except as provided in RFP Part 1 Clause 2.21.1 or
 - (b) If the Bidder modifies or withdraws its Proposal during the interval between the Proposal Due Date and expiration of the Proposal Validity Period; or
 - (c) If the Bidder fails to accept the LOA within the stipulated time period as provided in RFP Part 1 Clause 4.10.1; or
 - (d) If any information or document furnished by the Bidder turns out to be misleading or untrue in any material respect; or
 - (e) If a Bidder engages in a corrupt, fraudulent, coercive, undesirable or restrictive practice as specified in RFP Part 1 Clauses 2.11.4 to 2.11.6.
 - (f) If the Bidder, having been notified of the acceptance of his Proposal by JSCL, during the period of Proposal Validity Period:
 - i. fails or refuses to furnish the Performance Security in accordance with Instructions to Bidders and/or
 - ii. fails or refuses to enter into a Master Service Agreement within the time limit specified in the Instructions to Bidders.

We undertake to immediately pay to JSCL in Jabalpur the above amount upon receipt of its first written demand, without JSCL having to substantiate its demand, provided that, in its demand, JSCL will note that the amount as claimed by it is due to it owing to the occurrence of any one or more of the conditions mentioned above, specifying the occurred condition or conditions.

SIGNATURE OF _____
AUTHORISED OFFICIAL OF THE BANK

SIGNATURE OF THE WITNESS

_____ ,

NAME OF THE WITNESS

_____ ,

ADDRESS OF THE WITNESS

NAME OF OFFICIAL _____

DESIGNATION _____

STAMP/SEAL OF THE BANK

Appendix 10: Format for Technical Proposal Checklist

Sl. #	Compliance Criteria	Supporting Documents	Compliance (Yes/No)	Reference in the Technical Proposal (Section & Page no.)
1.	Project Citations and Self-certifications, as applicable	As per formats in Appendix 6 & 7, as applicable		
2.	Detailed proposed solution	As per format provided in Appendix 11		
3.	Proposed CVs	As per format provided in Appendix 12		
4.	Manufacturers'/Producers' Authorization Form	As per format provided in Appendix 13		
5.	Compliance to Requirement (Technical / Functional Specifications) of proposed solutions	As per Appendix 18		
6.	Unpriced BoQ with Make and Model no. including complete specifications and datasheets	As per Appendix 19		
7.	No Deviation Certificate	As per Appendix 20		
8.	Project Credential Summary (as applicable)	As per Appendix 21		

Appendix 11: Structure for Details of Proposed Solution

Bidders are required to provide a detailed approach & methodology to execute the entire project. Bidders are advised to comply with the below provided headers/Approach components while detailing out their proposal.

Sl. No.	Item
1.	<ul style="list-style-type: none"> Understanding of requirement and Implementation approach Project implementation approach/ strategy and operations and maintenance plan including comprehensiveness of fall-back strategy and planning during rollout
2.	<ul style="list-style-type: none"> Proposed Solution Detailed description of ITMS solutions proposed & overall solution architecture Approach for e-Challan System Hardware deployment and integration approach encompassing all solutions Unpriced BoQ with Make and Model no. (in line with Appendix 20) Specifications/Datasheets/Brochures of various components offered as part of solution
3.	<ul style="list-style-type: none"> Work Plan & its adequacy Timelines and modalities for implementation in a time bound manner
4.	<ul style="list-style-type: none"> Assessment of Manpower deployment, Training and Handholding plan Mobilization of resources Training and handholding strategy

Appendix 12: Curriculum Vitae (CV) Format

A	Name of the Resource:																							
1.	Proposed position or role	(only one candidate shall be nominated for each position)																						
2.	Date of Birth		Nationality																					
3.	Education	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #d3d3d3;"> <th style="width: 25%;">Qualification</th> <th style="width: 25%;">Name of School or College or University</th> <th style="width: 25%;">Degree Obtained</th> <th style="width: 25%;">Year of Passing</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>			Qualification	Name of School or College or University	Degree Obtained	Year of Passing																
Qualification	Name of School or College or University	Degree Obtained	Year of Passing																					
4.	Total years of experience																							
5.	Areas of Expertise and no. of years of experience in this area	(as required for the Profile)																						
6.	Certifications and Trainings attended																							
7.	Employment Record	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #d3d3d3;"> <th style="width: 25%;">Employer</th> <th style="width: 35%;">Position</th> <th style="width: 20%;">From</th> <th style="width: 20%;">To</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table> <p>[Starting with present position and last 2 firms, list in reverse order, giving for each employment: dates of employment, name of employing organization, positions held.]</p>			Employer	Position	From	To																
Employer	Position	From	To																					

8.	Detailed Tasks Assigned	(List all tasks to be performed under this project)
9.	Relevant Work Undertaken that Best Illustrates the experience as required for the Role)	
Project 1		
Name of assignment		
Year		
Location		
Employer		
Main project features		
Position held		
Activities performed		
Project 2		
Name of assignment		
Year		
Location		
Employer		
Main project features		
Position held		
Activities performed		

N.B:

Relevant project experience as per requirement of the proposed position must be specifically mentioned.

Appendix 13: Manufacturer's Authorisation Form

(This form has to be provided by the OEMs proposed. This letter of authority should be on the letterhead of the manufacturer and should be signed by a person having competent Authority)

Date:

To,
Executive Director
Jabalpur Smart City Limited,
Manas Bhawan, Wright Town,
Jabalpur, Madhya Pradesh – 482002

Subject: Manufacturer's Authorization Form

Ref: RFP No. <<.....>> dated <<>>

Dear Sir,

We _____ (Name of the Manufacturer) who are established and reputable manufacturers of _____ (List of Goods) having factories or product development centers at the locations _____ or as per list attached, do hereby authorize. _____ (Name and address of the Bidder) to bid, negotiate and conclude the contract with you against RFP No. _____ Dated _____ for the above goods manufactured by us.

We hereby extend, our warranty/ maintenance support for the hardware goods supplied by the bidder against this invitation for bid by _____ (Name of the Bidder) as per requirements of this RFP.

We hereby declare that we are in the business of the product(s) or technology(ies) as quoted/proposed for at least 3 years as on the date of release of the RFP.

We hereby confirm that we have authorized presence in India either directly or through channel partner(s) as on the date of release of RFP.

We declare that that product(s) or technology(ies) quoted/proposed shall not reach end-of-life for a minimum of 5 years from the date of Last Date of Bid Submission and end of support for minimum of 5 years from the date of Go-Live. *(For all active components only)*

We, hereby declare that we have existing capability and infrastructure to provide 24x7 technical support in India across the year. *OR* We, hereby declare to provide an undertaking that we will establish the requisite infrastructure and capability to provide 24x7 technical support in India, on the Bidder emerging a winner in this bidding process within 3 months of date of issue of Letter of Award. *(Strike out whichever not applicable).*

Thanking you,

Yours faithfully,

(Signature)

For and on behalf of: _____ (Name of the Manufacturer)

Authorised Signatory

Name:

Designation:

Place:

Date:

Appendix 14: Format of Price Proposal

Date: _____

To,
Executive Director
Jabalpur Smart City Limited,
Manas Bhawan, Wright Town,
Jabalpur, Madhya Pradesh – 482002

Sub: Proposal for Selection of System Integrator for Implementation of Intelligent Traffic Management System (ITMS) Solutions in Jabalpur

Dear Sir,

We _____ herewith submit Price Proposal for selection of our firm as a System Integrator for Implementation of Intelligent Traffic Management System solutions in Jabalpur, as per terms and conditions of RFP dated _____ issued by Jabalpur Smart City Limited.

The **Total Proposal Price**, exclusive of GST/taxes as given in Appendix 16A for carrying out the entire scope of work, will be Rs. _____ (in words -----) during the contract (subject to revision in Appendix 16A and 16B).

Name of Authorised Signatory

Signature of Authorised Signatory (With Stamp of the Bidder)

Business Address: _____

Place: _____

Date: _____

Appendix 14A: Format of Break- Up of Price Proposal

The Bidder shall quote its prices in the formats as given below:

A. Total Price Summary

SI #	Head	Amount (in Rs.)	Amount (in words)
1	Total CAPEX price (Exclusive of applicable GST/Taxes)	-	
2	Total OPEX price (Exclusive of applicable GST/Taxes)	-	
3	Total Price Proposal (1+2) (Exclusive of applicable GST/Taxes)	-	

(a) The total price for the purpose of evaluation of Proposals will be the Total Proposal Price, as per above.

(b) The total CAPEX price shall not be more than 50% of the Total Proposal Price.

B. Price Component for CAPEX

Sl. #	Line Item/Description	Unit	Quantity	Unit Rate (in Rs.)	Total CAPEX Price (in Rs.)
			(1)	(2)	(3) = (1) X (2)
A	TRAFFIC MANAGEMENT COMPONENTS				
1	Intelligent Traffic Control System (ITCS) for a T-Junction with complete hardware and software including traffic controller, LED aspects including pedestrian Lamp Heads- Stop Man/ Walk Man, non-intrusive detectors (Thermal / Radar/ Video), mounting infrastructure, UPS, Outdoor Cabinet with suitable mounting, earthing, surge protection arrangement, accessories etc. as required.	Junction	7		-
2	Intelligent Traffic Control System (ITCS) for a 4-arm Junction with complete hardware and software including traffic controller, LED aspects including pedestrian Lamp Heads- Stop Man/ Walk Man, non-intrusive detectors (Thermal / Radar/ Video), mounting infrastructure, UPS, Outdoor Cabinet with suitable mounting, earthing, surge protection arrangement, accessories etc. as required	Junction	12		-
3	Intelligent Traffic Control System (ITCS) for a 5-arm Junction with complete hardware and software including traffic controller, LED aspects including pedestrian Lamp Heads- Stop Man/ Walk Man, non-intrusive detectors (Thermal / Radar/ Video), mounting infrastructure, UPS, Outdoor Cabinet with suitable mounting, earthing, surge protection arrangement, accessories etc. as required	Junction	1		-
4	PA system including hardware, software mounting infrastructure, accessories etc.	Location	20		-

SI. #	Line Item/Description	Unit	Quantity	Unit Rate (in Rs.)	Total CAPEX Price (in Rs.)
			(1)	(2)	(3) = (1) X (2)
5	Variable Message Sign (VaMS) System including Hardware, Software, UPS, mounting infrastructure, Installation and Integration with TCC	Location	10		-
6	PA System Software Application at TCC	Number	1		-
7	ITCS Software Application at TCC	Licence	1		-
8	Variable Message Sign (VaMS) System Software at TCC	Licence	1		-
B	TRAFFIC ENFORCEMENT COMPONENTS				
9	Red Light Violation Detection (RLVD) System including Speed Violation Detection (SVD), No Helmet, Triple Ridding with complete hardware and software including Speed detectors (Radar /Camera/ Thermal Camera/ any other non-intrusive sensor), ANPR cameras, IR Flashes, Overview Cameras, Local Processing Unit, with cabling, accessories & Mounting Infrastructure Switch /Router, Junction UPS, software licenses etc. as required	Lane	96		-
10	Preparation of Junction Infrastructure (Zebra, Stope Line Reflective Sign edges for RLVD, Speed, Stop Line etc.) as per IRC guidelines for enforcement.	Lane	20		-
11	ANPR System for all lane coverage both directions (with Vehicle Count, Classification with vehicle registration no Plate capture) including Hardware, Software, Local Processing Unit, with cabling, accessories & mounting infrastructure, junction UPS switch /Router etc. as required	Lane	18		-
12	Speed Violation Detection System for covering with complete hardware and software including Speed	Lane	24		-

SI. #	Line Item/Description	Unit	Quantity	Unit Rate (in Rs.)	Total CAPEX Price (in Rs.)
			(1)	(2)	(3) = (1) X (2)
	detectors (Radar /Camera/ Thermal Camera/ any other non-intrusive sensor), ANPR cameras, IR Flashes, Overview Cameras, Local Processing Unit, with cabling, accessories & mounting infrastructure, UPS, switch /Router etc. as required				
13	RLVD (including Speed, No Helmet, Triple Ridding etc.) Application Software at TCC	License	1		-
14	ANPR Software Application at TCC	License	1		-
15	SVD Software Application at TCC	License	1		-
16	E-Challan software Application at TCC including integration with State/ RTO/ National database, Payment Portal/Mobile App / Payment Gateway etc.	License	1		-
C	Other Components				
17	Required Hardware / Camera/ Sensors and System Software along with cabling, accessories & Mounting Infrastructure as required for Solution of Remote Monitoring of Weighbridge of SWM vehicles entry/exit at the Kathonda Plant, Jabalpur	Location	1		-
18	Application Software at TCC for solution of Remote Monitoring of Weighbridge of Solid Waste Management (SWM) vehicles	License	1		-
19	Required Hardware / Camera/ Sensors/ Connectivity Equipment/ communication link / Manpower Training/ System Software/ along with accessories etc. as required for Solution of Drone Surveillance System	Number	5		
20	Application Software at TCC for solution of Drone Surveillance System	License	1		
D	DATA CENTER AND TCC				

SI. #	Line Item/Description	Unit	Quantity	Unit Rate (in Rs.)	Total CAPEX Price (in Rs.)
			(1)	(2)	(3) = (1) X (2)
21	ICT and Non-ICT Infrastructure for Data Center including but not limited to Racks, Servers, Storage, Operating systems, RDBMS, Firewall, Antivirus, Backup, cabling, Electrical Panelling, Earthing, Networking, Switches, Routers etc. as required.	Number	1		-
22	Enterprise Management System (including SLA Management, Helpdesk Management, Network Management, etc.)	Number	1		-
23	Integration with City CCC	LS	1		-
24	Online UPS for the Data Centre and TCC (including redundant UPS)	Number	2		-
25	Video Wall DLP Laser Cube - 70" in 6x2 matrix including mounting	Number	12		-
26	Video Wall Controller including software	Number	1		-
27	Video wall Management software License	Number	1		-
28	Monitoring Workstations each with 3 Monitors 21 inches including operating system, peripherals, Microsoft Office suite etc.	Number	15		-
29	Heavy duty Network Printers (MFC) [High speed and Duplex with Printing capacity of 5000 Pages per day] for printing of challans	Number	2		-
30	Local Printer	Number	1		-
31	EPABX with extensions for all DC/TCC staff	Number	1		-
32	Civil Work and interior design including masonry work, flooring, false ceiling, lighting partitioning work for Data Centre and TCC, conference/ meeting rooms, furniture and fixtures for TCC & conference/meeting rooms, one 55" TV, terminal desks (for 15 workstations), etc.	LS	1		-

SI. #	Line Item/Description	Unit	Quantity	Unit Rate (in Rs.)	Total CAPEX Price (in Rs.)
			(1)	(2)	(3) = (1) X (2)
33	Fire Safety System with alarms	LS	1		-
34	Access Control System (RFID based, for all staff)	LS	1		-
35	Air Conditioning for Data Centre and TCC	LS	1		-
36	Rodent Repellent system	Set	1		-
E	CONNECTIVITY				
37	Junctions with the following systems: • ITCS • PA system • RLVD System	Location	20		-
38	Locations with ANPR System	Location	3		-
39	Locations with Speed Violation Detection System	Location	5		-
40	Locations with VaMS	Location	10		-
41	Locations for Remote Monitoring of Weighbridge of SWM vehicles	Location	1		-
42	Internet Leased line connectivity for Data Center & TCC	Location	1		-
43	Telephone Line	Number	1		-
F	CAPACITY BUILDING & TRAINING				
44	Functional training - For Traffic Management and Traffic Enforcement solutions	Training Day	4		-
45	Administrative Training - For Traffic Management and Traffic Enforcement solutions	Training Day	4		-
G	Additional line items, if any				
46	Any other line items as per proposed solution of Bidder. Bidder to include each line item separately with quantity proposed.				-
47	Additional item 1, if any				-
48	Additional item 2, if any and so on				-
49					-

SI. #	Line Item/Description	Unit	Quantity	Unit Rate (in Rs.)	Total CAPEX Price (in Rs.)
			(1)	(2)	(3) = (1) X (2)
50					-
51					-
52					-
53					-
54					-
55					-
56					-
57					-
58					-
59					-
60					-
61					-
62					-
63					-
64					-
65					-
66					-
67					-
68					-
69					-
70					-
71					-
72					-
TOTAL CAPEX PRICE					-

Note1: All Components shall include 3 Years comprehensive onsite warranty

Note2: All Price / Rate should be exclusive of applicable GST/Taxes

Note3: The quantities given above are for the purpose of evaluation of price proposals only. JSCL may change the quantities of any components at the time of signing of the Contract or any time during the Contract Period.

C. Price Component for OPEX

Sl. #	Description	Unit	Qty	Year 1		Year 2		Year 3		Total OPEX for 3 years Exclusive of applicable GST/Taxes
				Unit Rate (in Rs.)	OPEX Year 1 (in Rs.)	Unit Rate (in Rs.)	OPEX Year 2 (in Rs.)	Unit Rate (in Rs.)	OPEX Year 3 (in Rs.)	
				1	2	3	4= 2X3	5	6 =2X5	7
A.	Project Manpower									
1	Project Manager	Man-months	36		-		-		-	-
2	Technicians and Field Staff	Man-months	108		-		-		-	-
3	TCC Operators including e-Challan Processing Staff (O&M Phase) in 2 Shifts	Man-months	1080		-		-		-	-
B.	DC Operations and Management									
4	DC Operations and Management	LS	1		-		-		-	-
D.	CONNECTIVITY									

Sl. #	Description	Unit	Qty	Year 1		Year 2		Year 3		Total OPEX for 3 years Exclusive of applicable GST/Taxes
				Unit Rate (in Rs.)	OPEX Year 1 (in Rs.)	Unit Rate (in Rs.)	OPEX Year 2 (in Rs.)	Unit Rate (in Rs.)	OPEX Year 3 (in Rs.)	
				1	2	3	4= 2X3	5	6 =2X5	7
5	Annual Charges-Junctions with the following systems: • ITCS • PA system • RLVD System • Triple Riding • No Helmet	Number	20		-		-		-	-
6	Annual Charges-Locations with ANPR System	Number	3		-		-		-	-
7	Annual Charges-Locations with Speed Violation Detection System	Number	5		-		-		-	-
8	Annual Charges-Locations with VaMS	Number	10		-		-		-	-
9	Annual Charges-Locations for Remote Weight Management System for SWM vehicles	Number	1		-		-		-	-

Sl. #	Description	Unit	Qty	Year 1		Year 2		Year 3		Total OPEX for 3 years Exclusive of applicable GST/Taxes
				Unit Rate (in Rs.)	OPEX Year 1 (in Rs.)	Unit Rate (in Rs.)	OPEX Year 2 (in Rs.)	Unit Rate (in Rs.)	OPEX Year 3 (in Rs.)	
				1	2	3	4= 2X3	5	6 =2X5	7
11	Annual Charges-Internet Leased line connectivity for Data Center & TCC	Number	1		-		-			-
12	Annual Charges-Telephone Line	Number	1		-		-			-
E.	E-CHALLAN PRINTING AND DELIVERY									
13	E-Challan Printing, Processing, Sorting, making Entry and insertion in the Envelope for Dispatch	Number	200000		-		-		-	-
14	E-Challan Delivery Charges by Hand/Post/ Courier (Per E-Challan)	Number	200000		-		-		-	-
F.	Additional line items, if any									
15	Any other line items as per proposed solution of Bidder. Bidder to include each line item separately with quantity proposed.		1		-		-		-	-
16	Additional item 1, if any				-		-		-	-

Sl. #	Description	Unit	Qty	Year 1		Year 2		Year 3		Total OPEX for 3 years Exclusive of applicable GST/Taxes
				Unit Rate (in Rs.)	OPEX Year 1 (in Rs.)	Unit Rate (in Rs.)	OPEX Year 2 (in Rs.)	Unit Rate (in Rs.)	OPEX Year 3 (in Rs.)	
				1	2	3	4= 2X3	5	6 =2X5	7
17	Additional item 2, if any and so on				-		-		-	-
18					-		-		-	-
19					-		-		-	-
20					-		-		-	-
21					-		-		-	-
22					-		-		-	-
23					-		-		-	-
24					-		-		-	-
25					-		-		-	-
26					-		-		-	-

Sl. #	Description	Unit	Qty	Year 1		Year 2		Year 3		Total OPEX for 3 years Exclusive of applicable GST/Taxes
				Unit Rate (in Rs.)	OPEX Year 1 (in Rs.)	Unit Rate (in Rs.)	OPEX Year 2 (in Rs.)	Unit Rate (in Rs.)	OPEX Year 3 (in Rs.)	
				1	2	3	4= 2X3	5	6 =2X5	7
27					-		-		-	-
28					-		-		-	-
29					-		-		-	-
30					-		-		-	-
31					-		-		-	-
32					-		-		-	-
33					-		-		-	-
34					-		-		-	-
35					-		-		-	-
36					-		-		-	-

Sl. #	Description	Unit	Qty	Year 1		Year 2		Year 3		Total OPEX for 3 years Exclusive of applicable GST/Taxes
				Unit Rate (in Rs.)	OPEX Year 1 (in Rs.)	Unit Rate (in Rs.)	OPEX Year 2 (in Rs.)	Unit Rate (in Rs.)	OPEX Year 3 (in Rs.)	
				1	2	3	4= 2X3	5	6 =2X5	7
37					-		-		-	-
38					-		-		-	-
39					-		-		-	-
40					-		-		-	-
41					-		-		-	-
TOTAL OPEX PRICE					-		-		-	-

Note1: All Components shall include 3 Years comprehensive onsite warranty

Note2: All Price / Rate should be exclusive of applicable GST/Taxes

Note3: The quantities given above are for the purpose of evaluation of price proposals only. JSCL may change the quantities of any components at the time of signing of the Contract or any time during the Contract Period.

Appendix 14B: Detailed Break- Up for ITMS Solutions

The Bidders are required to indicate the break-up of unit prices of ITMS solutions as quoted, including complete hardware, equipment/components, accessories, mounting structure etc. in the table below

These prices will NOT be used for evaluation purposes.

The unit prices of all major line items, such as camera, controller, junction box, mounting structure, installation charges etc. for each solution should be provided as per the table below:

Sl. #	Component Description/Line items	Unit Rate with exclusive of GST/ Tax (in Rs.)
A.	ITCS	
1		
2		
3		
n		
B.	PA system	
1		
2		
3		
n		
C.	RLVD system	
1		
2		
3		
n		
D.	ANPR system	
1		
2		
3		
n		
E.	SVD system	
1		
2		
3		

SI. #	Component Description/Line items	Unit Rate with exclusive of GST/ Tax (in Rs.)
n		
F.	Data Center and TCC	
1		
2		
3		
n		
G.	Other Line items	
1.	Fixed Box camera	
2.		
3.		

Appendix 15 Format for Draft Letter of Award (To be issued by JSCL)

Date:

To,
Authorised Signatory of the Successful Bidder

Dear Mr. _____,

Subject: Letter of Award for Selection of System Integrator for Implementation of Intelligent Traffic Management System (ITMS) Solutions in Jabalpur

1. This is in reference to the Proposal submitted by _____ {Name of Successful Bidder} ("SB") in response to the Request for Proposal ("RFP") Document (along with the amendments made thereafter) released by Jabalpur Smart City Limited ("JSCL") on _____ {date of release of RFP Document}.
2. The aforesaid Proposal was considered and evaluated by JSCL for this purpose.
3. Further, subsequent discussions were held with you on _____ and the summary of such discussions is set out in the enclosure/s. {To be inserted where such discussions have been held}
4. JSCL is now pleased to inform that..... (Name of the Successful Bidder) has been selected as the Successful Bidder (SB) for the subject contract.
5. This letter is intended to convey JSCL's acceptance, subject to the terms & conditions specified in the RFP Document and conditions set out in the Master Service Agreement to be executed within fifteen (15) days from the date of this letter, of the Proposal submitted by SB, wherein SB has quoted a Total Price Proposal of Rs _____ (Rupees _____)
6. As a token of your acknowledgment of this letter, you are hereby requested to return a copy of the same to us, duly signed by the authorized signatory, within seven (7) days from the date of this letter.
7. Further, you are also requested to comply, within fifteen (15) days from the date of receipt of this Letter of Award, with the conditions set out below:
 - (a) Furnish a Performance Security from a nationalized Bank or a Scheduled Bank authorized to handle transactions of Government of India, in favour of "**Executive Director, Jabalpur Smart City Limited**" payable at Jabalpur for a sum of Rs..... (Rupee only), in terms of the draft Master Service Agreement;
 - (b) Execution of the Master Service Agreement.
8. Kindly note that this communication by itself does not create any rights or contractual relationship with JSCL. Any such right or relationship shall come into effect upon complying with conditions set out in Para 7 and the execution of Master Service Agreement.

Yours truly,

Appendix 16: Format of Acknowledgement of Letter of Award

(To be issued submitted by Successful Bidder to JSCL)

On the Letter Head of the Bidder

Date: (Within seven (7) days of date of LOA)

To,
Executive Director
Jabalpur Smart City Limited,
Manas Bhawan, Wright Town,
Jabalpur, Madhya Pradesh – 482002

Subject: Letter of Award for Selection of System Integrator for Implementation of Intelligent Traffic Management System (ITMS) Solutions in Jabalpur

We are pleased to acknowledge the Letter of Award issued by JSCL vide their letter Ref. dated..... for Implementation of Intelligent Traffic Management System (ITMS) Solutions in Jabalpur.

We have reviewed the aforesaid Letter of Award and are enclosing herewith a copy of the Letter of Award duly acknowledged in acceptance of the conditions and undertake to comply with the following within fifteen (15) days of the date of the LOA:

1. Execute the Master Service Agreement
2. Furnish a Performance Security of the amount of Rs..... as per the terms of the Master Service Agreement

.....
Name of Successful Bidder

.....
Signature of the Authorised Person

.....
Name of the Authorised Person

Appendix 17: Draft Master Service Agreement

This agreement (“Agreement”) is entered into on the _____ day of _____(Month), Two Thousand and Eighteen,

BETWEEN

Jabalpur Smart City Limited, having its registered office at Jabalpur Smart City Limited, Smart City Office, Manas Bhawan, Wright Town, Jabalpur, Madhya Pradesh, 482002, India (hereinafter referred to as “**JSCL**” which expression shall, unless repugnant to the context or meaning thereof, mean and include its successors and permitted assigns) of the **First Part**;

AND

_____, having its registered office at _____ (hereinafter referred to as “**ITMS System Integrator**” which expression shall, unless repugnant to the context or meaning thereof, mean and include its successors and permitted assigns) of the **Second Part**.

WHEREAS

- A. JSCL intends to implement Intelligent Traffic Management System solutions in Jabalpur;
- B. JSCL had invited proposals for Implementation of Intelligent Traffic Management System solutions in Jabalpur, vide Request for Proposal (“RFP”) dated _____;
- C. M/s _____, among others, had submitted its proposal in response to the aforesaid RFP and emerged as Successful Bidder after evaluation of proposals, as per the procedure specified in the RFP;
- D. JSCL has accepted the proposal of M/s _____ (“ITMS System Integrator”) and has issued Letter of Acceptance dated _____ in favour of the ITMS System Integrator;
- E. The Parties have now agreed to enter into this Agreement to record their entire understanding with regard to the subject matter hereof, subject to and on the terms and conditions set forth hereinafter.

NOW, THEREFORE, the Parties hereby agree as follows:

1. Article 1 – Definitions

1.1. Definitions:

In this Agreement, the following words and expressions shall have the meaning hereinafter respectively ascribed to them hereunder:

“Agreement” or **“Contract”** shall mean this agreement including the Appendices hereto and any amendments made thereto in accordance with the provisions contained in this agreement.

“Agreement Date” shall mean the date of signing of this Agreement by the Parties.

“Applicable Laws” shall mean all laws, promulgated or brought into force and effect by the Government of India and/or Government of Madhya Pradesh including regulations and rules, notifications made thereunder, and any judgments, decrees, injunctions, writs and orders of any court of record, as may be in force and effect during the subsistence of this Agreement.

“Contract Period” shall have the meaning ascribed to the term in Article 3 of this Agreement.

“Cure Period” shall mean period of 60 (Sixty) days or such further period as may be allowed by the aggrieved Party to the Party in breach of this Agreement for curing the breach and shall commence from the date on which a notice is delivered by the aggrieved Party to the Party in breach asking the latter to cure the breach(s) specified in such notice.

“Default Charges” shall have the meaning ascribed thereto in Article 6.2.

“Device & Software IP” shall have the meaning ascribed to the term in Article 4 (c) of this Agreement.

“Encumbrances” shall mean any encumbrances such as mortgage, charge, pledge, lien, hypothecation, security interest, assignment, privilege or priority of any kind having the effect of security or other such obligations and shall include without limitation any designation of loss payees or beneficiaries or any similar arrangement under any insurance policy pertaining to the Agreement.

“Expiry” shall mean the expiry of the Agreement by efflux of time.

“Expiry Date” shall mean date on which this Agreement expires by efflux of time.

“Firmware” shall mean a set of coded instructions embedded within a Device or component of a Device that performs functions or provides data to enable the Device to operate in a specified manner.

“GOI” shall mean Government of India.

“GoMP” shall mean the Government of Madhya Pradesh.

“Go-Live” shall mean

- i. Successful deployment, commissioning and UAT of the ITMS application modules implemented
- ii. Procurement, deployment and commissioning of the hardware items and desired connectivity at the identified locations required to support the functioning of ITMS modules
- iii. Acceptance/Sign-off from JSCL or its constituted committees or representatives

“Governmental Agency” shall mean GOI, GoMP or any Ministry, Department, Commission, Board, JSCL, instrumentality or agency, under the control of GOI or GOM having jurisdiction over all or any part of the Project or the performance of all or any of the services or obligations of Parties under or pursuant to this Agreement.

“INR, Re. or Rs.” shall mean the lawful currency of the Republic of India.

“Intellectual Property” or **“IP”** shall mean any and all industrial and intellectual property rights of whatever nature, in India and throughout the world, whether registrable or not, and whether now known or devised in the future, including rights in respect of or in connection with:

- (a) patents, copyright, registered or unregistered trademarks or service marks, trade names, business names, brand names, indications of source or appellations of origin, designs and commercial names and designations, circuit layouts and database rights;
- (b) ideas, processes, methodologies, concepts, techniques, inventions, discoveries, trade secrets, know-how, confidential information and scientific, technical and product information; and
- (c) any rights to apply for or renew the registration of any such rights.

“ITMS Solutions” or **“ITMS Components”** shall mean the intelligent traffic management system solutions or components as described in Section 2 of RFP Part 2.

“ITMS System Integrator” shall mean the entity selected by JSCL for implementation, operation and maintenance of the Project pursuant to competitive bidding process.

“ITMS System Integrator’s Event of Default” shall have the meaning ascribed to the term in Article 8.1 of this Agreement.

“Material Adverse Effect” shall mean, when used in connection with a Party to this Agreement, any change or effect that is materially adverse to the business, financial condition or results of operations of such entity and its Affiliates, taken as a whole. For the purposes of this definition, “Affiliates” shall mean any company, existing now or in the future, owning or owned by, either directly or indirectly, or controlling, controlled by or under common control with either Party.

“Project” shall mean Implementation of Intelligent Traffic Management System solutions in Jabalpur including maintenance and other incidental activities relating to the ITMS solutions

“Request for Proposal” or **“RFP”** shall mean the request for proposal document dated _____, including any amendments thereof, issued by JSCL for Implementation of Intelligent Traffic Management System solutions in Jabalpur.

“Site” shall mean the sites where any aspect of the Scope of Services is discharged.

“ITMS Application” shall mean the applications, the operating system and associated components to be developed for ITMS components as described in RFP Document by or on behalf of the ITMS System Integrator in terms of this Agreement.

“Software” shall mean a set of coded instructions that performs functions or provides working data or parameters to enable a device or system to operate in a specified manner and be loaded into a system or device dynamically by a user and includes all Firmware and operating systems required by a system or subsystem to perform in a specified manner.

“Scope of Work” or “Scope of Services” shall have the meaning ascribed to the term in Article 2.3 of this Agreement.

“Standards of Performance” shall mean the minimum standards to be adhered to by ITMS System Integrator, as set out in Schedule E during the Contract Period.

“Payments to ITMS System Integrator” shall mean the payment charges specified in Schedule C, payable to the ITMS System Integrator for Implementation and Operation and Maintenance of Intelligent Traffic Management System solutions in Jabalpur in accordance with this Agreement.

“Technical Proposal” shall mean the technical proposal submitted by the ITMS System Integrator as a part of the RFP process.

“Technical Specification” shall mean the specifications of Hardware/Software items and Software specified in RFP Part 2.

“Termination” shall mean the termination of this Agreement prior to the expiry of the Contract Period in accordance with the provisions of the Agreement.

“Termination Date” shall mean the effective date of Termination as mentioned and contained in the Termination Notice in accordance with the provisions of Article 8.4.

“Termination Notice” shall mean the communication issued in accordance with this Agreement by any one Party to the other Party terminating this Agreement.

1.2. Interpretations

In this Agreement, unless the context otherwise requires,

- (a) the words importing singular shall include plural and vice versa;
- (b) the headings are for convenience of reference only and shall not be used in, and shall not affect, the construction or interpretation of this Agreement;
- (c) the words "include" and "including" are to be construed without limitation;
- (d) any reference to day, month or year shall mean a reference to a calendar day, calendar month or calendar year respectively;
- (e) In case of ambiguities or discrepancies in this Agreement, the following shall apply, unless otherwise decided by JSCL:
 - i. between two Articles of this Agreement, the provisions of specific Articles relevant to the issue under consideration shall prevail over those in other Articles;
 - ii. between the Articles/Clauses and the Schedules, the Articles/Clauses shall prevail;
 - iii. between any value written in numerals and that in words, the latter shall prevail.

2. Article 2 – Award of Contract & Scope of Work

2.1 Subject to and in accordance with the terms and conditions set forth in this Agreement, JSCL hereby awards the Contract to ITMS System Integrator and the ITMS System Integrator hereby accepts the award.

2.2 Subject to and in accordance with the terms and conditions set forth in this Agreement, ITMS System Integrator shall be obliged to undertake the following in accordance with the Applicable Laws and the Applicable Permits:

- (a) Discharge services as set forth in Article 2.3 during the Contract Period; and
- (b) Perform and fulfil all of ITMS System Integrator's obligations in accordance with this Agreement.

2.3 Scope of Work

Subject to and in accordance with the terms and conditions set forth in this Agreement, ITMS System Integrator accepts and agrees to provide the services as set out in Schedule A ("Scope of Work") and elsewhere envisaged under this Agreement.

2.4 Change of Scope

JSCL may require ITMS System Integrator to undertake additional works including but not limited to upgrading the hardware etc. and to provide services which are beyond the Scope of Work as contemplated and provided for in this Agreement ("Additional Work"). In the event JSCL requires ITMS System Integrator to carry out Additional Work, ITMS System Integrator shall in the first instance submit to JSCL the charges that it proposes for undertaking such Additional Work along with other terms and conditions, if any. The ITMS System Integrator shall carry out the Additional Work in accordance with the terms and conditions mutually agreed upon.

Notwithstanding the above, it is clarified that any incidental activities/components required for implementation of Scope of Work will have to be carried out by ITMS System Integrator at no extra cost.

3. Article 3 - Contract Period

3.1 This Agreement shall come into effect on execution hereof and, unless terminated earlier or extended in accordance with the provisions hereof, shall be valid for a period up to three years from the date of Go-Live;

3.2 Provided that in the event of the Contract being extended beyond the aforesaid period in accordance with the provisions hereof, the Contract Period shall include the period/aggregate period by which the Contract is so extended;

3.3 Provided further that in the event of Termination, the Contract Period shall mean and be limited to the period commencing from the Agreement Date and ending on the Termination Date.

3.4 The Contract may be renewed by JSCL, at its and absolute discretion, on mutually agreed terms and conditions.

4. Article 4 – Obligations of Parties

4.1 Obligations of ITMS System Integrator

ITMS System Integrator shall observe, undertake, comply with and perform, in addition to and not in derogation of its obligations elsewhere set out in this Agreement, the obligations set forth in this Article, during the Contract Period:

- (a) To perform the Scope of Work as set out in Article 2, for implementing the System;
- (b) To be responsible for compliance with Applicable Laws;
- (c) To procure, as required, the appropriate proprietary rights, licences, agreements and permissions for, *inter alia*, materials, methods, processes, software, operating systems, designs, trademarks, documents and systems used or incorporated into the ITMS Components such as ITCS components, cameras and ITMS Applications (“**Device & Software IP**”);
- (d) The ITMS System Integrator shall grant to JSCL, a non-exclusive, irrevocable, perpetual and royalty-free right to use the Device & Software IP for the Project, commencing on the Agreement Date or on the date the same get supplied by ITMS System Integrator, whichever is earlier.
- (e) To provide Performance Security in the form of Bank Guarantee to JSCL, in accordance with Article 7;
- (f) To carry out its obligations hereunder with all due diligence, efficiency and economy, in accordance with generally accepted professional techniques and practices, and to observe sound management practices, and employ appropriate advanced technology and safe and effective equipment, machinery, materials and methods;
- (g) To provide onsite support for the ITMS solutions;
- (h) To provide necessary information and reports including those pertaining to problems relating to ITMS Components to JSCL and the entities authorised by JSCL;
- (i) To be responsible and liable for the security of the ITMS Components during the Contract Period. The ITMS System Integrator shall bear the costs of repair or replacement of ITMS Components;
- (j) To reasonably cooperate with JSCL and other stakeholders concerned in relation to the matters covered under this Agreement; and
- (k) Any service agreement or sub-contract by the ITMS System Integrator may be entered into by ITMS System Integrator, only with prior approval of JSCL. However, the responsibility to meet Standards of Performance will continue to be that of the ITMS System Integrator.

4.2 Obligations of JSCL

JSCL shall observe, undertake, comply with and perform, in addition to and not in derogation of its obligations elsewhere set out in this Agreement, the obligations set forth in this Article, during the Contract Period:

- (a) To release payments to ITMS System Integrator in accordance with the Agreement; and

- (b) To reasonably cooperate with the ITMS System Integrator to enable it to render its services in terms of the Agreement.

5. Article 5 – Personnel

- 5.1 The ITMS System Integrator shall deploy such qualified and experienced personnel as may be required to carry out its Scope of Work.
- 5.2 It is expressly understood and agreed by ITMS System Integrator that no employee or worker of the ITMS System Integrator or its sub-contractor(s) shall be considered to be an employee of JSCL for any purpose whatsoever. ITMS System Integrator shall be solely responsible for all such employees and workers, their wages, statutory payments, taking out and maintaining ESIC/ other insurance etc. and furnish to JSCL evidence of its compliance from time-to-time as required by them. JSCL shall not be liable for any payment or claim or compensation (including but not limited to compensation on account of injury or death or termination) of any nature to such employees or workers at any point of time during the currency of this Agreement or after its Termination.
- 5.3 In the event that any of the personnel deployed by or at the behest of ITMS System Integrator is reasonably determined by JSCL to be incompetent, guilty of misbehaviour or misconduct or incapable in discharging the assigned responsibilities, JSCL may request the ITMS System Integrator to forthwith provide a replacement of such personnel with personnel having suitable qualifications and experience for the assigned responsibilities and the ITMS System Integrator shall deploy a suitable replacement as soon as possible. The ITMS System Integrator shall have no claim for additional costs arising out of or incidental to any removal and/ or replacement of personnel.

6. Article 6 – Payments to ITMS System Integrator

- 6.1 Subject to Article 6.2 hereunder and other terms of this Agreement and during the Contract Period, JSCL shall make payments to the ITMS System Integrator, as specified in Schedule C of this Agreement.
- 6.2 ITMS System Integrator shall be responsible for adhering to the minimum Standards of Performance while performing its Scope of Work, failing which it shall be liable for deduction of default charges from its payment as specified in Schedule E (“Default Charges”).
- 6.3 Payment of CAPEX charges:

ITMS System Integrator shall be entitled to invoice JSCL at the time of completion of each Milestone as described on Payment Milestones as per Section 4 of RFP Part 2. The Payment for each invoice shall be due and payable to the ITMS System Integrator within 30 (thirty) days from the date of receipt of invoice, subject to deduction of liquidated damages, if any, as set out in Schedule E of this Agreement.
- 6.4 Payment for OPEX Charges:
 - (a) ITMS System Integrator shall submit invoice to JSCL on a quarterly basis as described on Payment Milestones as per Section 4 of RFP Part 2.
 - (b) Within 30 days of receiving invoice from the ITMS System Integrator, JSCL shall release payment to the ITMS System Integrator after deduction of Default Charges, if any.

7. Article 7 - Performance Security

- 7.1 ITMS System Integrator has, for due and faithful performance of its obligations under this Agreement, provided to JSCL, a Performance Security in the form of bank guarantee from a Bank for a sum of Rs. _____ (Rupees _____) [equal to 10% of the contract value], valid from the date of issue of such bank guarantee till 6 months beyond the Expiry Date.
- 7.2 A copy of Performance Security bank guarantee is provided in Schedule D of this Agreement.
- 7.3 JSCL shall release the Performance Security bank guarantee to ITMS System Integrator upon expiry of the bank guarantee or within six months after the Termination Date, as the case may be.
- 7.4 JSCL shall have the right to invoke the Performance Security bank guarantee in case of Termination of the Contract due to an ITMS System Integrator's Event of Default, as agreed pre-estimated liquidated damages.

8. Article 8 – Events of Default & Termination

8.1 ITMS System Integrator's Events of Default

The following event(s) shall constitute an event of default of ITMS System Integrator (an "ITMS System Integrator's Event of Default"):

- (a) ITMS System Integrator fails to adhere to the Standards of Performance as provided for in Schedule E hereof and that results in an event which has been termed as an ITMS System Integrator's Event of Default therein; or
- (b) ITMS System Integrator is in breach of this Agreement and such breach has a Material Adverse Effect on JSCL; or
- (c) The transfer of all or material part of the assets or undertaking of ITMS System Integrator except where such transfer, in the reasonable opinion of JSCL, does not materially affect the financial and technical capability of ITMS System Integrator to perform its obligations under this Agreement; or
- (d) ITMS System Integrator is adjudged bankrupt or insolvent or if a trustee or receiver is appointed for ITMS System Integrator or for any of its property that, in the opinion of JSCL, has a material bearing on its ability to discharge its Scope of Work as contemplated in the Agreement; or
- (e) ITMS System Integrator is ordered to be wound up by a court of law, except for the purpose of amalgamation or reconstruction provided that, as part of such amalgamation or reconstruction, the property, assets and undertaking of ITMS System Integrator are transferred to the amalgamated or reconstructed entity and that the amalgamated or reconstructed entity has unconditionally assumed the obligations of ITMS System Integrator under this Agreement and the amalgamated or reconstructed entity in the reasonable opinion of JSCL has the technical capability, operating experience and financial standing necessary for the substantial performance of its obligations under this Agreement and this Agreement remains in full force and effect: or
- (f) ITMS System Integrator repudiates this Agreement or otherwise evidences an intention not to be bound by this Agreement; or
- (g) ITMS System Integrator suffers an execution being levied on any of its assets/ equipment causing a Material Adverse Effect and allows it to be continued for a period of 30 (thirty) days; or

- (h) Any other event or occurrence which is referred to as ITMS System Integrator's Event of Default, in the Agreement.

8.2 JSCL's Event of Default

The following event(s) shall constitute an event of default of JSCL (an "JSCL's Event of Default") unless such JSCL's Event of Default has occurred as a result of ITMS System Integrator's Event of Default or a Force Majeure Event:

- (a) JSCL is in breach of this Agreement and such breach has a material impact on the performance of obligations by the ITMS System Integrator under this agreement; or
- (b) JSCL fails to make the payment to the ITMS System Integrator, as per provisions of this Agreement, for a continuous period of six months; or
- (c) JSCL repudiates this Agreement or otherwise evidences an irrevocable intention not to be bound by this Agreement.

8.3 Upon occurrence of an ITMS System Integrator's Event of Default (as provided in **Article 8.1**) or JSCL's Event of Default (as provided in Article 8.2), the Parties agree that JSCL or ITMS System Integrator, whosoever is not in default ("Non-Defaulting Party") shall, following the Cure Period and subject to Article 8.4, be entitled to terminate this Agreement forthwith by issuing a 30 (Thirty) days' notice ("Termination Notice") to the party in default ("Defaulting Party") and upon expiry of such notice period, this Agreement shall stand terminated.

8.4 Prior to issuing a Termination Notice, the Non-Defaulting Party will, by a notice in writing inform the Defaulting Party of its intention to issue the Termination Notice (the "Preliminary Notice") and provide a Cure Period to the Defaulting Party to make its representation, if any, against such intended Termination Notice and/or take corrective action, if any. After the expiry of Cure Period, Non-Defaulting Party may issue the Termination Notice after giving due consideration to any representation made by Defaulting Party along with evidence thereof and/or corrective action taken by Defaulting Party, prior to issuing any such Termination Notice.

8.5 Termination Notice

If a Party having become entitled to do so decides to terminate this Agreement pursuant to Article 8.3, it shall issue Termination Notice setting out:

- (a) in sufficient detail the underlying Event of Default;
- (b) the Termination Date, in accordance with Article 10.3; and
- (c) any other relevant information.

8.6 Obligation of Parties

Following the issue of Termination Notice by either Party, the Parties shall promptly take all such steps as may be necessary or required to ensure that until Termination the Parties shall, to the fullest extent possible, discharge their respective obligations so as to maintain the continued operation of the Project;

In case of termination of the Agreement, if so desired by JSCL, ITMS System Integrator shall provide any or all the services envisaged under this Agreement for a period of 6 (six) months from the date of such Termination or till a suitably experienced agency, or any other alternate arrangement replaces ITMS System Integrator, whichever is earlier, or as may be mutually agreed by the Parties. Payments shall be duly paid to ITMS System Integrator in accordance with and at the rates prescribed in this Agreement by JSCL, for the work performed by the ITMS System Integrator.

8.7 Withdrawal of Termination Notice

Notwithstanding anything inconsistent contained in this Agreement, if the Defaulting Party which has been served with the Termination Notice cures the underlying Event of Default to the satisfaction of the Non-defaulting Party at any time before the Termination occurs, the Termination Notice may be withdrawn by the Party which had issued the same.

8.8 Upon Termination of this Agreement for any reason whatsoever by any of the Parties:

- (a) Notwithstanding anything to the contrary contained in this Agreement, any Termination, pursuant to the provisions of this Agreement, shall be without prejudice to accrued rights of any of the Parties including payments for periods prior to the effectiveness of the Termination, each Party's right to claim and recover damages and other rights and remedies which a Party may have under the Agreement or in law. All rights and obligations of each Party under this Agreement shall survive the Termination of this Agreement to the extent such survival is necessary for giving effect to such rights and obligations.
- (b) On Termination of this Agreement, notwithstanding anything to the contrary contained in this Agreement, JSCL shall be within its rights to appoint any other agency to replace ITMS System Integrator and provide the services on such terms and conditions as JSCL may decide, at its sole discretion.

8.9 Upon Termination of the Agreement or upon its expiry due to efflux of time, the ITMS System Integrator shall hand over hosting infrastructure/any other project assets in the possession of ITMS System Integrator and project related operational and transaction records and documentation and other service-related data (collectively, the "Project Data") to JSCL. ITMS System Integrator may, as requested by JSCL, also provide maintenance support for ITMS components on mutually agreed terms. Additionally, the following shall be applicable:

- (a) Upon Termination due to ITMS System Integrator's Event of Default: JSCL shall have a right to forfeit the Performance Guarantee amount as mutually agreed pre-estimated liquidated damages.
- (b) Upon Termination due to JSCL's Event of Default: JSCL shall return the Performance Guarantee to the ITMS System Integrator.
- (c) Upon Termination due to Force Majeure: JSCL shall return the Performance Guarantee to the ITMS System Integrator.

9. Article 9 – Indemnity

9.1 ITMS System Integrator shall indemnify, defend and hold JSCL, including their officers, servants and agents (the "Indemnified Persons") harmless against any and all proceedings, actions and third-party claims for loss, damage and expense of whatever kind and nature arising out of a breach by the ITMS System Integrator of any of its service obligations under this Agreement.

9.2 Without limiting the generality of Article 9, the ITMS System Integrator shall fully indemnify and defend the Indemnified Persons from and against any and all loss and damages arising out of or with respect to

- (a) failure of the ITMS System Integrator to comply with Applicable Laws,
- (b) payments of taxes relating to the ITMS System Integrator, its contractors, suppliers and representatives, income or other taxes required to be paid by the ITMS System Integrator without reimbursement hereunder,

- (c) non-payment of amounts payable by ITMS System Integrator to its employees or sub-contractors as a result of materials or services furnished to the ITMS System Integrator, or
- (d) any claim or action to the extent such action is based on a claim that the ITMS System Integrator infringes a patent, copyright or trademark, and ITMS System Integrator shall pay those damages and costs finally awarded against the Indemnified Persons in such action attributable to such claim.

10. Article 10 - Force Majeure

10.1 As used in this Agreement, a Force Majeure Event shall mean occurrence of any or all of the events defined in Article 10.2 hereinafter which prevent the Party claiming Force Majeure (the "Affected Party") from performing its obligations under this Agreement and which act or event:

- (a) Is beyond the reasonable control and not arising out of the fault of the Affected Party;
- (b) The Affected Party has been unable to overcome such act or event by the exercise of due diligence and reasonable efforts, skill and care, including through expenditure of reasonable sums of money; and
- (c) Leads to a Material Adverse Effect.

10.2 Force Majeure Events

For purposes of this Article, and subject to Articles 10.1 (a) (b) and (c) herein, Force Majeure Event(s) shall mean one or more of the following acts or events:

- (a) Acts of God or events beyond the reasonable control of the Affected Party which could not reasonably have been expected to occur, exceptionally adverse weather conditions, lightning, earthquake, cyclone, flood, volcanic eruption or fire or landslide;
- (b) Radioactive contamination or ionizing radiation;
- (c) Strikes or boycotts (other than those involving a Party or its employees or representatives or attributable to any act or omission of any of them) interrupting supplies and services relating to the Project for a period exceeding a continuous period of 15 (fifteen) days;
- (d) Any act of war (whether declared or undeclared), invasion, armed conflict or act of foreign enemy, blockade, embargo, riot, insurrection, terrorist or military action, civil commotion or politically motivated sabotage which prevents discharging of its obligations by a Party for a period exceeding a continuous period of 15 (fifteen) days;
- (e) Any public agitation which prevents discharging of its obligations by a Party for a period exceeding a continuous period of 15 (fifteen) days.

10.3 Effect of Force Majeure Event

Upon the occurrence of any Force Majeure Event, the following shall apply:

- (a) There shall be no Termination except when a Force Majeure Event subsists for a period of 180 (one hundred eighty) days or more within a continuous period of 365 (three hundred sixty-five) days, in which case, JSCL may in its sole discretion terminate this Agreement by giving Termination Notice in writing to the ITMS System Integrator without being liable in any manner whatsoever;

- (b) The Parties shall bear their respective costs and no Party shall be required to pay to the other Party any costs arising out of such Force Majeure Event;
- (c) JSCL will not be liable for making payments to the ITMS System Integrator for the period and for such services that could not be rendered by the ITMS System Integrator due to such Force Majeure Event;
- (d) ITMS System Integrator will not be liable for the Default Charges during the periods in which the Force Majeure events persist.

10.4 Liability for other losses, damages etc.

Save and except as expressly provided under this Article 10, no Party hereto shall be liable in any manner whatsoever to the other Party in respect of any loss, damage, cost, expense, claims, demands and proceedings relating to or arising out of occurrence or existence of any Force Majeure Event or exercise of any right pursuant to the Article 10.

10.5 Excuse from performance of obligations

If the Affected Party is rendered wholly or partially unable to perform its obligations under this Agreement because of a Force Majeure Event, it shall be excused from performance of such of its obligations and to the extent it is unable to perform on account of such Force Majeure Event provided that:

- (a) the suspension of performance shall be of no greater scope and of no longer duration than is reasonably required by the Force Majeure Event;
- (b) the Affected Party shall make all reasonable efforts to mitigate or limit damage to the other Party arising out of or as a result of the existence or occurrence of such Force Majeure Event and to cure the same with due diligence, and
- (c) when the Affected Party is able to resume performance of its obligations under this Agreement, it shall give to the other Party written notice to that effect and shall immediately and promptly resume performance of its obligations hereunder.

- 10.6 Notwithstanding anything to the contrary contained in this Agreement, a Party hereto shall not be liable to the other Party for any exemplary, special, indirect, consequential or incidental damages of any kind (including without limitation loss of revenues or loss of profits), even if such Party has been advised of the possibility of such damages.

11. Article 11 – Confidentiality

11.1 Mutual Confidentiality Obligations

- (a) All information, data, legacy information, and any other information, provided by a Party hereto, including without limitation the proprietary materials, software and documentation, specifications, etc. in connection with the Project or otherwise during the Contract Period, shall be treated as confidential (“Confidential Information”) by the receiving Party.

Unless otherwise expressly authorized in writing by the disclosing Party of Confidential Information, the receiving Party shall maintain in strict confidence all Confidential Information, shall use Confidential Information only for the purpose of this Agreement, and shall restrict disclosure of Confidential Information to only those of its directors, officers, employees, consultants, or advisors who require access to the Confidential Information for carrying out the work relating to the Agreement and who are bound not to disclose the same.

- (b) The restrictions set forth in sub-article (a) above herein shall not apply to any part of the Confidential Information which:
- i. is at the time of disclosure to the receiving Party, or thereafter, becomes part of the public domain, other than as a result of a disclosure by the receiving Party, their directors, officers or employees; or
 - ii. was, at the time of disclosure to the receiving Party, already in the possession of such Party on a lawful basis; or
 - iii. is required to be disclosed by the receiving Party by judicial, administrative process, any enquiry, investigation, action, suit, proceeding or claim or otherwise by Applicable Laws or by any Governmental Agency, provided that the receiving Party shall promptly advise the disclosing Party of any expected disclosure hereunder so as to enable the disclosing Party to take appropriate steps as it may so desire.

12. Article 12 - Dispute Resolution

12.1 Conciliation

- (a) Any dispute, difference or controversy of whatever nature howsoever arising under, out of or in relation to this Agreement and so notified in writing by any Party to the other (the "Dispute") in the first instance shall be attempted to be resolved amicably in accordance with the conciliation procedure provided in sub-article (b) under.
- (b) In the event of any Dispute between the Parties, such Dispute shall be referred to the Executive Director, JSCL (or his/her nominee) and the CEO/Managing Director of the ITMS System Integrator (or his/her nominee) for amicable settlement. Upon such reference, the said individuals shall meet not later than 7 (seven) days of the date of such request or such longer period as may be mutually agreed by the Parties to discuss and attempt to amicably resolve the Dispute. If such meeting does not take place within the said period or the Dispute is not amicably settled within 15 (fifteen) days of such meeting between the said individuals, any Party may refer the dispute to arbitration in accordance with the provisions of Article 12.2.
- (c) If the Dispute is not resolved as evidenced by the signing of the written terms of settlement within 30 (thirty) working days of the aforesaid notice in writing or such longer period as may be mutually agreed by the Parties then the provisions of Article 12.2 shall apply.

12.2 Arbitration

- (a) Any Dispute, which is not resolved amicably as provided in Article 12, shall be finally decided by reference to either a single Arbitrator mutually agreed to by the Parties or if no single arbitrator is appointed within 15 days of such reference then such arbitration shall be done by a panel of three (3) arbitrators one appointed by each party and third by the two arbitrators.
- (b) Such arbitration shall be held in accordance with and be subject to the provisions of the Indian Arbitration and Conciliation Act, 1996 and any amendments thereto (the "Act").
- (c) The venue of such arbitration shall be Jabalpur and the cost of arbitration shall be borne equally by the Parties.

- (d) The Parties undertake to carry out any decision or award of the arbitrator (the "Award") without delay. Subject to the Act, Awards relating to any Dispute shall be final and binding on the Parties as from the date they are made.
- (e) Pursuant to having exhausted the remedies, the Parties agree that an Award may be enforced against the ITMS System Integrator and/or JSCL, as the case may be and their respective assets wherever situated.
- (f) This Agreement and rights and obligations of the Parties shall remain in full force and effect pending the Award in any arbitration proceeding hereunder.

13. Article 13 – Language

All notices required to be given by one Party to the other Party and all other communications, documentation and proceedings which are in any way relevant to this Agreement shall be in writing and in English language.

14. Article 14 – Assignment and Charges

The ITMS System Integrator shall neither create nor permit to subsist any encumbrance over or otherwise transfer or dispose of all or any of its rights and benefits under this Agreement except with prior consent in writing of JSCL, which consent JSCL shall be entitled to decline without assigning any reason whatsoever.

15. Article 15 – Governing Law and Jurisdiction

This Agreement shall be construed and interpreted in accordance with and governed by the laws of India and the Courts at Jabalpur shall have exclusive jurisdiction over all matters arising out of or relating to this Agreement.

16. Article 16 – Relation Between Parties

- 16.1 Nothing contained in this Agreement shall be construed or interpreted as constituting a partnership, joint venture or agency between the Parties. No Party shall have any right or authority to represent on behalf of the other nor shall any such representation to third party(ies) bind the other in any manner whatsoever. This Agreement is being entered into on a principal to principal basis. The ITMS System Integrator shall be an independent contractor and is fully independent in performing any or all its Scope of Work. The ITMS System Integrator shall not act or hold itself out as a servant or employee of JSCL.

17. Article 17 – Notices

- 17.1 Any payment, notice or other communication to be given by one Party to the other under, or in connection with the matters contemplated by this Agreement shall be in writing and shall be delivered by hand/ registered post/ courier at the following address:

If to ITMS System Integrator:	If to JSCL:
	Jabalpur Smart City Limited Manas Bhawan, Wright Town, Jabalpur, Madhya Pradesh, 482002
Attention:	Attention: Executive Director (JSCL)

- 17.2 Copies of all notices may also be sent by facsimile and/or email.

18. Article 18 – Waiver

18.1 Waiver by a Party of any default by other Party in the observance and performance of any provision of or obligations of or under this Agreement: -

- (a) shall not operate or be construed as a waiver of any other or subsequent default hereof or of other provisions of or obligations under this Agreement;
- (b) shall not be effective unless it is in writing and executed by a duly authorised representative of the Party; and
- (c) shall not affect the validity or enforceability of this Agreement in any manner.

18.2 Neither the failure by a Party to insist, on any occasion, upon the performance of the terms, conditions and provisions of this Agreement or any obligation thereunder nor time or other indulgence granted by a Party to the other Party shall be treated or deemed as waiver of such breach or acceptance of any variation or the relinquishment of any such right hereunder.

19. Article 19 – Survival

19.1 Termination of this Agreement:

- (a) shall not relieve any Party of its obligations hereunder which expressly or by implication survives Termination hereof, and
- (b) except as otherwise provided in any provision of this Agreement expressly limiting the liability of any Party, shall not relieve such Party of any obligations or liabilities for loss or damage to the other Party arising out of or caused by acts or omissions of such Party prior to the effectiveness of such Termination or arising out of such termination.

20. Article 20 – Severability

If for any reason whatever any provision of this Agreement is or becomes invalid, illegal or unenforceable or is declared by any court of competent jurisdiction or any other instrumentality to be invalid, illegal or unenforceable, the validity, legality or enforceability of the remaining provisions shall not be affected in any manner, and the Parties will negotiate in good faith with a view to agreeing one or more provisions which may be substituted for such invalid, unenforceable or illegal provisions, as nearly as is practicable to such invalid, illegal or unenforceable provision. Failure to agree upon any such provisions shall not be subject to dispute resolution under this Agreement or otherwise and the invalid, illegal or unenforceable part shall stand deleted and the rest of the Contract shall be enforced.

21. Article 21 – Representations and Warranties

21.1 Representations and Warranties of the ITMS System Integrator:

ITMS System Integrator represents and warrants that:

- (a) It is duly organized, validly existing and in good standing under the laws of the jurisdiction of its incorporation;
- (b) It has full power and authority to execute, deliver and perform its obligations under this Agreement and to carry out the transactions contemplated hereby;
- (c) It has taken all necessary corporate and other action under applicable laws and its constitutional documents to authorize the execution, delivery and performance of this Agreement;

- (d) It has the necessary capabilities essential to undertake the obligations contemplated hereunder;
- (e) This Agreement constitutes its legal, valid and binding obligation enforceable against it in accordance with the terms hereof;
- (f) It is subject to civil and commercial laws of India with respect to this Agreement;
- (g) There are no actions, suits, proceedings, or investigations pending or, to ITMS System Integrator's knowledge, threatened against it at law or in equity before any court or before any other judicial, quasi-judicial or other authority, the probable outcome of which may result in the breach of or constitute a default of ITMS System Integrator under this Agreement or which may result in any impairment of its ability to perform its obligations and duties 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 Governmental Agency which may result in any impairment of ITMS System Integrator's ability to perform its obligations and duties under this Agreement;
- (i) It has complied with all Applicable Laws and has not been subject to any fines, penalties, injunctive relief or any other civil or criminal liabilities which may result in any impairment of its ability to perform its obligations and duties under this Agreement;
- (j) No representation or warranty by ITMS System Integrator contained herein or in any other document furnished by it to JSCL in relation to applicable certificates, permits, permissions, licenses and other such necessary approvals and sanctions required under the Contract contains or will contain any untrue statement of material fact or omits or will omit to state a material fact necessary to make such representation or warranty not misleading; and
- (k) No sums, in cash or kind, have been paid or will be paid by or on behalf of ITMS System Integrator, to any person by way of price, commission or otherwise for securing the Agreement or entering into this Agreement or for influencing or attempting to influence any officer or employee of JSCL in connection therewith.

21.2 Representations and Warranties of JSCL:

JSCL represents and warrants that:

- (a) JSCL, through its authorized representative, has full power and authority to execute, deliver and perform its obligations under this Agreement;
- (b) JSCL has taken all necessary action to authorise the execution, delivery and performance of this Agreement; and
- (c) This Agreement constitutes its legal, valid and binding obligation enforceable against it in accordance with the terms hereof.

21.3 Any of the Representations and Warranties herein contained, if found to be untrue shall constitute breach of this Agreement.

22. Article 22 – Standard of Care

The ITMS System Integrator acknowledges the relationship of trust and confidence established between the ITMS System Integrator and JSCL by this Agreement. Accordingly, all acts of the ITMS System Integrator shall be consistent with this

relationship. The ITMS System Integrator shall always act, in respect of any matter relating to this Agreement, as an honest and faithful adviser/ service provider to JSCL. The ITMS System Integrator shall at all times support and safeguard JSCL's legitimate interests in any dealings with third parties.

23. Article 23 – No Additional Remuneration

The remuneration of the ITMS System Integrator set out in this Agreement shall constitute its sole remuneration in connection with this Agreement. The ITMS System Integrator shall not accept for its own benefit any trade commission, discount or similar payment in the discharge of its obligations hereunder and the ITMS System Integrator shall ensure that its personnel, agents, etc. similarly shall not receive any such additional remuneration. The ITMS System Integrator shall at all times perform its responsibilities hereunder in furtherance of the best interest of the Project.

24. Article 24 –ITMS System Integrator Not to Engage in Certain Activities

The ITMS System Integrator shall not engage and shall cause its personnel as well as sub-contractors and their personnel not to engage, either directly or indirectly, in any business or professional activities which would conflict, with the activities assigned to them under or pursuant to this Agreement.

25. Article 25 – Ownership of Project and Intellectual Property Rights

25.1 Ownership of the Project

With exceptions of proprietary hardware or software required for functioning of such Hardware, the ownership of all Hardware and or such Software forming part of the Project shall be transferred to JSCL at the time of delivery and installation.

In cases where the customized hardware/software is developed and installed exclusively for JSCL, the ownership of all such shall rest exclusively with JSCL upon delivery and installation.

The ownership of all data created as part of the project, including but not limited to traffic data, brands, design etc. shall rest exclusively with JSCL.

The Software Licenses and Licenses for other proprietary, third party software and standard Hardware shall be transferred to JSCL upon delivery and installation. The License Period of proprietary software supplied by the ITMS System Integrator shall be perpetual and irrevocable.

26. Article 26 – Insurance

26.1 Insurance during the Contract Period

The ITMS System Integrator shall, at its cost and expense, purchase and maintain during the Contract Period, such insurances as are necessary including but not limited to the following:

- (a) Hardware delivered and installed to the extent possible at the replacement value with JSCL as beneficiary.
- (b) ITMS System Integrator 's all risk insurance with JSCL as co-beneficiary;
- (c) Comprehensive third-party liability insurance with the JSCL as co-beneficiary;
- (d) Workmen's compensation insurance with the JSCL as co-beneficiary;
- (e) Any other insurance that may be necessary to protect the ITMS System Integrator, its employees and the Project against loss, damage or destruction

at replacement value including all Force Majeure Events that are insurable and not otherwise covered in items (a) to (d) with JSCL as beneficiary/co-beneficiary;

26.2 Evidence of Insurance Cover

The ITMS System Integrator shall, from time to time, provide to JSCL copies of all insurance policies (or appropriate endorsements, certifications or other satisfactory evidence of insurance) obtained by it in accordance with Master Service Agreement.

If ITMS System Integrator shall fail to effect and keep in force the insurance for which it is responsible pursuant hereto, JSCL shall have the option to take or keep in force any such insurance and pay such premium and recover all costs thereof from ITMS System Integrator or to forfeit deposit/ Performance guarantee from the ITMS System Integrator and pay or restoration for the same.

26.3 Application of Insurance Proceeds

- (a) All moneys received under insurance policies shall be promptly applied by the ITMS System Integrator towards repair or renovation or restoration or substitution of the Project or any hardware/equipment/device thereof which may have been damaged or required repair/modification.
- (b) The ITMS System Integrator shall carry out such repair or renovation or restoration or substitution to the extent possible in such manner that the Project, or any part thereof, shall, after such repair or renovation or restoration or substitution be as far as possible in the same condition as they were before such damage or destruction, normal wear and tear excepted.
- (c) For insurance policies where JSCL is the beneficiary and where it received the insurance proceeds, only such sums are required from the insurance proceeds for restoration, repair and renovation of the Project

26.4 Validity of Insurance Cover

The ITMS System Integrator shall pay the premium payable on such insurance Policy/Policies so as to keep the insurance in force and valid throughout the Contract Period and furnish copies of the same to JSCL for each year/policy period. If at any time the ITMS System Integrator fails to purchase, renew and maintain in full force and effect, any and all of the Insurances required under this Master Service Agreement, JSCL may at its option purchase and maintain such insurance and all sums incurred by JSCL therefore shall be reimbursed by the ITMS System Integrator forthwith on demand, failing which the same shall be recovered by JSCL by encashment of Performance Security, exercising right of set off or otherwise.

27. Article 27 – Execution of Agreement

This Agreement may be executed in two originals, each of which when executed and delivered shall constitute an original of this Agreement.

IN WITNESS WHEREOF, the Parties have executed this Agreement as of the date first written above.

JSCL

ITMS System Integrator

Signature:

Signature:

Name:

Name:

Title:

Title:

Date:

Date:

Witness 1

Witness 2

Signature:

Signature:

Name:

Name:

Title:

Title:

Date:

Date:

Schedule A : Scope of Work

To be included (As per RFP Part 2)

Schedule B : Technical Specifications of ITMS Components

To be included (As per RFP and ITMS System Integrator's Proposal, as accepted by JSCL)

Schedule C : Payments to ITMS System Integrator

To be included (As per RFP and ITMS System Integrator's Proposal, as accepted by JSCL)

Schedule D : Performance Security Bank Guarantee

Copy of Performance Security Bank Guarantee

[Refer Article 7 of the Agreement]

To,

Executive Director

Jabalpur Smart City Limited,

Manas Bhawan, Wright Town,

Jabalpur, Madhya Pradesh - 482002

THIS DEED OF GUARANTEE executed on this the _____ day of _____ at _____ by _____ (Name of the Bank) having its Head/Registered office at _____ hereinafter referred to as "the Guarantor" which expression shall unless it be repugnant to the subject or context thereof include successors and assigns;

In favour of

Executive Director, Jabalpur Smart City Limited having its office at Manas Bhawan, Wright Town, Jabalpur, Madhya Pradesh - 482002, hereinafter referred to as "JSCL", which expression shall, unless repugnant to the context or meaning thereof include its administrators, successors or assigns.

WHEREAS

By the Agreement entered into between Jabalpur Smart City Limited, Manas Bhawan, Wright Town, Jabalpur, Madhya Pradesh - 482002 and _____, having its registered office/permanent address at [insert address] ("ITMS System Integrator"), that has been authorised for Implementation of Intelligent Traffic Management System solutions in Jabalpur, in accordance with the Agreement mentioned hereinabove ("Master Service Agreement").

In terms of the Master Service Agreement, the ITMS System Integrator is required to furnish to JSCL, an unconditional and irrevocable bank guarantee for an amount of Rs. _____ [insert amount in figures and words] as Performance Security for due performance/discharge of its obligations under the Master Service Agreement.

At the request of the ITMS System Integrator, the Guarantor has agreed to provide guarantee, being these presents, guaranteeing the due and punctual performance/discharge by the ITMS System Integrator of its obligations under the Master Service Agreement.

NOW THEREFORE THIS DEED WITNESSETH AS FOLLOWS:

Capitalised terms used herein but not defined shall have the meaning assigned to them respectively in the Agreement.

The Guarantor hereby irrevocably guarantees the due and punctual performance by the ITMS System Integrator of all its obligations under the Master Service Agreement.

The Guarantor shall, without demur, pay to JSCL sums not exceeding in aggregate Rs. _____ [insert amount in figures and words], within five (5) calendar days of receipt of a written demand therefor from JSCL stating that the ITMS System Integrator has failed to meet its performance obligations under the Master Service Agreement. The Guarantor shall not go into the veracity of any breach or failure on the part of the ITMS System Integrator or validity of demand so made by JSCL and shall pay the amount specified in the demand notwithstanding any direction to the contrary given or any dispute whatsoever raised by the ITMS System Integrator or any other Person. The Guarantor's obligations hereunder shall subsist until all such demands are duly met and discharged in accordance with the provisions hereof.

In order to give effect to this Guarantee, JSCL shall be entitled to treat the Guarantor as the principal debtor. The obligations of the Guarantor shall not be affected by any variations in the terms and conditions of the Master Service Agreement or other documents or by the extension of time for performance granted to the ITMS System Integrator or postponement/ non exercise/ delayed exercise of any of its rights by JSCL or any indulgence shown by JSCL to the ITMS System Integrator and the Guarantor shall not be relieved from its obligations under this Guarantee on account of any such variation, extension, postponement, non-exercise, delayed exercise of any of its rights by JSCL or any indulgence shown by JSCL, provided nothing contained herein shall enlarge the Guarantor's obligation hereunder.

This Guarantee shall be irrevocable and shall remain in full force and effect until _____ unless discharged/released earlier by JSCL in accordance with the provisions of the Agreement. The Guarantor's liability in aggregate be limited to a sum of Rs _____ [insert amount in figures and words].

This Guarantee shall not be affected by any change in the constitution or winding up of the ITMS System Integrator/the Guarantor or any absorption, merger or amalgamation of the ITMS System Integrator /the Guarantor with any other Person.

The Guarantor has power to issue this guarantee and discharge the obligations contemplated herein, and the undersigned is duly authorised to execute this Guarantee pursuant to the power granted under _____.

The expressions "JSCL", "the Bank" and "ITMS System Integrator" hereinbefore used shall include their respective successors and assignees.

In witness whereof, I/We of the Bank have signed and sealed this guarantee on the _____ day of _____ 2018 _____ being herewith duly authorised.

For and on behalf of the _____ Bank

Signature of authorised Bank official

Name: _____

Designation: _____

Stamp/Seal of the Bank: _____

Signed, sealed and delivered
for and on behalf of the Bank
by the above named _____
in the presence of:

Witness 1.

Signature _____

Name: _____

Address: _____

Witness 2.

Signature: _____

Name: _____

Address: _____

Schedule E : Liquidated Damages, Standards of Performance & Default Charges

Time is the essence of the Agreement and the delivery dates for Deliverables are binding on the ITMS System Integrator. In the event of delay for causes attributable to the ITMS System Integrator in meeting the timelines for the Deliverables, JSCL shall be entitled at its option to recover from the ITMS System Integrator as agreed liquidated damages a sum of 0.1% of the corresponding deliverable cost for every week of delay or part thereof, subject to maximum cumulative value of the Liquidated Damages being not more than 10% of the total CAPEX value. Any delay beyond 20 weeks in meeting any of the Deliverables timelines for causes attributable to the ITMS System Integrator shall be deemed to be an Implementation Agency's Event of Default. In addition, the ITMS System Integrator shall also be subject to imposition of liquidated damages, as provided elsewhere in the RFP.

(Standard of Performance & Default Charges to be included as per RFP Part 2.)

Schedule F: ITMS System Integrator's Technical & Price Proposal

To be attached

Appendix 18: Compliance to Requirement (Technical / Functional Specifications)

The Bidder shall provide compliance statement for Technical Specifications for all equipment/system in the format provided below:

- **Item/Equipment name** : _____
- **Make** : _____
- **Model** : _____

Sl. #	Parameter	Minimum Requirement as per RFP	Compliance (Yes/No)	Specifications proposed by Bidder
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
.				
.				
.				
n				

Appendix 19: Unpriced BoQ with Make and Model no.

The bidder should provide Make & Model of Unpriced BOQ, including completion specifications and datasheets proposed as part of its solution.

Appendix 20: No Deviation Certificate

(On Company Letter Head)

This is to certify that our offer is exactly in line with your tender enquiry/RFP (including amendments) no. _____ dated _____. This is to expressly certify that our offer contains no deviation either Technical (including but not limited to Scope of Work, Functional Requirements Specification, Hardware Specification and Technical Requirements Specification) or Commercial in either direct or indirect form.

(Authorised Signatory)

Signature:

Name:

Designation:

Address:

Seal:

Date:

Appendix 21: Project Credential Summary

A. For Pre-Qualification criteria

SI #	Criteria	Name of the project proposed	Client Name	Project Value (in Rs. lakh)	Project Components	Project Start Date and current status	Reference for Document ary evidence provided

- **Criteria** – Bidder to mention the PQ criteria against which the Project(s) are proposed.
- **Project Components** – Indicate the major project components like ITCS/RLVD/ANPR/SVD/E-challan etc. which are relevant to the project along with no. of location/junctions/scope as applicable.
- **Project Start Date & Current Status** – Mention project start date and Project status whether Completed or Ongoing
- **Reference for Documentary evidence provided** – Bidder to mention the page no./section of their Technical Proposal

B. For Technical Qualification criteria

SI #	Criteria	Name of the project proposed	Client Name	Project Value (in Rs. lakh)	Project Components	Project Start Date & Current Status	Reference for Documentary evidence provided

- **Criteria** – Bidder to mention the TQ criteria against which the Project(s) are proposed.
- **Project Components** – Indicate the major project components like ITCS/RLVD/ANPR/SVD/E-challan etc. which are relevant to the project along with no. of location/junctions/scope as applicable.
- **Project Start Date & Current Status** – Mentioned project start date and Project status whether Completed or Ongoing
- **Reference for Documentary evidence provided** – Bidder to mention the page no./section of their Technical Proposal

**Part 2 – Scope of Work and
Requirement Specifications**

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List of Abbreviations

Abbreviations	Definitions/Description
AMC	Annual Maintenance Contract
AMSL	Above Mean Sea Level
ANPR	Automatic Number Plate Recognition
BoQ/BoM	Bill of Quantity/ Bill of Material
CCNA	Cisco Certified Network Associate
CCNP	Cisco Certified Network Professional
CCTV	Closed-Circuit Television
FPS	Frame Per Second
GCS	Ground Control Station
GoI	Government of India
GPRS	General Packet Radio Service
GPS	Global Positioning System
GUI	Graphical user Interface
ICCC	Integrated Command Control Centre
ICT	Information & Communication Technology
IRC	Indian Road Congress
ITCS	Intelligent Traffic Control System
ITMS	Intelligent Traffic Management System
JMC	Jabalpur Municipal Corporation
JSCL	Jabalpur Smart City Limited
KPI	Key Performance Indicator
LOS	Line of Sight
MCSA	Microsoft Certified Solutions Associate
MIS	Management Information System
MoHUA	Ministry of Housing & Urban Affairs
MoU	Memorandum of Understanding
O&M	Operations & Maintenance
OEM	Original Equipment Manufacturer
PA system	Public Address system
RFP	Request for Proposal
RLVD	Red Light Violation Detection
RPV	Remotely Piloted Vehicle

SI	System Integrator
SLA	Service Level Agreement
SRS	Software Requirements Specifications
SSL	Secure Sockets Layer
SVD	Speed Violation Detection
SWM	Solid Waste Management
TCC	Traffic Control Center
UAT	User Acceptance Testing
UAV	Unmanned Aerial Vehicle / Drone
UPS	Uninterruptible Power Supply
VaMS	Variable Message Sign
VPN	Virtual Private Network
VTOL	Autonomous Vertical Take-Off and Landing

1. Introduction

1.1. Project Background

Jabalpur is among the first 20 cities selected in first round of smart cities challenge under Smart City Mission by Ministry of Housing and Urban Affairs, Government of India (formerly, Ministry of Urban Development).

Currently, seven cities from Madhya Pradesh have been shortlisted by Ministry of Housing and Urban Affairs, GoI, to be developed under the Smart City Mission. These cities are Jabalpur, Indore, Bhopal, Ujjain, Gwalior, Sagar and Satna.

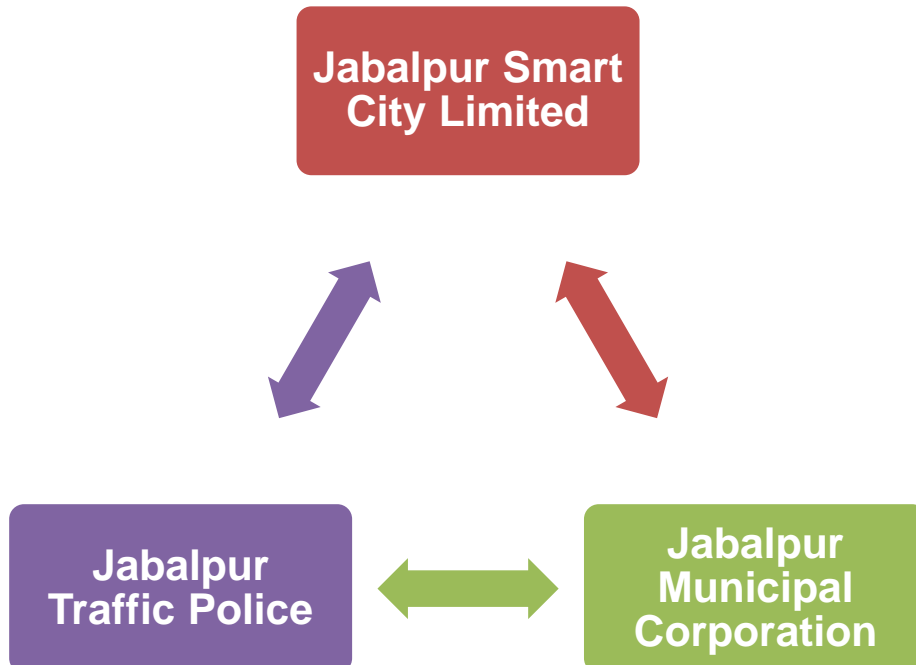
In this context, Jabalpur has incorporated a special purpose vehicle (SPV) –Jabalpur Smart City Limited (JSCL) to plan, design, implement, coordinate and monitor the smart city projects in Jabalpur. It has been incorporated under Company Act, 2013 on 14th March 2016.

In alignment to its objectives, Jabalpur Smart City Limited (JSCL) aims to have an ICT based traffic management system which shall add value to citizens, city authorities and society in general by bringing down travel time, reducing travel related energy consumptions, increasing comfort and safety of travel, establishing efficient and effective management procedures and working towards environmental sustainability.

Jabalpur desires to foster the development of a robust Intelligent Traffic Management System infrastructure that is reliable and efficient leading to effective traffic management in the city.

1.2. Key Stakeholders

The key stakeholders for ITMS implementation in Jabalpur are:



1.3. Project Objectives

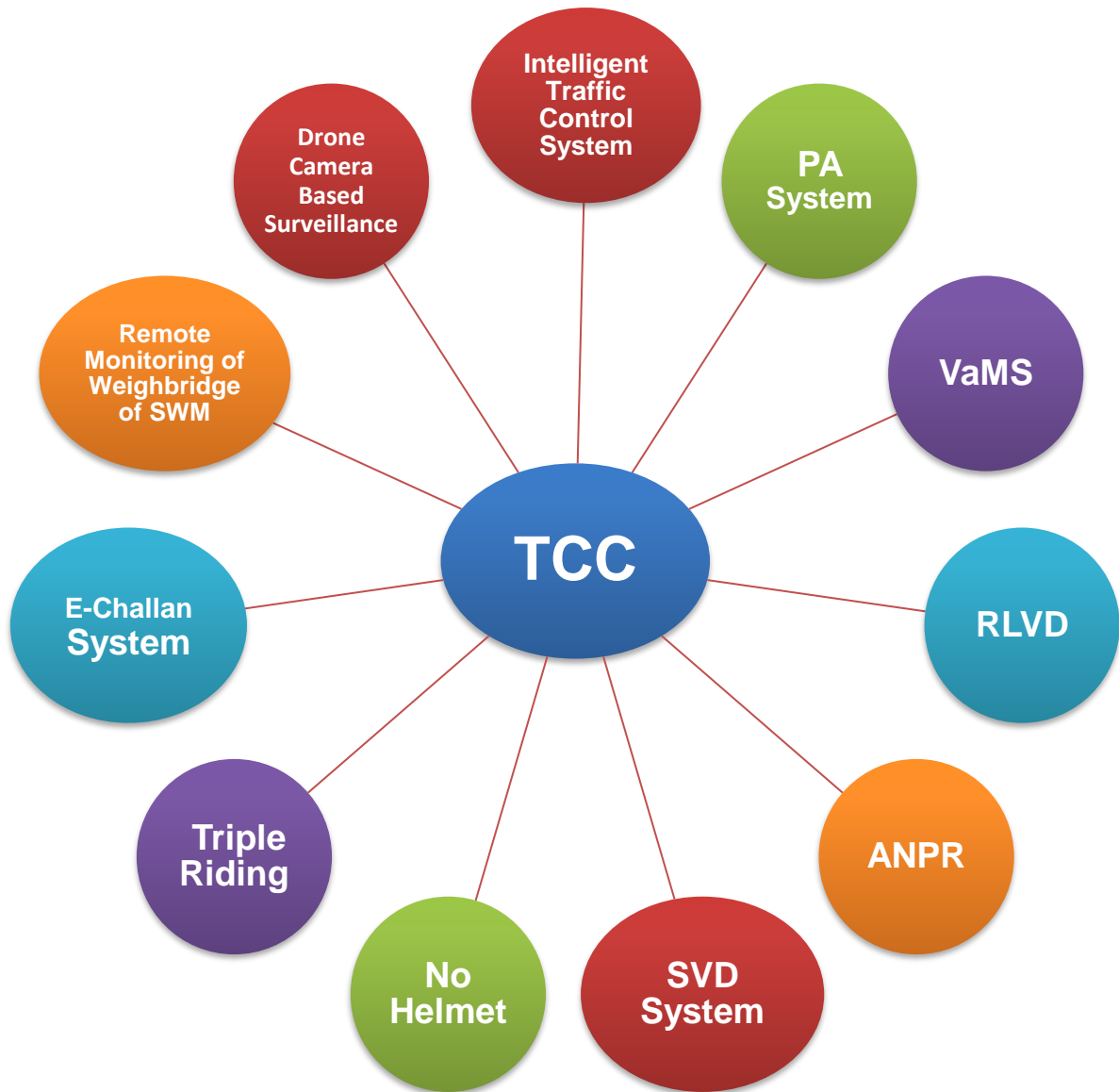
The broad objectives of the project are as follows:

- a) **Enhanced Traffic Movement Efficiency:** Reduction in traffic delays, optimized cycle times at intersection to regulate and maintain free flow of traffic to enhance the efficiency of the transport infrastructure.
- b) **Reduce Commuting Time:** Reduce waiting time between various locations, so that citizens can experience an enhanced quality of road-based transportation, through improving sustainability and efficiency in operation of the road network
- c) **Increase Operational Efficiency of Traffic Department:** The system is intended to offer operational efficiency to city traffic police by way of extending IT based compliance process on ground and enable to deliver better traffic conditions and safe operating conditions. The Information technology solutions are expected to help in making the traffic enforcement functions more efficient. The ITMS solutions shall help in automated capture of traffic infractions and challan generation, with minimum manual intervention, provide live dashboards for officers concerned, identification/tracking of specified vehicles (such as stolen vehicles and vehicles involved in crimes), etc.
- d) **Real Time Information to Citizen:** The traffic services to the public can be improved through the user-friendly presentation of the various traffic information in real time through sharing of all relevant data feeds for public use.
- e) **Enhance Safety at Junctions:** The real time traffic monitoring and intelligent traffic management systems can help in reducing accidents.
- f) **Real Time Information, Event Tracking & Response, and Fast Access to Stored Information:** The real time information at the Traffic Control Center (TCC) shall enable the operators to take necessary actions based on the type of information. Sending an emergency vehicle to the spot, arranging alternate route to VIP convoys, diverting the traffic to different routes are some of the actions that can be taken based on the Real Time Information. It shall be possible to track a particular event using the cameras installed at the traffic junction. A vehicle, violating the traffic could be tracked and penalised at the next traffic junction based on the number plate.
- g) **Better Enforcement:** Effective enforcement of traffic violation, checking and monitoring shall reduce the traffic related offences of Red Light violations, Triple Riding, No Helmet, Over-speeding etc.
- h) **Centralised Platform for Sharing Traffic Information and Data:** The real-time and historic traffic data shall be available for analytics and decision making.

1.4. Overall Project Scope

The minimum specified scope of work to be undertaken by the ITMS System Integrator for setting up and operating ITMS Project is mentioned in this RFP. The selected ITMS System Integrator shall install Traffic Management and traffic enforcement systems, and information dissemination systems at identified junctions and link them with the TCC including a centralized traffic management platform enabled with real time analytics capability as per SLA requirements.

The following technology solutions are proposed to be procured through this tender as per the requirements set out in this RFP:



The following key tasks are covered under the scope of this project:

1. To setup state of the art Traffic Control Centre (TCC) for the ITMS project, at the building (approx. 1750 square feet built-up space) provided by JSCL. The Traffic Control Center is planned to be set up in the Jabalpur city.
2. To provide pre-recorded and real time announcements in case of emergencies, disasters etc. through Public Address (PA) System at selected traffic junctions
3. To enforce traffic rules through design, supply, and installation of Red Light Violation Detection (RLVD), Speed Violation Detection, No Helmet, Triple riding system. Each of these systems shall be integrated with the Traffic Control Centre (TCC)

4. To supply and integrate e-challan system with traffic enforcement cameras, sensors, e-Challan System for violations.
5. To provide integration of VaMS with traffic management system to provide real time information and services (such as traffic related, pollution levels, parking available, journey planners and accident reporting etc. as well as important videos and advertisements).
6. Create a Centralized Management Information System (MIS) as a part of the IT solution for faster decision making in traffic emergency such as heavy rain fall, accidents, terrorist attack, VVIP movements etc.
7. To operate, manage and train the administrative staff and offer back-end support on the operations of the Traffic Control Centre (TCC)
8. To provide suitable solution for live monitoring of ITMS at TCC
9. To provide API / SDK/ web services for integration with City level Integrated Control and Command Center (ICCC). With help of these APIs / SDKs / Web Services City ICCC will integrated with TCC to get relevant feeds for managing the overall city level operations.
10. Traffic Control Centre (TCC)/ Data Center will provide the refined feeds to the Integrated Control and Command Center (ICCC).
11. To design and implement solution for Remote Monitoring of Weighbridge of SWM vehicles entry/exit at Kathonda Plant, Jabalpur
12. To design and implement solution for Drone Camera Based surveillance
13. Operate and maintain the entire system for a period of 3 years.

2. Scope of Work

2.1. Overview

The ITMS System Integrator has to ensure the successful implementation of the proposed Intelligent Traffic Management Solutions and provide O&M for the entire Contract Period and capacity building support to city authorities as per the scope of services envisaged below. Any functionality not expressly stated in this bidding document but required to meet the needs of the organization to ensure successful operations of the system shall essentially be under the scope of the ITMS System Integrator and for that no extra charges shall be admissible.

2.1.1. Proposed Intelligent Traffic Management System Solutions

The proposed scope for Intelligent Traffic Management System for Jabalpur are as below:

Table 2-1: Proposed ITMS Solutions for Jabalpur

Project Components	Solutions
A. Traffic Management	<ol style="list-style-type: none"> 1. Intelligent Traffic Control System at Junctions 2. Public Address (PA) system 3. Variable Message Sign (VaMS) System
B. Traffic Enforcement	<ol style="list-style-type: none"> 1. Red Light Violation Detection (RLVD) System 2. Automatic Number Plate Recognition (ANPR) System 3. Speed Violation Detection (SVD) System 4. No Helmet Detection System 5. Triple Riding Detection System 6. E-Challan System
C. Other Project Components	<ol style="list-style-type: none"> 1. Remote Monitoring of Weighbridge of SWM vehicles entry/exit at the Kathonda Plant, Jabalpur 2. Drone Camera Based surveillance

The geographical coverage of the above solutions is provided in section 2.3.

2.1.2. ITMS Architecture

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

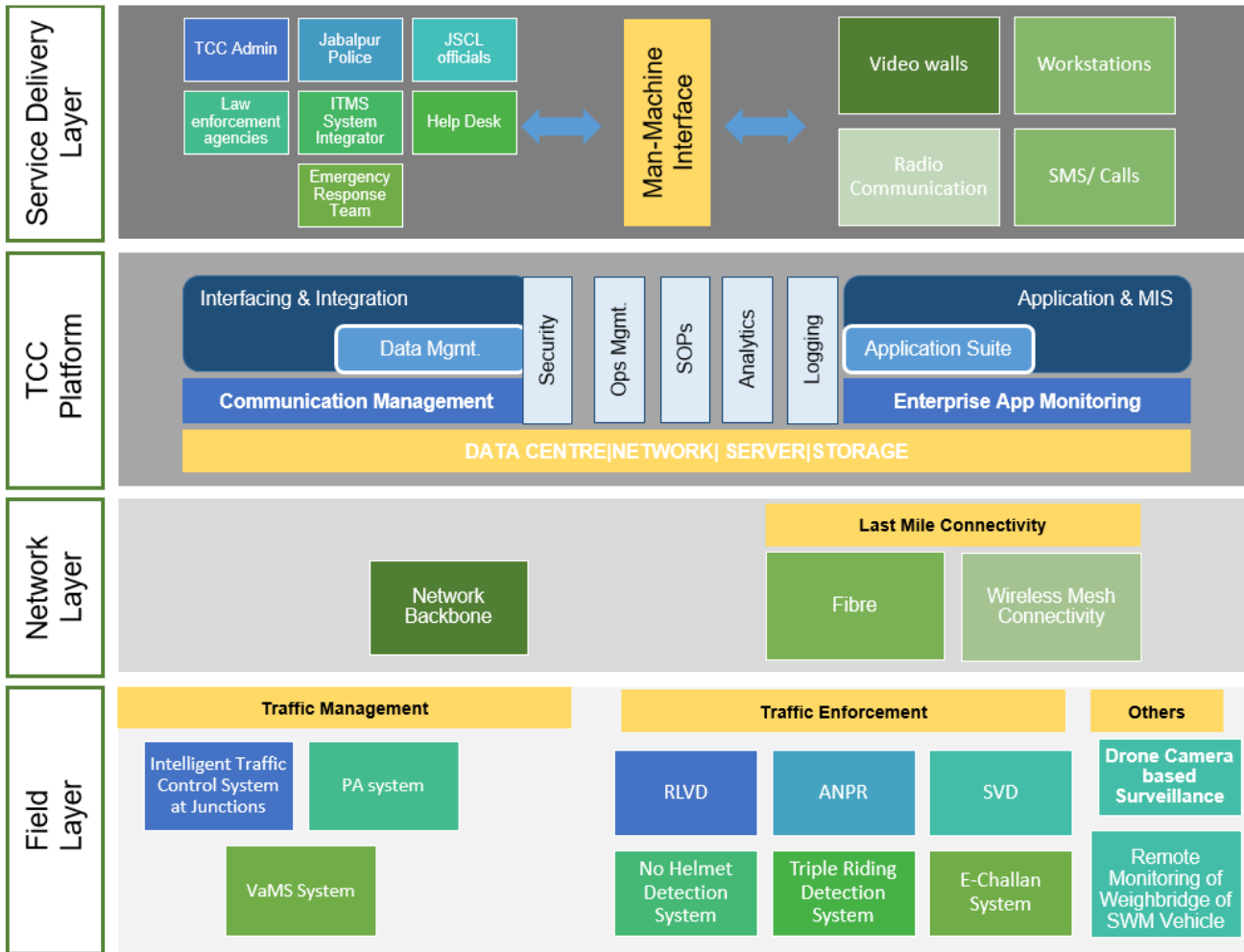


Figure 2-1: ITMS Architecture

2.2. Design Principles

The proposed ITMS solutions are planned to improve traffic operations and safety of commuters in Jabalpur. Accordingly, the ITMS solutions shall be designed considering the following guiding principles:

- 1) **Scalable:** The system shall be scalable to future growth in volume of traffic and to integrate with other smart city initiatives and support sustainable development to meet the growing traffic demand of the Jabalpur. The IT infrastructure proposed in the system shall support these scalability requirements. There shall not be any system-imposed restrictions on the upward scalability in number of field devices. The system shall 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. The ITMS shall be scalable to 100 Traffic Junctions without requiring any change in hardware or software application.

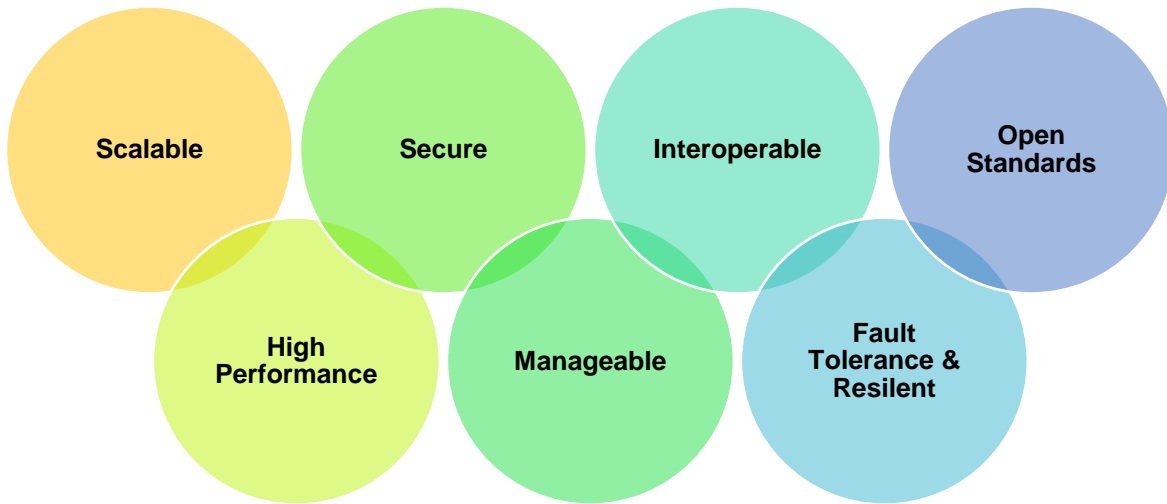


Figure 2-2: ITMS Design Principles

- 2) **High Performance:** The System shall be up and running without any failure as per the demand of various critical application of installed components running on the network. The architecture must provide redundancy and ensure that there is no single point of failures in the key project components. Considering the high criticality and importance of the system, the design shall be in such a manner so that system is resilient to technological sabotage. To take care of remote failure, the system shall be configured to mask and recover with minimum outage.
- 3) **Secure:** The network in the proposed System shall have built-in security features as per good industry practices and cyber security policies and laws in line with the requirement for ITMS. Access control shall be implemented at various levels as per requirement of the system. The ITMS System Integrator shall be required to make provisions for security of field equipment as well as protection of the software system from cyber-attacks and other threats. All the attacks well defended with gateway level firewall and other protection software such as antivirus, Spyware, Malware etc. Furthermore, all the system logs shall be properly stored & archived for future analysis and forensics whenever desired. 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) Different Level of Access Rights 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 in a way to secure the field devices in terms of physical damage & unauthorized access.
- 4) **Manageable:** The System shall be seamlessly managed with centralized enterprise management software. All the network components shall be manageable using open standard management protocols such as SNMP. Ease of configuration, ongoing health monitoring, and failure detection are vital for achieving goals of scalability, availability, and security of the system.
- 5) **Interoperable -** The system shall have capability to take inputs from other third-party systems as per system requirements. All the components must be supported by their respective APIs and SDKs following IT Industry Practices and Standards.

- 6) **Fault Tolerance and Resilient:** The System should have inbuilt redundancy features to provide high availability. Redundant connectivity shall be proposed for all locations to ensure that single link failure does not affect the functionality of critical components.
- 7) **Open Standards –** The System should use open standards and protocols to the extent possible without compromising on the security.

2.3. Geographical Coverage of the Project

Summary of the geographical extent of the project is as provided in table below:

Table 2-2: Summary of ITMS Solutions - Jabalpur

SI #	Solutions	Locations/Numbers
1.	Traffic Management	
1.	Intelligent Traffic Control System	20 Junctions
2.	Public Address (PA) system	20 Junctions
3.	Variable Message Sign (VaMS) System	10 Locations
2.	Traffic Enforcement	
4.	Red Light Violation Detection (RLVD) System	20 Junctions
5.	Automatic Number Plate Recognition (ANPR) System	3 Locations
6.	Speed Violation Detection (SVD) System	5 Locations
7.	No Helmet Detection System	20 Junctions
8.	Triple Riding Detection System	20 Junctions
9.	E-Challan System	E-Challan Software
3.	Other Solutions	
10.	Remote Monitoring of Weighbridge of SWM vehicles entry/exit at the Kathonda Plant, Jabalpur	1 Location
11.	Drone Camera Based surveillance	5 Drone*

*Quantity of Drone camera is indicative only and may vary as per the requirement of the JSCL.

The Indicative list of locations to be covered under this project are provided in **Annexure I –List of Indicative Locations.**

2.4. Detailed Scope of Work

The detailed scope of work for ITMS System Integrator (ITMS System Integrator) shall be as under:

2.4.1. Detailed Project Plan and System Design Document

The ITMS System Integrator shall prepare and submit a Detailed Project Plan to JSCL which should cover following aspects, at the minimum:

- a) Names of the Project Team members, their roles and responsibilities
- b) 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).
- c) Responsibility matrix for all stakeholders
- d) Risks the ITMS System Integrator anticipates and the plans they have towards their mitigation
- e) Activity and work plan specifying dependencies between various project activities / sub-activities and their timelines
- f) Project Plan with all the micro activities with timeline
- g) TCC Interior planning and design document
- h) The detailed solution document for end to end e-Challan process.
- i) The detailed solution document for remote monitoring of weighbridge of SWM vehicles entry/exit at the Kathonda Plant, Jabalpur
- j) The detailed solution document for Drone Camera Based surveillance

The ITMS System Integrator should provide as part of System Design Document, the details as specifying the following:

- 1) The ITMS system integrator shall prepare and submit document which shall include a comprehensive survey and study of traffic junction location as per the list defined in RFP.
- 2) High Level Design (including but not limited to) Junction Lay Out Drawing, System Architecture, Junction Network topology and physical infrastructure design for devices on the field.
- 3) Placement of Poles / Gantry / System/ Equipment as per the Junction layout geometry for all the all the proposed systems
- 4) Software Requirement Specifications for the ITMS component applications.
- 5) Low Level Design (including but not limited to) Application flows and logic including flow chart, GUI design (screen shorts and flows etc.), Database architecture, including defining data structure, data dictionary as per standards.
- 6) Location of all field systems and components proposed at the junctions, (KML / KMZ file plotted on GIS platform like Google Earth etc.)
- 7) Detailed BOQ of all the equipment required to be installed in the field as well as in the Traffic Control Center for the ITMS. The ITMS System Integrator shall optimize the quantity of the equipment (such as cameras, gantries/poles, junction boxes, UPSs etc.) required for different sub-systems of ITMS without compromising on the desired functionalities.

- 8) All the data sheets of field equipment / devices such as Junction Boxes, Traffic Signals, PA system, RLVD, SVD, ANPR and other sub-systems of ITMS shall be provided.
- 9) Details of Pole / gantry design drawing with foundation design and other mounting structure shall be provided.
- 10) Details of ground clearance height and foundation of poles, cantilevers, gantry and other mounting structures for other field devices shall be provided.
- 11) Location of Network Provider's Point of Presence (PoP) shall be provided.
- 12) Design of Cables, Ducts routing, digging and trenching shall be provided.
- 13) Electrical power provisioning and back provision details shall be provided.

2.4.2. Site Clearance obligations & other general provisions

2.4.2.1. Survey and Commencement of Works

Prior to starting the site clearance, the ITMS System Integrator shall carry out survey of field locations as specified in Annexure I –List of Indicative Locations, for buildings, structures, fences, drains, trees, existing installations, etc. The JSCL 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 JSCL.

2.4.2.2. Existing Traffic Signal system

The infrastructure of existing traffic signal shall be used wherever these signals are installed and in operational condition. The new signals shall be installed wherever it is not available at the junction.

2.4.2.3. 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 JSCL guidelines. Road signs, street name plate, etc. damaged by the ITMS System Integrator during their operation shall be repaired or replaced by ITMS System Integrator at no additional cost.

2.4.2.4. Electrical works and power supply

The ITMS System Integrator shall directly interact with electricity boards for provision of mains power supply at all project locations. The charges for obtaining electricity connections shall be paid by ITMS System Integrator. The ITMS System Integrator shall be responsible to pay the electricity charges to the electricity board directly upfront. JSCL will reimburse the actual electricity bill only on submission of original bill and payment receipt of paid bill in the next billing cycle for ITMS System Integrator's payments.

2.4.2.1. Lightning protection measures

The ITMS System Integrator shall comply with lightning-protection for all the structures (Poles / Gantry) as per IS 2309 standard.

2.4.2.2. Earthing System

- 1) The ITMS System Integrator shall comply with earthing-protection for all electric equipment at the junction including Poles / Gantry as per IS 3043 standards.
- 2) At TCC, earthing should be done for the entire power system including UPS systems, Power distribution units, Server racks, AC units, etc. so as to avoid a ground differential. JSCL shall provide the necessary space required to prepare the earthing pits.

2.4.2.3. Junction Box, Gantries, Poles and Cantilever

- 1) The ITMS System Integrator shall provide the junction boxes, gantries / poles and cantilever to mount the field devices like the cameras, traffic sensors, 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 ITMS System Integrator should design the Junction box for 1.5 times the actual size the ITMS System Integrator requires for utilization under the ITMS project.
- 3) The junction box should be designed in a way that it shall have lock & key facility to secure the equipment housed in it.
- 4) The junction boxes, gantries, poles and cantilevers shall be aesthetically designed.

2.4.2.4. Cabling Infrastructure

- 1) The ITMS System Integrator shall provide standardized cabling for all devices and subsystems in the field and Traffic Control Center.
- 2) 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.
- 3) Cabling must be carried out per relevant BIS standards. All cabling shall be documented in a cable layout plan by the ITMS System Integrator.

2.4.2.5. Road Marking (Zebra / Stop line)

- 1) The ITMS System Integrator shall be required to undertake the Junction markings including edge lines, centre line, pedestrian markings for Zebra crossing and stop line, lane markings, directional arrow markings etc. at all junctions as per Ministry of Road Transport and Highways (MoRTH) and Indian Roads Congress (IRC) guidelines.
- 2) The ITMS System Integrator shall submit as part of the system design report, the detailed plan of undertaking this task including prior approvals for timings of road closure/ junction closure if required from the JMC.
- 3) The task of junction marking shall be carried out with minimum disruption of traffic, with appropriate signage informing the road users of any diversions/ road closures being undertaken.

2.4.3. Design, Supply, Installation, Testing & Operation of Field Equipment

2.4.3.1. Intelligent Traffic Control System (ITCS)

The ITMS System Integrator shall design, supply, customize, implement, integrate and maintain the Intelligent Traffic Control System at identified traffic junctions as provided in Section 8.1 of this RFP document. The broad scope of work to be covered under ITCS Implementation shall include the following, but is not limited to:

- i. Supply, installation and integration of Intelligent Traffic Controllers, Non-Intrusive Vehicle Detector, traffic light aspects, structures (poles, cantilevers and gantries etc.), ITCS software and other required equipment/accessories for successful operation of the ITCS for Jabalpur.
- ii. Supply, installation and integration of the ITCS Software at TCC, so that functioning and operation of the ITCS at the junctions can be controlled and managed from the TCC remotely.
- iii. Implementation of SOPs for ITMS and generation of key KPIs and MIS of the traffic through the ITCS Application software. The ITCS application software shall be able to do the traffic signal operation, control and management of all the junctions remotely at TCC for any isolated junction location as well as coordinated multiple junctions in particular area in sync with the signal plan for different operating conditions. The operating conditions may include different peak and off-peak traffic conditions, special events, holidays, VIP movement, contingencies etc.

Details on technical and functional specifications of ITCS, have been provided in Section 5 of this RFP document.

2.4.3.2. PA System

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

- 1) The ITMS System Integrator shall supply and install PA system at the locations as provided in Section 8.1 of this RFP document. PA systems shall be controlled from the TCC. The purpose of the PA system shall be to provide pre-recorded and real time announcements in case of emergencies, disasters etc. at identified traffic junctions.
- 2) Details on technical and functional specifications of PA system, have been provided in Section 0 of this RFP document.

2.4.3.3. Red Light Violation Detection (RLVD) System

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

- 1) The ITMS System Integrator shall install the RLVD Systems at the identified traffic junctions as provided in Section 8.1 in this RFP document. This system shall capture the following infractions, at the minimum, at these junctions:
 - a. Red light violation
 - b. Stop line violation
 - c. Speed limit violation

- d. Triple riding on two-wheelers
 - e. Driving two-wheelers without helmet
- 2) The ITMS System Integrator shall design, supply, and install the RLVD system as defined in the RFP, all wiring connections to the traffic signal controllers and to the camera platforms shall be installed by the ITMS System Integrator. The ITMS 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, poles / gantry, warning signs and shall make the final connections to the camera.
 - 3) The ITMS System Integrator shall be responsible for providing all the necessary IT infrastructure for analysis, storage & retrieval of the infraction information at TCC or any other location as specified in the RFP.
 - 4) The solution proposed by the ITMS System Integrator shall have the capability to seamlessly integrate with the E-Challan system as proposed as a part of this project.
 - 5) Details on technical and functional specifications of Red Light Violation Detection (RLVD) system have been provided in Section 5.4 of this RFP document.

2.4.3.4. Automatic Number Plate Recognition (ANPR) System

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

- 1) The ITMS System Integrator shall install the ANPR Cameras at specified location as provided in Section 8.2 of this RFP document. This system shall automatically capture the license number plate of the vehicle at these locations.
- 2) The ITMS System Integrator shall design, supply, and install the ANPR camera system as defined in the RFP, all camera accessories such as IR Illuminators, camera housing and mounting shall be installed by the SI. The ITMS 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, poles / gantry, warning signs and shall make the final connections to the camera.
- 3) The ITMS System Integrator shall be responsible for providing all the necessary IT infrastructure for analysis, storage & retrieval of the data capture through ANPR system at TCC.
- 4) The Automatic Number Plate Recognition (ANPR) System will give count of vehicles as well as classification of vehicles passing through the location.
- 5) Details on technical and functional specifications of ANPR Cameras have been provided in Section 5.5 of this RFP document.

2.4.3.5. Speed Violation Detection System

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

- 1) The ITMS System Integrator shall install the Speed Violation Detection Systems at specified locations as provided in Section 8.3 of this RFP document. This system shall capture the infractions of speed violations at these locations.
- 2) The ITMS System Integrator shall design, supply, and install the speed violation detection system as defined in the RFP, all wiring connections for the system shall be installed by the ITMS System Integrator. The ITMS System Integrator shall supply all of the necessary equipment for the camera and detection system, including but not limited to, ancillary camera equipment, camera housings, poles/gantry, warning signs and shall make the final connections to the camera.
- 3) The solution proposed by the ITMS System Integrator shall have the capability to seamlessly integrate with the E-Challan system as proposed as a part of this project.
- 4) The ITMS System Integrator shall be responsible for providing all the necessary IT infrastructure for analysis, storage & retrieval of the infraction information at TCC or any other location as specified in the RFP.
- 5) Details on technical and functional specifications of Speed Violation Detection System are provided in Section 5.6 of the RFP document.

2.4.3.6. E-Challan System

The ITMS System Integrator shall be responsible to undertake following activities, but not limited to:

- a) Design, development and implementation of e-Challan Software Solution for end-to-end e-challan management
 - b) Integration with external systems including MP transport/RTO database, national Vahan/Sarathi database, MP online portal, 311 mobile app, MP treasury portal, traffic police website, etc.
- 1) The E-Challan system shall be configured to automatically generate traffic challans based on infractions received from the installed field equipment including RLVD, ANPR and SVD systems.
 - 2) The ITMS System Integrator shall ensure that the proposed system has the capability for complete automation of the challan processing/ printing process with minimal manual intervention. This shall involve automatic capturing of relevant information from the evidence generated by the traffic enforcement system and integrating it with the vehicle database (MP Transport, national Vahan database or any other database).
 - 3) The ITMS System Integrator shall ensure the physical delivery of the challan to the respective violator through Speed Post/ Courier/ by other mean to ensure physical delivery.
 - 4) Undelivered / wrong address / incomplete address challan shall be reported to the authorities for taking required corrective action.
 - 5) The ITMS System Integrator shall formulate suitable procedure for payment collection for challan and deposit it to the respective authorities.

- 6) The detailed functional and technical specification details of the E-Challan system are provided in Section 0 of this RFP document.

2.4.3.7. Variable Message Sign (VaMS) System

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

1. The ITMS System Integrator shall supply, install and commission the VaMS Systems at the identified traffic junctions/locations, as decided by JSCL.
2. The VaMS System shall be used to inform, warn, and guide the motorists by displaying information such as traffic congestions, accidents, road closure, road maintenance activities, events (rallies, demonstrations) affecting road conditions and other relevant information.
3. VaMS System shall also be used for public information system by running the social messages and commercials advertisements, special events etc.
4. The VaMS shall be seamlessly integrated with TCC for displaying messages and controlling VaMS from TCC.

Note: JSCL shall decide the final 10 Location/Junctions for installation of Variable Message Sign (VaMS) System and may add any other Location/Junctions also, as per its requirements.

2.4.3.8. Remote Monitoring of Weighbridge of SWM vehicles

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

1. The system shall be used for capturing the details of SWM vehicles entry/exit at the Kathonda Plant/ dumping site. The system shall comprise one ANPR camera and one CCTV camera at entry /exit of the dumping location.
2. The details of vehicles entry/exit at the dumping location shall include vehicle registration number, time and status of load in the vehicle (whether the vehicle is full, half-full or empty). It is desired that the load status of the vehicle should be available as percent of vehicle capacity (such as 10%, 20% and so on, up to 100%).
3. The system shall also be integrated with the weighbridge installed at the dumping location to capture the weight of the vehicle while going in and out of the dumping location (desirable).
4. The system shall be able to generate various reports such as number of vehicles with their load status entered/left the dumping location, total load carried in a day/week/month etc.

2.4.3.9. Drone Camera based Surveillance

The drone cameras shall be used for surveillance of different parts of the city for various purposes such as people movement, crowd monitoring, number of vehicles and people in rallies / processions, other activity monitoring etc.

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

1. Supply, integration and commissioning of Drone Cameras.
2. Supply, installation and integration of the Application Software at TCC to process the photographs/videos captured by drone cameras and to operate and manage the drone cameras. The application software shall be able to provide customized outputs like people monitoring, activity detection, people count, object monitoring, color-based tracking, vehicle movement etc. based on aerial photographs/videos.
3. Operate and maintain the Drone Cameras during the Contract Period. Also, train select TCC operators as well as JSCL nominated persons for operation of the drone cameras.
4. All time to time applicable regulations and guidelines of DGCA (Director General of Civil Aviation)/ Government Authorities requirements for operation of Civil Remotely Piloted Aircraft System (RPAS) as well as Drone Camera based Surveillance system need to be adhere / followed by the selected ITMS System Integrator.
5. Details on technical and functional specifications of Drone Cameras, have been provided in Section 5 of this RFP document.

2.4.4. Provision for Network Connectivity for Field Equipment and TCC

- 1) The ITMS System Integrator shall provide a detailed network architecture of the overall ITMS solution, incorporating findings of detailed site survey. The network so envisaged should be able to provide real time data streams to the TCC. All the components of the technical network architecture should be of industry best standard and assist in ensuring that all the connectivity SLAs are adhered to during the O&M phase.
- 2) A combination of network technology including leased lines, OFC Network, Wireless broadband and Mobile Network technologies etc. may be used to provide seamless connectivity to all field devices as well as locations with TCC.
- 3) Connectivity to Data Center and TCC shall be provided with scalable capacities to allow for expansion in the future.
- 4) ITMS System Integrator shall be allowed to procure bandwidth related services from multiple Telecom Service Providers.
- 5) The ITMS System Integrator is required to provide connectivity for all the components of ITMS including the following:
 - a) Connectivity for locations with ITCS, PA system and RLVD system
 - b) Connectivity for locations with ANPR system
 - c) Connectivity for locations with SVD system
 - d) Connectivity for locations of VaMS System
 - e) Internet Leased line connectivity for Data Center & TCC

The ITMS System Integrator shall provide connectivity with adequate bandwidth for various components/locations. The minimum bandwidth for each component/location shall be as below:

Sl. #	ITMS Solution/Module	Approximation for consideration
1.	Junctions with the following systems:	Minimum 16 Mbps per junction

	<ul style="list-style-type: none"> • ITCS • PA system • RLVD System • Triple Riding • No Helmet 	
2.	Locations with VaMS	Minimum 6 Mbps per location
3.	Locations with ANPR System	Minimum 6 Mbps per location
4.	Locations with Speed Violation Detection System	Minimum 6 Mbps per location
5.	Remote Monitoring of Weighbridge of SWM vehicles entry/exit at the Kathonda Plant, Jabalpur	Minimum 6 Mbps
6.	Connectivity at DC and TCC	Minimum 256 Mbps

Note:

The actual bandwidth requirement to meet the desired functionality, performance, quality and security of ITMS solutions and to meet SLAs shall be calculated by the ITMS System Integrator and provided at respective locations. JSCL reserves the right to ask the ITMS System 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.

2.4.5. Traffic Control Center and Data Center

Proposed location of Traffic Control Center and Data Center:

SP Office (Crime)

Gorakhpur Thana

Jabalpur-482001

Or in the building of ICCO, Jabalpur **Or** any Building as finalized by the JSCL.

2.4.5.1. Traffic Control Center (TCC)

a) The ITMS System Integrator shall set up a state of the art Traffic Control Centre (TCC) for the ITMS project, at the building provided by JSCL. The Traffic Control Center is planned to be set up in the Jabalpur city. JSCL shall make available approximate 1850 square feet built-up space for setting up of TCC and DC. The key components of the TCC shall be as follows:

- i. Video wall
- ii. Operators workstations
- iii. Connectivity
- iv. Network printers
- v. Online UPS etc.
- vi. Servers and Storage
- vii. Other ICT infrastructure
- viii. Meeting Room / Conference Room Infrastructure
- ix. OS and all supported software
- x. Desktop Workstations, Multifunction printer, Color Printer etc.

b) The scope of work of the ITMS System Integrator shall include civil & interior works such as masonry work, raised flooring (for server room), false ceiling (for TCC), partitioning work, office workstations, furniture and fixtures, painting, lighting, air-conditioning secure access, fire alarm system. The ITMS System Integrator shall provide The TCC shall tentatively comprise the following rooms/partitions:

- i. Traffic Operations Room (approx. 1200 sq. ft)
- ii. War/Meeting Room (approx.300 sq. ft)
- iii. Data Center and UPS Room (approx.350 sq. ft)

The above list of rooms and respective area are indicative, and actual measurements and dimensions shall be design by ITMS System Integrator during implementation phase in consultation with JSCL/Jabalpur Traffic Police. The interior design of the TCC shall be in the scope of ITMS System Integrator. ITMS System Integrator shall submit minimum 3 design for appropriate interior of TCC to

JSCL shall design/build the TCC as per the final design approved by JSCL.

Detailed requirement and the Bill of Materials for TCC is provided in Section 7 of this RFP Part 2. Tentative layout of the TCC is provided in Annexure III of this RFP document.

2.4.5.2. Data Center (DC)

The ITMS System Integrator shall supply and install hosting infrastructure for ITMS (including but not limited to servers, storage, operating systems, database, security, networking, connectivity, rack, etc.) at Traffic Control Center (TCC). JSCL shall provide adequate space for servers and other IT infrastructure. The ITMS System Integrator shall also maintain and manage the Data Center during the Contract Period.

Detailed requirement and the Bill of Materials for TCC and DC are provided in Section 7 of this RFP Part 2.

2.4.5.3. Interior Design of TCC

The entire Traffic Control Center (TCC) Interior environment has to be designed as per industry standard Norms to Design the Control Center. It should be state-of-art and the design should conform to smart city control room standards, covering various aspects of TCC (Wall panelling/partition & ceiling).

All the material used to design interior including furniture should be fire resistant. All the materials to be used for wall cladding, flooring, panelling, partitions and ceilings. Safety of User & control room equipment safety is a high concern area therefore ceiling, panelling, partition and desk must be seismically tested and qualified.

Detailed requirement of Interior Design specifications of TCC are provided in Section 5.11 of this RFP Part 2.

2.4.6. Implementation of the Information security policy

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

2.4.7. Capacity Building and Training

The ITMS System Integrator is required 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 ITMS System Integrator has to provide necessary training material and reference manuals (user/maintenance/ administration) along with training schedules for all phases. The training shall be held at various office/department locations as finalized by JSCL.

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

1) Functional Training

This training would focus on the use of the software of the various ITMS components at Traffic Control Center, so that the users are aware of all the operations of the ITCS and other Traffic Enforcement solutions. The training shall be provided to the staff nominated by JSCL/Jabalpur Traffic Police.

2) Administrative Training

This training would focus on the administration of ITCS and other Traffic Enforcement solutions and would be imparted to the staff nominated by JSCL/JMC/ Jabalpur Traffic Police.

2.4.8. Integration with ICCC and other external systems

The ITMS System Integrator shall provide open APIs / SDKs / web services and extend all necessary technical support for integration with city level Integrated Control and Command Center (ICCC) and other external systems.

2.4.9. Acceptance Testing

JSCL shall review and finalize the detailed acceptance test plan proposed by the ITMS System Integrator. JSCL would also conduct audit of the process, plan and results of the Acceptance Test carried out by the ITMS System Integrator for both IT & non-IT components.

All acceptance testing, project review and monitoring shall be enabled through an agency nominated by JSCL.

Commissioning shall involve the completion of the site preparation, supply and installation of the required components and making the Project available to the JSCL and Jabalpur Traffic Police for carrying out live Operations and getting the acceptance of the same from the JSCL.

Testing and Commissioning shall be carried out before the commencement of Operations.

2.4.10. Final Acceptance Testing

The final acceptance shall cover 100% of the ITMS Project scope.

After successful testing by the JSCL / Jabalpur Traffic Police or nominated agency, a Final Acceptance Test Certificate (FAT) shall be issued by JSCL to the ITMS System Integrator.

Prerequisite for Carrying out Final Acceptance Test Certificate (FAT) activity:

- 1) Detailed test plan (component wise) shall be developed by the ITMS System Integrator with Pass / Fail criteria and approved by JSCL. This shall be submitted by ITMS System Integrator before FAT activity to be carried out.
- 2) The process flow document for all component related to ITMS Project and relevant acceptance test document (including IT Components, Non-IT Components etc.) should be completed & submitted before the 15 days of starting of final acceptance test to the JSCL/Jabalpur Traffic Police.
- 3) The training requirements of JSCL/Jabalpur Traffic Police / JMC should be completed before the final acceptance test.

- 4) All the components and its application software and MIS Software should be hosted at TCC and fully functional before the FAT.
- 5) All IT & Non-IT equipment's / software manuals / brochures / Data Sheets / CD / DVD / media for all project components shall be duly submitted in original to JSCL.
- 6) The ITMS System Integrator shall arrange the necessary test equipment / support software for performance of FAT and provide documented test results.

The Final Acceptance Test Certificate (FAT) shall include the following:

- 1) All hardware and software items installed at respective sites as per the required specification and project plan shall be verified.
- 2) Availability of all the defined services shall be verified.
- 3) The ITMS System Integrator shall be required to demonstrate all the features / facilities / functionalities as mentioned in the RFP, technical and functional requirements.
- 4) The ITMS System Integrator shall arrange the test equipment required for performance verification and shall also provide documented test results.
- 5) The ITMS System Integrator shall document all the test results as per the test plan and submit it in Hard and Soft copies to JSCL.

Note:

Any delay by the ITMS System Integrator in the Final Acceptance Testing shall render him liable to the imposition of appropriate Penalties. However, delays identified beyond the control of ITMS System Integrator shall be considered appropriately and as per mutual agreement between JSCL and ITMS System Integrator.

2.4.11. System Documents and User Manuals

The ITMS System Integrator shall provide following documentation:

- 1) Project Commencement: Detailed Project Plan should provide micro level activities with milestones, deadlines and deliverables.
- 2) Delivery of Material: Original Manuals from OEMs (Soft and Hard copies).
- 3) Training: Training Material shall be provided which shall include the presentations used for trainings and also the required relevant documents for the topics being covered.
- 4) Process Flow Documentation: The ITMS System Integrator shall be responsible for preparing process flow documentation related to the operation and maintenance of each and every component of the ITMS Project. The prepared process flow document shall be formally signed off by JSCL before completion of final acceptance test.
 - a) The ITMS System Integrator shall document all the installation and test procedure and provide the same to the JSCL before handover to JSCL.
 - b) The ITMS System Integrator shall submit a complete set of Line diagram, complete cabling system layout (as installed), including cable routing, and

connector terminations. 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 ITMS System Integrator.
- d) The ITMS 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.

2.4.12. Operations and Maintenance during Contract Period

The ITMS System Integrator is required to depute a dedicated team of professionals to manage the Project and ensure adherence to the required SLAs. ITMS System Integrator shall provide operations and maintenance services for the software, hardware and other IT and Non-IT infrastructure installed as part of ITMS project during the Contract Period, including one (1) year of warranty period after “Go-Live”.

The activities to be carried out by the ITMS System Integrator during the Contract Period shall include, but not limited, to the following:

- 1) Monitor the operation of ITMS components installed at the locations.
- 2) Periodic cleaning of all system equipment, Camera Lenses installed the Junction / Locations.
- 3) Periodic / as and when required upgradations of system configuration and software updates.
- 4) Monitor health of equipment and initiate immediate corrective action in any of any fault.
- 5) Process e-challans for the violation captured by ITMS, including generation, verification, printing. Dispatch and tracking of e-challans.
- 6) Management and Tracking the record of payment received against e-challans and print & dispatch reminder for pending challans.
- 7) Assist the traffic Police to track specified vehicles (stolen vehicles or vehicles involved in crimes) based on ANPR data.
- 8) Undertake configuration management for all systems.
- 9) Undertake analytics of traffic data and generate various MIS and analytics reports.
- 10) Undertake system admin, database admin, back up, archival, network admin activities.
- 11) Comprehensive maintenance of all equipment/sub-system during Contract period.
- 12) Set up a Helpline / Call center for verification of addresses, pending challans, reminders, public help regarding challan etc. The Helpline /Call center shall be one-seater and shall work in 2 shifts 7 days a week.
- 13) Restore the system at the location if damaged by accidents and other factors as per the SLA.
- 14) The repainting of equipment, pole/ gantry and street furniture to protect them from rust and environment.

2.4.12.1. Project Management Team

The ITMS System Integrator shall be required to provide Project management team to support the JSCL and Jabalpur Traffic Police in performing their day-to-day functions related to this system.

ITMS System Integrator is required to depute a dedicated, centralized project management and technical staff for the overall Project management and interaction with JMC, JSCL and Jabalpur Traffic Police. An indicative resource requirement for this centralized administration of the Project is as follows.

Sl. #	Name of Position/Role	Total No. of Resources	Deployment Period (Implementation Phase)	Deployment Period (O&M Phase)
1.	Project Manager	1	100% (Full time On-site)	100% (Full time On-site)
2.	Technical expert-ITMS/ICT	1	<ul style="list-style-type: none"> 70% (On-site) 30% (Off-site) 	As per project requirement.
3.	Technical Expert – Network & Security	1	<ul style="list-style-type: none"> 70% (On-site) 30% (Off-site) 	As per project requirement.
4.	Technical Expert – Server, Storage, EMS & Application	1	<ul style="list-style-type: none"> 70% (On-site) 30% (Off-site) 	As per project requirement.
5.	Technicians and Field Staff	3	100% (Full time On-site)	100% (Full time On-site)
6.	TCC Operators including e-Challan Processing Staff (O&M Phase) in 2 Shifts	15x2	NA	100% (Full time On-site)

Note: The above-mentioned manpower effort estimation/requirement is indicative and if the Bidder / ITMS System Integrator believes that to meet the SLAs, additional manpower is required, the same may be provided as scope of the project.

The minimum qualification criteria are provided as below:

Sl. #	Name of Position/Role	Minimum Qualification & Experience
1.	Project Manager	<ul style="list-style-type: none"> BE / B. Tech 10+ Years of Experience 5+ Years of experience in large ICT project experience Minimum 1 large similar (similar to Intelligent Traffic Management Project) project experience
2.	Technical expert-ITMS/ICT	<ul style="list-style-type: none"> BE / B. Tech Minimum 5 years of experience, Min.3 years of experience in traffic domain Should have experience of at least one project in design implementation of Intelligent (preferably Intelligent) Traffic Management System

Sl. #	Name of Position/Role	Minimum Qualification & Experience
		<ul style="list-style-type: none"> Experience in setting up Command and Control Centre would be added advantage
3.	Technical Expert – Network & Security	<ul style="list-style-type: none"> BE / B.Tech. with CCNA/CCNP Minimum 5 years of experience, Min. 3 years of experience in IT Networks Should have experience of at least one project in design implementation of large IT Network for similar project Certification in Networking would be added advantage
4.	Technical Expert – Server, Storage, EMS & Application	<ul style="list-style-type: none"> BE / B.Tech. with CCNA/CCNP/MCSA Minimum 5 years of experience, Min. 3 years of experience in Server, Storage, EMS & Application Should have experience of at least one large project of Server, Storage, EMS & Application
5.	Technicians and Field Staff	<ul style="list-style-type: none"> ITI/ Diploma / Senior Secondary Examination with technical experience
6.	TCC Operators (O&M Phase)	<ul style="list-style-type: none"> ITI/ Diploma / Graduate with computer Training Minimum 2 years of relevant experience with proper trainings on ITMS

2.4.12.2. Provision of the Operational Manpower to support Operations at Traffic Control Center

The ITMS System Integrator is required to provide suitable manpower to monitor the data feeds at Traffic Control Centre and support JSCL/ Jabalpur Traffic Police in operationalization of the ITMS project.

The exact role of these personnel and their responsibilities would be defined and monitored by JSCL/Jabalpur Traffic Police. The ITMS System Integrator shall be required to provide such manpower meeting following requirements:

- 1) All such manpower shall be minimum graduate pass/ ITI/ Diploma holders.
- 2) All such manpower shall be without any criminal background / record.
- 3) JSCL 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) ITMS System Integrator shall have to replace any person, if not found suitable for the job.
- 5) All the manpower shall be adequately trained on the working of ITMS project and TCC.

The TCC operation support staff shall work from the TCC or any other locations as identified by JSCL/Jabalpur Traffic Police from where the back-office operations for ITMS can be undertaken.

An indicative list of activities to be performed by the TCC operation staff are provided in **Annexure II**.

2.4.12.3. Physical Infrastructure Management and Maintenance Services

All the devices that shall be installed in the ITMS 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 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 ITMS System Integrator during O&M period.
- 2) The ITMS 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 ITMS System Integrator to have 5 % of the spares in the inventory.
- 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 ITMS System Integrator fails to meet the above standards of maintenance, there shall be a penalty as specified in the SLA.
- 4) The ITMS 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 Jabalpur Traffic Police/JSCL on a regular basis.

2.4.12.4. Project Handover

The ITMS System Integrator shall provide knowledge transfer to JSCL/Jabalpur Traffic Police for upkeep of ITMS components post contract period. The ITMS System Integrator shall carry out project hand-over of the system at the end of contractual period along with all documentation required to operate and maintain the system ITMS System Integrator shall supply to the JSCL/ Jabalpur Traffic Police 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 ITMS 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 ITMS System Integrator (as the case may be).

2.4.12.5. Other

- 1) ITMS System Integrator to ensure that for operation and maintenance team take the safety precautions
- 2) ITMS System Integrator shall have to arrange vehicles and other requisite such as ladder etc. for carry out implementation and maintenance work (including transportation of items required for Project) during the Contract Period.
- 3) ITMS System Integrator shall pay all the recurring charges for Connectivity etc.
- 4) ITMS System Integrator shall implement the attendance system for the attendance of Project team proposed in this document. The ITMS System Integrator shall share the attendance report with the JSCL at the end of the month.
- 5) The ITMS System Integrator shall be responsible to secure and safeguard all field equipment. In case of any loss or damage due to theft / accident/ vandalism ITMS System Integrator has to do all the legal formalities with the Police Authorities and inform the JSCL accordingly within the stipulated time. ITMS System Integrator shall be responsible for repair and restoration of all equipment at its own cost during the contract period.
- 6) The ITMS System Integrator has to procure Insurance of all ITMS equipment/system during the Contract Period of the project at its own cost to safeguard the equipment/systems from all elements of risk and disruptions.

2.5. Roles & Responsibilities of Key Project Stakeholders

Brief summary of roles and responsibilities of key stakeholders involved in the project is as below:

Stakeholder	Role Description
Jabalpur Smart City Limited (JSCL)	<ul style="list-style-type: none"> • Co-ordination with Police & Transport departments for implementation of the project • Co-ordination with ITMS System Integrator for implementation of the project • Co-ordination with concerned department(s) to handover the sites to ITMS System Integrator • Release payments as per the certification of up time, down time of signals • Extend reasonable support to ITMS System Integrator for applying wired / wireless communication connections, power connections. • Monitor the project progress in association with Traffic police department • Provide built-in offices space for the Traffic Control Centre
Jabalpur Traffic Police	<ul style="list-style-type: none"> • Appoint a dedicated Nodal Officer (Traffic Police). Until the Nodal Officer is appointed or as and when the post is vacant, DSP (Traffic) shall be the Nodal Officer (Traffic Police) • Monitor the project progress in association with JSCL • Phasing of the Sites for implementation in consultation with JSCL.
ITMS System Integrator	<ul style="list-style-type: none"> • Field survey to understand the detailed requirements • Prepare the Project Plan in consultation with the JSCL and other stakeholders • Mobilization of the team and take up the work • Deliver the Project Milestones as defined • Train JSCL officials, Traffic police & other concerned departments staff • Connect existing signals and new system and connecting them to Traffic Control Centre • Apply for electricity connection and payment of electricity charges throughout the Contract period • Apply for communication (connectivity) for all locations in the name of Traffic police and payment of the communication (connectivity) charges during Contract Period. • Transfer of all the assets created within 30 days from the date of completion of the Acceptance Test through proper sale Invoice. • Customize, Configure, Maintain and update the ITMS Applications during the contract period. • Train the identified personnel of JSCL, Traffic Department on operating and maintaining the complete system. • Deployment of required experts who shall provide daily support to TCC operators and handholding support • Prepare periodic (monthly, quarterly and annual reports)

3. Implementation Plan & Project Timelines

3.1. Implementation Plan

The implementation of the ITMS Project shall be undertaken in two phases, viz. Implementation phase and Operation & Maintenance (O&M) Phase. The duration for both phases shall be as under:

- Implementation phase - 4 months
- Operation & Maintenance phase – 36 months

3.1.1. Implementation Phase

A. Implementation Phase

The ITMS System Integrator shall progressively implement the ITMS Solutions for the scope as described in the table below:

Table 3-1: Milestones for Implementation

SI #	Milestones for Implementation Phase	Coverage#
1.	Traffic Management	
1.	Intelligent Traffic Control System	20 Junctions
2.	Public Address (PA) system	20 Junctions
3.	VaMS System	10 Locations
2.	Traffic Enforcement	
4.	Red Light Violation Detection (RLVD) System	20 Junctions
5.	Automatic Number Plate Recognition (ANPR) System	3 Locations
6.	Speed Violation Detection (SVD) System	5 Locations
7.	No Helmet detection System	20 Junctions
8.	Triple Riding detection System	20 Junctions
9.	E-Challan System	E-Challan Software
3.	Others	
10.	Solution for Remote Monitoring of Weighbridge for SWM Vehicles	1 Location
11.	Drone Camera based Surveillance	5 Drone

* The date of commissioning of complete ITMS solutions, as per the above scope, shall be the 'Go-Live' date.

Location may vary in number and place as decided by JSCL/ Traffic Police.

3.1.2. Operation & Maintenance (O&M) Phase

The O&M phase shall commence from the date of “Go-Live” of ITMS solutions. The O&M phase shall be for a period of 3 years. The ITMS System Integrator shall operate and maintain the ITMS solutions for contract duration of three years from the date of “Go-Live”.

3.2. Project Timelines

The ITMS System Integrator shall be responsible for the implementation of the project within the timelines as indicated in the table below.

Table 3-2: Project Timelines

Project Milestones	Timelines
Implementation Phase	
Signing of Contract	T
Submission of Detailed Project Plan document	$T_1 = T + 1$ week
Submission of System Design document (SDD) including Software Requirement Specifications (SRS)	$T_2 = T_1 + 2$ weeks
Approval of SDD by JSCL	$T_3 = T_2 + 1$ week
Establishment of Traffic Command Centre (TCC) and Data Centre	$T_4 = T_3 + 4$ weeks
Software and Hardware integration of Field Equipment in Traffic Command Centre (TCC) and Data Centre (DC) for at least 1 location for each component	$T_5 = T_4 + 1$ week
Implementation of ITMS solutions as per the coverage provided in Table 3-1	$T_6 = T_5 + 6$ weeks
Acceptance /Sign-Off of Complete implementation by JSCL (“Go-Live”),	$T_7 = T_6 + 1$ week
Operation & Maintenance Phase	
Operation and Maintenance of ITMS solutions	$T_7 + 3$ years

Where “T” is the date of Signing of Contract between JSCL and ITMS System Integrator.

4. Payment Milestones

4.1. Payment during Implementation Phase

- A. The payment milestone for ITMS System Integrator during Implementation phase shall be as under:

Sl. #	Payment Components	Payment Terms
1.	Mobilisation Advance	<p>10 % Mobilisation Advance of the total CAPEX price against submission of:</p> <ol style="list-style-type: none"> Valid Bank Guarantee of equal amount, for the entire duration of the project AND Submission of Detailed Project Implementation Plan <p>Note:</p> <ul style="list-style-type: none"> The Mobilization Advance shall be adjusted proportionately from each Capex payment. In case Mobilisation advance is not required, SI need to inform JSCL regarding the same.
2.	For Sub-systems, Hardware and System Software Components , as per Bill of Materials.	<p>The payment for Sub-systems, Hardware and System Software components shall be made as below:</p> <ul style="list-style-type: none"> 50% of the CAPEX price of corresponding component on successful delivery of respective component 20% of the CAPEX price of corresponding component on successful Installation and Testing of respective component 20% of the CAPEX price of corresponding component upon completion and 'Go-Live' 10% of the CAPEX price of corresponding component upon completion of 3 months from 'Go-Live' date.
3.	ITMS Application Software as per Bill of Materials.	<p>The payment for various ITMS Application Software shall be made as below:</p> <ul style="list-style-type: none"> 20% of the CAPEX price of corresponding software on approval of SRS for respective software 50% of the CAPEX price of corresponding software on successful Installation, Testing and Integration with one field system 20% of the CAPEX price of corresponding software upon completion and 'Go-Live' 10% of the CAPEX price of corresponding items upon completion of 3 months from 'Go-Live' date.
4.	Civil and Interior Design Work of TCC	The payment for Civil and Interior Design Work of TCC shall be made as below:

Sl. #	Payment Components	Payment Terms
		<ul style="list-style-type: none"> • 20% of the CAPEX price of Civil and Interior Design Work of TCC on completion of flooring, false ceiling, lighting and partitioning work. • 50% of the CAPEX price of Civil and Interior Design Work of TCC on successful completion of TCC • 20% of the CAPEX price of Civil and Interior Design Work of TCC upon completion • 10% of the CAPEX price of Civil and Interior Design Work of TCC upon completion of 3 months.
5.	Other costs, including <ul style="list-style-type: none"> • Integration with City ICC • Training • Any other line items, as per the Financial Proposal of ITMS System Integrator 	The payment for other costs shall be made as below: <ul style="list-style-type: none"> • 90% of the CAPEX price of corresponding items upon completion and 'Go-Live' • 10% of the CAPEX price of corresponding items upon completion of 3 months from 'Go-Live' date.

B. Selected ITMS System Integrator will be paid on the basis of per unit rate (quoted in the Price Bid) as per the number of actual quantity required and approved by the JSCL.

4.2. Payment During O&M Phase

The payment milestone for ITMS System Integrator during O & M phase shall be as under:

Sl. #	Payment Heads	Payment Terms
1.	Payments during O& M Phase	<ul style="list-style-type: none"> • On Monthly basis

5. Functional and Technical Requirements

The ITMS System Integrator need to provide complete solution along with appropriate Hardware / Sensors/ Cameras etc. as well as System Software and Application Software for Intelligent Traffic Control System, Public Address (PA) system, VaMS System, Traffic Enforcement, Red Light Violation Detection (RLVD) System, Automatic Number Plate Recognition (ANPR) System, Speed Violation Detection (SVD) System, No Helmet detection System, Triple Riding detection System, E-Challan System, Remote Monitoring of Weighbridge of SWM Vehicles, Drone Camera Surveillance System. The minimum Functional and Technical Requirements are indicated in this RFP, however the ITMS System Integrator may propose a suitable solution along with appropriate Hardware / Sensors/ Cameras etc. along with System Software and Application Software fulfilling the minimum Functional and Technical Requirements set out in this RFP.

5.1. Intelligent Traffic Control system (ITCS)

5.1.1. Functional Requirements Specifications of ITCS

The Intelligent Traffic Control System shall be operated in the Vehicle actuated mode consisting the following building blocks:

- Intelligent Traffic Controller
- Non-Intrusive Vehicle Detectors
- Count Down Timers
- Traffic LED Aspect
- ITCS Application Software at TCC and connectivity

5.1.1.1. The Intelligent Traffic Controller

- 1) The Intelligent Traffic Controller shall be 32 bit or 64-bit microcontroller based with solid state traffic signal lamp switching module.
- 2) The Intelligent Traffic Controller shall have ability to program any combination of traffic signal stages, phases and junction groups. The operating conditions may include different peak and off-peak conditions, special events, holidays, VIP movement, contingency plans etc.
- 3) The Intelligent Traffic Controller shall have conflict monitoring facility to ensure that conflicting, dangerous conditions are pre-flagged at the programming stage and are disallowed even during manual override phase.
- 4) The Intelligent Traffic Controller shall have web interface with appropriate application software features so that it can be controlled through the TCC as an individual junction or as part of group of traffic junctions without need to go to the individual junction.
- 5) The ITCS application at TCC shall have the functionality to configure the individual traffic controller remotely so that could be easily configured as per the operations demand.
- 6) All the site-specific configuration data shall be stored in a non-volatile memory device (FLASH memory) easily programmable at the site through keypad or laptop. A minimum of 512KB flash memory and 128KB RAM shall be provided. It shall be possible to fetch all logs at the TCC remotely.
- 7) All timings generated within the Intelligent Traffic Controller shall be derived from a stable crystal controlled digital clock with battery backup of minimum 10 years which shall be accurate to plus or minus 100 milliseconds.

- 8) The Intelligent Traffic Controller shall have functionality to update the Real Time Clock (RTC) for time, date and day of the week from the GPS with maximum time tolerance of +/- 2 sec per day.
- 9) The Intelligent Traffic Controller shall also have the facility to update the RTC time from TCC as well through manual entry.
- 10) The Intelligent Traffic Controller shall have interface and functionality for pedestrian demand button for the Green signal and shall have audio output tones (both RED and Green signal) for differently-abled persons.
- 11) The Intelligent traffic controller shall have the separate police panel operation to configure the Hurry Call, Force flash, Manual/Auto operation of junction, junction off switches etc. as per junction requirements.
- 12) The Intelligent traffic controller shall be capable of communicating with the TCC through Ethernet on a managed leased line or any other appropriate stable communication network.
- 13) Intelligent Traffic Controller shall have maximum 64 individual output for signal lamp switching, configurable in 16, 32, 48 and 64 lamps. The signal lamps shall be operating on appropriate DC voltage of applicable rating.
- 14) Intelligent Traffic Controller shall support a minimum of 16 vehicle detectors' inputs. All detector inputs shall be isolated and provided with LED indication for detection of vehicle.
- 15) Intelligent Traffic Controller shall have a PWM intensity control facility to regulate the intensity of signal lamps during different ambient light conditions thereby ensuring better visibility and saving energy.
- 16) Intelligent Traffic Controller shall have a local keypad as operator console or shall have provision for plan upload and download using laptop connected to the controller.
- 17) Intelligent Traffic Controller shall have operator display with a LED backlit Liquid Crystal Display (LCD).
- 18) The Non-intrusive vehicle detector shall be a separate equipment, which shall be mounted on a pole/gantry and shall be connected to the Traffic Signal controller through appropriate interface to provide the stop line detection/Queue detection etc., as per the requirement of the Intelligent Traffic Signal controller of the vehicles at each arm of the Junction.
- 19) The outputs of the detectors shall indicate the presence of vehicles and shall be used to influence the operation of the Traffic Signal Controller. The detector shall be able to capture vehicle flow across junctions including vehicle counts and classification along with appropriate supporting software.
- 20) The detector shall have supporting software interface to create and configure the virtual loops on the road.
- 21) Fixed Time Mode: In fixed time (pre-timed) mode the traffic signal controller shall execute stage timings according to the site-specific timetable maintained in the traffic signal controller memory.
- 22) Vehicle Actuated Mode (All Stages Preemption): In the vehicle actuation with all stages preemption mode, the traffic signal controller shall execute stage timings as per demand from vehicle.
- 23) Four Hurry Call switches: The Hurry Call mode shall provide the means to force the controller to a defined stage, without violating safety clearances. A

preemption input may be used to demand the Hurry Call mode to give right of way to emergency vehicles, VIP movements etc.

- 24) One Forced Flash Switch: Activation of this switch shall force the signal to Flashing Amber/Flashing Red.
- 25) One Auto/Manual Switch: Activation of this switch shall enable manual operation of the controller. Deactivation of the manual switch shall continue auto-operation from the current stage without interruption.
- 26) One Manual Advance Pushbutton Switch: In manual operation mode, the stages shall 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.
- 27) One Junction OFF Switch: Activating this switch shall put OFF all signal lamps. On deactivation of the switch the Traffic Signal Controller shall resume its normal operation without violating any safety clearances.

5.1.1.2. Count Down Timer (CDT)

For the Fixed Time Mode operation of the Intelligent Signal Controller, 'Two and a Half Digit' Countdown Timer shall be installed at each junction Arm to show the waiting time for the red signal and remaining time to cross the intersection on the Green signal.

- 1) Count Down Timer shall be configured in Vehicular Mode (Fixed Time)
- 2) The Vehicular countdown timer shall be in dual RED Color for STOP and GREEN Color for the GO with flashing digits for the last 5 seconds count down.
- 3) The CDT shall be self-learning (for minimum 3 cycles) and powered from the traffic lamp aspect supply.

Count down Timer Specifications		
Mechanical Specifications		
	Structural Material	Polycarbonate strengthened against UV rays or MS with 1.2 MM powder coated
	Body Colour:	Light Grey/Black
	Dimensions (Approximately):	360 mm x 370 mm x 220 mm (+/- 20%)
Display Specification		
	No. of Digit:	Two and half Digit
	Digit Height:	150 mm -165 mm
	Display Type:	Dual Colour (Red & Green)
LED Specifications		
	LED Diameter:	5 mm LED
	Viewing Angle:	30°
	LED Wave Length:	630 nm-640 nm (Red), 505 nm – 520 nm (Blue-Green)
Other Features		
	Power Consumption:	Max 20 W
	Input Power:	up to 24 V DC
	Operating Temperature:	0° C to 55 °C
	Humidity:	5% to 95% Relative Humidity
	IP Rating	IP 65
	Standard:	En12966 Compliant

5.1.1.3. Communication Network

- 1) All the Intelligent Traffic Signal controllers shall be connected to TCC with suitable network for remote control and monitoring of the intersection and its management. Real time data (like RTC time, stage timing, mode, events, etc.) from the Traffic Signal Controller shall be sent to the TCC in real-time with minimum latency. The ITMS System Integrator shall clearly specify the bandwidth requirements and the type of network proposed for the ITCS.
- 2) The ITMS System Integrator shall specify the networking hardware requirements at TCC as well as at junctions for establishing the connectivity with the TCC.

5.1.1.4. Intelligent Traffic Control- LED Traffic Light Aspects

LED Traffic Aspect	
Parameter	Minimum Specifications
LED PCB Material	
PCB Material	Glass Epoxy
Fire Retardant	Grade 4
PCB diameter	280MM
LED Type	
RED	5 MM round DIP with clear Lens angle 30 degree
Amber	5 MM round DIP with clear Lens angle 30 degree
Green	5 MM round DIP with clear Lens angle 30 degree
LED Quantity	
LED count RED	190(minimum)
LED Count Amber	190(minimum)
LED Count Green	72(minimum)
LED Wavelength (Nanometer)	
RED	625
Amber	590
Green	505
LED Driver	
Isolation	Galvanic/Optical
Heat dissipation	Through Heat sink
Cut off voltage Low	17.5 V DC
Cut off voltage high	27 VDC
Aspect Housing	
Lens	Clear Polycarbonate
Shell	Poly-carbonate Housing UV stabilised
Mounting	Single rod mounting
Wiring Internal	Metal Pharuls for internal wiring
Visor/ Hood	Min 1.5 times of lens DIA
Aspect Assembly configuration	
Horizontal 5 aspects	Yes
Vertical Assembly	Yes
Vertical & Horizontal assembly arrangement combination	Yes

LED Traffic Aspect	
Parameter	Minimum Specifications
Electrical Characteristics @ 24 V DC input	
Operating Voltage	18 V DC to 27 V DC max
Red aspect wattage	@24 VDC less than 8 W
Amber aspect wattage	@24 VDC less than 8 W
Green aspect wattage	@24 VDC less than 8 W
Aspect luminance	
Red Aspect	280Cd
Amber Aspect	280 Cd
Green Arrow Aspect	300 Cd
Protection	
Surge protection	Yes
Reverse polarity PROTECTION	Yes
Connection Modes	
Both Common positive and common negative modes	Yes
Certification	EN12368
Operating Temperature	minus 5 to 60
Relative Humidity	5 to 95 Percent

5.1.1.5. Cables for Traffic Signals Installations

- 1) Nos. of cores - 7 and 14 core 1.5 sq. mm., 3 core 2.5 sq. mm.
- 2) Materials - PVC insulated and PVC sheathed armored cable with copper conductor of suitable size as specified in BOQ.
- 3) Certification - ISI Marked IS:1554 - PVC insulated electric cables (heavy duty)

5.2. Public Address (PA) system

- 1) The PA system should have the capability to control individual PA system i.e. to make an announcement at select location (1:1) and all locations (1: many) simultaneously. The PAS should also support both, Live and Recorded inputs.
- 2) Speaker - Should be provided with sufficient number of speakers to cover all the arms of each traffic junction, to be used for PA system
- 3) Connectivity shall be IP Based
- 4) Access Control - Access control mechanism would be also required to establish so that the usage is regulated.
- 5) Integration –The PA system shall be integrated with Traffic Control Center (TCC)
- 6) Battery - Internal Battery with different charging options
- 7) Power - Automatic ON/OFF operation.
- 8) Casing - IP-65 rated for housing
- 9) Operating conditions - 0 to 55°C

5.3. Traffic Junction Enforcement System

General Requirements

The proposed ITMS solution shall be installed at each identified junction/ location for effective and efficient traffic monitoring, management and Enforcement purpose and solutions installed at the junction shall be seamlessly integrated at TCC.

5.4. Red Light Violation Detection (RLVD) System

5.4.1. Functional Requirements Specifications of RLVD system

Sl. #	Parameter	Minimum Requirement Descriptions
1.	General Requirements	<p>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). The system should be used for capturing following violations:</p> <ol style="list-style-type: none"> Red Light Violation Stop Line Violation Over Speed Violation Driving two-wheelers without helmet Triple riding on two-wheelers
2.	General Requirements	<p>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:</p> <ol style="list-style-type: none"> Type of Violation Date, time, Site Name and Location of the Infraction Registration Number of the vehicle through ANPR Camera system for each vehicle identified for infraction.
3.	General Requirements	<p>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 evidence thereof:</p> <ol style="list-style-type: none"> When it violates the stop line When it violates the red signal When it violates the speed limit Besides, a closer view indicating readable registration number plate patch of the violating vehicle for court evidence for each violation. <p>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 monitoring cameras in the vicinity of the spot of incidence. The entire evidence should be watermarked, with time stamp and encrypted to stand the court of law.</p>

Sl. #	Parameter	Minimum Requirement Descriptions
4.	General Requirements	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.
5.	General Requirements	The Evidence image produced by the system should be wide enough to give the 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.
6.	General Requirements	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 (optional).
7.	General Requirements	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 Traffic Control Center. The network should have the capability to provide the real-time feed of the evidence camera to the Traffic Control Center (TCC) at the best resolution possible on the available network.
8.	General Requirements	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.
9.	General Requirements	The system should generate Alarms at control room software if any signal is found not turning RED within a specific duration of time.
10.	General Requirements	Should generate alarm if cameras get misaligned or dysfunctional including images- multiple images for pre-and post-infraction for red light over jumping, data, time, location, speed, with automatic number plate detection mechanism (to recognize vehicle automatically)
11.	General Requirements	<ul style="list-style-type: none"> • Video footage of incident (t-3 seconds to t+3 seconds, where t is time of incident) at required high resolution in industry standard format with at least 10 FPS. • Minimum 4 Images of violating vehicle along with Number plate
12.	Recording & display information archive medium	<p>The recording and display of information should be detailed on the snapshot of the infracting vehicle as follows:</p> <ul style="list-style-type: none"> • Computer generated unique ID of each violation • Date (DD/MM/YYYY) • Time (HH:MM: SS) • Equipment ID • Location ID

Sl. #	Parameter	Minimum Requirement Descriptions
		<ul style="list-style-type: none"> • Carriageway or direction of violating vehicle • Type of Violation (Signal/Stop Line/Over Speed) • Lane Number of violating vehicle • Time into Red/Green/Amber • Registration Number of violating vehicle
13.	On site-out station processing unit	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.
14.	On site-out station processing unit	The system should have secure access mechanism for validation of authorised personnel.
15.	On site-out station processing unit	Deletion or addition and transfer of data should only be permitted to authorised users.
16.	On site-out station processing unit	A log of all user activities should be maintained in the system.
17.	On site-out station processing unit	Roles and Rights of users should be defined in the system as per the requirements of the client.
18.	On site-out station processing unit	All formats of the stored data with respect to the infractions should be Non-Proprietary.
19.	On site-out station processing unit	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.
20.	On site-out station processing unit	The system should have the capability to transfer the data to TCC through 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.
21.	On site-out station processing unit	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 shall 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.
22.	Power Backup	System should have suitable power backup of at least 1 hour.

5.4.2. Functional Requirements Specifications of RLVD Application

- 1) The RLVD Application 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.

- 2) The Application 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.
- 3) All outstation units should be configurable using the software at the TCC Location.
- 4) Violation retrieval could be sorted by date, time, location and vehicle registration number and the data structure should be compatible with Jabalpur Police database structure. It should also be possible to carry out recursive search and wild card search.
- 5) 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, camera deflection, failure of linkage with traffic signal, connectivity failure, Camera tampering, sensor tampering).
- 6) The ANPR Software shall be part of the supplied system, Success rate of ANPR shall be taken as 75% or better during the day time and 50% or better during the night time for all number plates (including standard and non-standard of both four wheelers and two wheelers).
- 7) 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 ITMS System Integrator.
- 8) The Image zoom function for number plate and the scene images should be provided.
- 9) 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.
- 10) 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. all should be password protected.
- 11) Apart from role-based access, the system should also be able to define access based on location.
- 12) Rights to different modules / Sub-Modules / Functionalities should be role based and proper log report should be maintained by the system for such access.
- 13) The components of the architecture must provide redundancy and ensure that there are no single points of failure in the key 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.
- 14) 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 worm's 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.

- 15) The evidence of Infraction should be encrypted and protected so that any tampering can be detected.
- 16) The system should have continuous health monitoring, ease of configuration and failure / alarm detection.
- 17) System shall use open standards and protocols to the extent possible and declare the proprietary software wherever used.
- 18) The user interface (GUI) 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.
- 19) The data provided for authentication of violations should be in an easy to use format as per the requirements of user.
- 20) User should be provided with means of listing the invalid violations along with the reason(s) of invalidation without deleting the record(s).
- 21) Basic image Evaluation tools (zoom etc.) should be provided for the displayed image but the actual recorded image should never change.
- 22) 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).
- 23) 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)
- 24) Number plate should be readable automatically by the software/interface. There should be user interface for simultaneous manual authentication / correction and saving as well
- 25) Interface for taking prints of the violations (including image and above details).
- 26) The system shall have functionality to customize the challan forms as per the requirement of the JSCL and have option to include their logo etc. in the challan form.

5.4.3. Technical Requirements Specifications of RLVD system

SN	Parameter	Minimum Requirement
1.	Video Compression	H.264 or better
2.	Video Resolution	1920 X 1080 or better
3.	Frame rate	<ul style="list-style-type: none"> • Min. 25-30 FPS • Camera should support minimum 2 streams
4.	Image Sensor	1/3" progressive scan CCD/CMOS
5.	Lens Type	Varifocal
6.	Lens	Auto IRIS

SN	Parameter	Minimum Requirement
		3.5~12mm /9 – 40 mm
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 Control of Image settings	Auto adjustment + Remote Control of Image settings
12.	Audio	Audio Capture Capability, G.711, G.726 (Optional)
13.	Protocol	IPV4, IPV6, HTTP, HTTPS, FTP/SFTP, RTSP, RTP, TCP, UDP, RTCP, DHCP, UPnP, NTP,
14.	Security	Password Protection, IP Address filtering, User Access Log, HTTPS, Public key infrastructure, AES 256 Bit encryption.
15.	Operating conditions	0 to 60°C (temperature), 10 to 90% (humidity)
16.	Casing	IP-66, IK10 rated
17.	Analytics	Tampering alert
18.	Alarm I/O	Minimum 2 Input & 1 Output contact for 3rd part interface
19.	Certification	UL/EN, CE, FCC
20.	On site-out station processing unit communication & Electrical Interface (Junction Box)	Date 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.
21.	On site-out station processing unit communication & Electrical Interface (Junction Box)	Network Connectivity – Wired/GPRS based wireless technology with 3G upgradable to 4G capability.
22.	On site-out station processing unit communication & Electrical Interface (Junction Box)	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.
23.	On site-out station processing unit communication & Electrical Interface (Junction Box)	The system should be capable of working in ambient temperature range of 0°C to 50°C.
24.	On site-out station processing unit communication & Electrical Interface (Junction Box)	Lightening arrester shall be installed for safety of system (As per BIS standard IS 2309 of 1989).
25.	On site-out station processing unit communication & Electrical Interface (Junction Box)	The housing(s) should be capable of withstanding vandalism and harsh weather conditions and should meet IP66, IK10 standards (certified).

SN	Parameter	Minimum Requirement
26.	Violation Transmission and Security	Encrypted data, images and video pertaining to Violations at the Onsite processing station should be transmitted to the TCC electronically through GPRS based wireless technology with 3G upgradable to 4G, or wired connectivity if available in Jpeg format
27.	Violation Transmission and Security	Advanced Encryption Standard (AES) shall be followed for data encryption on site and TCC, and its access shall have protected by a password.
28.	Violation Transmission and Security	The ITMS System Integrator shall ensure that the data from the onsite processing unit shall be transferred to TCC within one day.
29.	Video Recording	Direct extraction through any physical device like USB flash drive, Portable Hard disk etc. shall be possible

5.4.3.1. Technical Specifications for Overview/Evidence Camera

Sl. #	Parameter	Minimum Requirement
1.	Video Compression	H.264 or better
2.	Video Resolution	5 MP or better
3.	Frame rate	<ul style="list-style-type: none"> Min. 25-30 FPS Camera should support minimum 2 streams
4.	Image Sensor	1/3" progressive scan CCD/CMOS
5.	Lens Type	Automatic Varifocal 2.7-10mm lens or better, IR Correction, remote focus
6.	Minimum Illumination	Colour: 0.5 lux, B/W: 0.1 lux (at 30 IRE)
7.	IR Cut Filter	Automatically Removable IR-cut filter
8.	Day/Night Mode	Colour, Mono, Auto
9.	S/N Ratio	≥ 50 Db
10.	Auto adjustment zoom and focus	Available
11.	Audio	Audio Capture Capability, G.711,
12.	Local storage	Micro SDXC up to 64 GB 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.
13.	Protocol	IPV4, IPV6, HTTP, HTTPS, FTP/SFTP, RTSP, RTP, TCP, UDP, RTCP, DHCP, UPnP, NTP,
14.	Security	Password Protection, IP Address filtering, User Access Log, HTTPS, Public key infrastructure, AES 256 Bit encryption.
15.	Operating conditions	0 to 50°C (temperature), 10 to 90% (humidity)
16.	Casing	IP66 or better, IK10

Sl. #	Parameter	Minimum Requirement
17.	Intelligent Video	Motion Detection & Tampering alert
18.	Alarm I/O	Minimum 2 Input & 1 Output contact for 3rd part interface
19.	Certification	UL/EN, CE, FCC

5.5. Automatic Number Plate Recognition (ANPR) System

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, capturing each vehicle registration number plate (with accuracy of 75% or higher during day and 50% during night) connect with TCC central server application and triggering of alarms/alerts based on the vehicle status and category as specified. The system usage shall be privilege driven with password authentication. Apart from Capturing number plates of the vehicles passing It should be able to count and classify the vehicle with suitable sensors (Thermal /laser/ Video or other nonintrusive technologies) entering and exiting at that location with the accuracy of 85% or higher during day and 60% during night.

5.5.1. Functional Requirements Specifications of ANPR System

Sl. #	Parameter	Minimum Requirement Descriptions
1.	General Requirements	The Cameras shall cover single lanes of 3.5m each. For places where more than two lanes are to be monitored, the lane cameras to be increased in proportion to the lane
2.	General Requirements	The system shall have IR illuminators to provide illumination for night-time scenario. Camera with IR illuminators should be deployed at heights so that the ground clearance of minimum 6.6 metre is achieved.
3.	General Requirements	The system should have the facility to provide the live feed of the camera at the central command centre or as per user requirement.
4.	General Requirements	The system should be able to provide video clips of the transaction from the ANPR lane cameras as evidence
5.	General Requirements	The system should perform ANPR on all the vehicles passing the site and send alert to the central command centre on detection of any Hot-listed vehicles (whose numbers have been marked as Stolen, Wanted, etc. at the Central server).
6.	General Requirements	With the detected number plate text, picture should also be sent of hot listed vehicle.
7.	General Requirements	It should be able to generate and display traffic inflow and outflow from the location
8.	General Requirements	It should be able to count and classify (HCV, MCV, Bus LCV car 2-wheeler) the vehicle with the accuracy of 85% or higher during day and 60% during night.
9.	General Requirements	The system should work 24 x 7 in both day and night conditions with good accuracy for the duration of the project

Sl. #	Parameter	Minimum Requirement Descriptions
10.	General Requirements	System should be able to detect and recognize the English alpha numeric License plate standard fonts and formats, defined under CMVR 1989
11.	General Requirements	The system should have ANPR/ OCR to address the Alpha numerical character of irregular font sizes.
12.	General Requirements	The system should accurately read all vehicle's number plates with an accuracy of at least 75% at day time and at least with an accuracy of 50% at night time. (On basis of number of vehicles)
13.	General Requirements	The system should have an option for the user to enter Hot-Listed vehicles at the Central Server and the same should be sent to all the sites automatically over the network.
14.	General Requirements	System should have local processing unit at site and send only processed data
15.	General Requirements	Local processing unit should be industrial grade type. capable of working up to 60 ⁰
16.	Vehicle detection by Colour	<ul style="list-style-type: none"> 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 shall store the colour information of each vehicle along with the license plate information for each transaction in the database. 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
17.	Alert Generation	The system should have option to input certain license plates according to the hot listed categories like "Wanted", "Suspicious", "Stolen", "Expired" etc. by authorized personnel. (System should have provision/expansion option to add more Categories for future need).
18.	Alert Generation	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 listed categories.
19.	Reports	The system shall enable easy and quick retrieval of snapshots, video and other data for post incident analysis and investigations.
20.	Reports	The system should be able to generate suitable MIS reports that shall provide meaningful data to concerned authorities and facilitate optimum utilization of resources.A) Report of vehicle flow at each of the installed locations for Last Day, Last Week and Last Month.B) Report of vehicles in the detected categories at each of the installed locations for Last Day, Last Week and Last Month.C) Report of Vehicle Status change in different Vehicle Categories.
21.	Reports	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.
22.	Reports	The system shall have option to save custom reports for subsequent use. The system shall have option to export report

Sl. #	Parameter	Minimum Requirement Descriptions
		being viewed to common format for use outside of the ANPRS or exporting into other systems.

5.6. Speed Violation Detection (SVD) System

5.6.1. Functional Requirements Specifications of SVD system

Sl. #	Parameter	Minimum Requirement Descriptions
1.	General specifications	The Speed Violations should be automatically detected by the system by using appropriate non-intrusive detection technology (Radar, Video, Laser or any other appropriate certified technology).
2.	General specifications	The system should be capable of capturing multiple infracting vehicles simultaneously in defined lanes at any point of time simultaneously with relevant infraction data like: <ul style="list-style-type: none"> • Type of Violation • Speed of violating vehicle • Notified speed limit • Date, time, Site Name and Location of the Infraction • Registration Number of the vehicle through ANPR Camera system for each vehicle identified for infraction
3.	General specifications	The system should be equipped with a camera system to record a digitized image and video frames of the violation, covering the violating vehicle with its surrounding
4.	General specifications	The system shall provide the No. of vehicles infracting simultaneously in each lane. The vehicles shall be clearly identifiable and demarcated in the image produced by the camera system
5.	General specifications	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.
6.	Certifications	The Proposed System should have Type approval / Legal decree for the speed enforcement system in the name of the OEM from any Government authorised or Certified Lab
7.	On site-out station processing unit communication & Electrical Interface	The system should automatically reset in the event of a program hang up and restart after power failure.
8.	On site-out station processing unit	The system should have secure access mechanism for validation of authorised personnel (Authentication with Passwords)

Sl. #	Parameter	Minimum Requirement Descriptions
	communication & Electrical Interface	
9.	On site-out station processing unit communication & Electrical Interface	Deletion or addition and transfer of data should only be permitted to authorised users.
10.	On site-out station processing unit communication & Electrical Interface	A log of all user activities should be maintained in the system
11.	On site-out station processing unit communication & Electrical Interface	Roles and Rights of users should be defined in the system
12.	On site-out station processing unit communication & Electrical Interface	The data shall be transferred to the TCC in real time for verification of the infraction and processing of challan.
13.	On site-out station processing unit communication & Electrical Interface	In the event that the connectivity to the TCC is not established then all data pertaining to the infraction shall be stored on site and shall be transferred once the connectivity is re-established automatically.

5.6.1.1. Functional Requirements Specifications of SVD Application

1. The Speed Violation Detection Application should be capable of importing violation data for the Operator for viewing and retrieving the violation images and data for further processing and should have sort, transfer & print options.
2. The Application should generate the photograph of violations captured by the 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
3. All outstation units should be configurable using the software at the TCC
4. Violation retrieval could be sorted by date, time, location and vehicle registration number and data structure should be compatible with Jabalpur Traffic Police database and Madhya Pradesh Transport department database structure.
5. The operator at the TCC should be able to get an alert /alarm of any possible fault(s) at the Installation Site (e.g. sensor failure, camera failure, failure of connectivity failure, Camera tampering, sensor tampering etc.)
6. The ANPR Software may be part of the supplied system or can be provided separately as add on module to be integrated with violation detection. The Success rate of ANPR shall be taken as 75% or better during the day time and 50% or better during the night time on all number plates (including standard and non-standard of both four wheelers and two wheelers).
7. The Image zoom function for number plate and the images should be provided.

8. Any updates of the software available, shall be updated free of cost during the contract period by the vendor and shall integrate the same with existing application and database of Jabalpur Traffic Police and Jabalpur Transport department.
9. The Application software should be integrated with the notice branch software for tracing the ownership details of the violating vehicle and issuing/printing notices to the Violators.
10. Various users should be able to access the system using single sign on based on role. Different roles which could be defined (to be defined by JSCI/Jabalpur Traffic Police) for examples could be Administrator, Supervisor, Officer, Operator, etc.
11. Apart from role-based access, the system should also provide access based on location with proper authentication.
12. Access rights to different modules / Sub-Modules / Functionalities should be role based (or location based) and proper log report should be maintained by the system for such access by each authorized user.
13. The architecture of the system should be open and scalable to cater continuous growth to meet the growing demand of Jabalpur Traffic Police. The system shall support vertical scalability so that depending on changing requirements of Storage, Bandwidth, Computing Performance (IT Infrastructure), Software / Application performance and advancement in proposed system features are met in future
14. The system shall also support horizontal scalability so that depending on changing requirements from time to time, the system may be scaled horizontally.
15. The components of the architecture must provide redundancy and ensure that are no single point of failures in the key project components. Considering the criticality of the system, design shall be in such a way so that it is resilient to technological sabotage. To take care of remote failure, the systems need to be configured to mask and recover with minimum outage.
16. The system should have adequate measures for end-to-end security to protect data and the infrastructure from malicious attacks, data theft etc.
17. Provisions for Physical security of field equipment shall be made
18. The system should have adequate protection from cyberattacks and other threats shall be a part of the proposed system. Using Firewalls and Intrusion detection systems such attacks shall be controlled as per the Security policy. The virus and worm's attacks shall be well defended with Gateway level Anti-virus system, along with workstation level Anti-virus mechanism.
19. All the system logs shall be properly stored, archived for future analysis and forensics Analysis whenever desired.
20. The system shall have ease of configuration, continuous 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.

21. System shall use open standards and protocols to the extent possible
22. 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.
23. The data provided for authentication of violations should be in an easy to use format as per the requirements of JSCL/Jabalpur Traffic police.
24. User should be provided with means of listing the invalid violations along with the reason(s) of invalidation without deleting the record(s).
25. Basic image Evaluation tools (zoom etc.) should be provided for the displayed image but the actual recorded image should never change.
26. Log of user actions be maintained in protected read only mode. User should be provided with the password and ID to access the system along with user type (admin, user).
27. The captured Violation Image should have a header and footer depicting the information about the site IP and violation details like viz. date, time, equipment ID, location ID, Unique ID of each violation, lane number, Registration Number of violating vehicle and actual violation of violating vehicle ,Speed of violating vehicle, notified speed limit .There should be user interface for simultaneous manual authentication / correction and saving ,also Interface for taking prints of the violations (including image and above details)
28. Number plate of all vehicles should be readable automatically by the software/interface. There should be user interface for simultaneous manual authentication / correction and saving as well.

5.6.2. Technical Requirements Specifications of SVD system

Sl. #	Parameter	Minimum Requirement
1.	Unit of Speed Measurement	Kmph
2.	Speed detection system to Capture speed	150Kmph ± 5 km
3.	Speed Threshold certificate	certificate /legal decree issued to OEM from Ministry of infrastructure /Transport/ Metas labs/NMI
4.	Speed Enforcement Technology	(Radar, Video, Laser or any other appropriate certified technology).
5.	Video Compression	H.264 or better
6.	Video Resolution	2 MP (1920 X 1080)
7.	Frame rate	Min. 60 FPS
8.	Image Sensor	1.3” progressive scan CCD/CMOS
9.	Lens Type	Varifocal
10.	Lens	Auto IRIS 3.5~12mm /9 – 40 mm, F1.4

Sl. #	Parameter	Minimum Requirement
11.	Minimum Illumination	Colour: 0.5 lux, B/W: 0.1 lux (at 30 IRE)
12.	Night Vision	IR /Thermal
13.	IR Cut Filter	Automatically Removable IR-cut filter
14.	Day/Night Mode	Colour, Mono, Auto
15.	S/N Ratio	≥ 50 Db
16.	Auto adjustment + Remote Control of Image settings	Colour, brightness, sharpness, contrast, white balance, exposure control, backlight compensation, Gain Control, True Wide Dynamic Range
17.	Audio	Audio Capture Capability, G.711, G.726 (optional)
18.	Protocol	IPV4, IPV6, HTTP, HTTPS, FTP/SMTP, RTSP, RTP, TCP, UDP, RTCP, DHCP, UPnP, NTP, QoS, ONVIF Profile S
19.	Security	Password Protection, IP Address filtering, User Access Log, HTTPS
20.	Operating conditions	0 to 50°C (temperature), 50 to 90% (humidity)
21.	Casing	NEMA 4X / IP-66, IK10 rated
22.	Intelligent Video	Motion Detection & Tampering alert
23.	Alarm I/O	Minimum 1 Input & 1 Output contact for 3 rd part interface
24.	Certification	UL/EN, CE, FCC
25.	Recording & display information archive medium	<p>The system should be capable of recording the following details of the infracting vehicles.</p> <ul style="list-style-type: none"> • Computer generated unique ID of each violation • Date (DD/MM/YYYY) • Time (HH:MM: SS) • Equipment ID • Location ID • Carriageway or direction of violating vehicle • 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 <ul style="list-style-type: none"> ○ Type of Violation ○ Notified speed limit (in Km/h) ○ Speed of violating vehicle (in Km/h) ○ Lane Number of violating vehicle ○ Registration Number of violating vehicle
26.	On site-out station processing unit communication & Electrical Interface	<p>Data Storage on site -</p> <p>The system should be equipped with appropriate storage capacity for 7 days 24X7 recording, with overwriting</p>

Sl. #	Parameter	Minimum Requirement
		capability. The images should be stored in tamper proof format only.
27.	On site-out station processing unit communication & Electrical Interface	Network Connectivity - Wired/GPRS based wireless technology with 3G upgradable to 4G capability.
28.	On site-out station processing unit communication & Electrical Interface	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.
29.	On site-out station processing unit communication & Electrical Interface	The system should be capable of working in ambient temperature range of 0°C to 50°C.
30.	On site-out station processing unit communication & Electrical Interface	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.
31.	On site-out station processing unit communication & Electrical Interface	Lightening arrester shall be installed for safety of system (As per BIS standard IS 2309 of 1989)
32.	On site-out station processing unit communication & Electrical Interface	The housing(s) should be capable of withstanding vandalism and harsh weather conditions and should meet IP66, IK10 standards (certified).
33.	Violation Transmission and Security	Encrypted data, images and video pertaining to Violations at the Onsite processing station should be transmitted to the TCC electronically through GPRS based wireless technology with 3G upgradable to 4G or wired connectivity, in Jpeg format.
34.	Violation Transmission and Security	Advanced Encryption Standard (AES) shall be followed for data encryption on site and TCC, and its access shall have protected by a password.
35.	Violation Transmission and Security	The vendor shall ensure that the data from the onsite processing unit shall be transferred to TCC within 24 hrs of capturing.
36.	Video Recording	The system should be capable of continuous video recording in local processing Unit 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.
37.	Video Recording	Direct extraction through any physical device like USB, Hard disk shall be possible.

5.7. E-Challan System Application

5.7.1. Functional Requirements Specifications

A. E-Challan Application

- 1) E-challan system shall be able to retrieve vehicle owners' details and vehicle data from RTO/ Motor Vehicle Department data base to minimize data entry.
- 2) The system should provide facility to update addresses and mobile numbers of vehicle owners in the e-Challan database and if required, share those updates to RTO/ Motor Vehicle Department data base.
- 3) The system shall have sufficient security features such as password protection, audit trail, etc.
- 4) A unique challan number shall be generated through client software for each challan.
- 5) The system should provide SMS, Email /WhatsApp alert mechanism to the registered vehicle owners.
- 6) Immediate Alert for if the vehicle is stolen, wanted in any criminal case or is in the list of suspicious vehicles when vehicle registration number is entered.
- 7) The Challan generating unit shall be able to generate Challans in Hindi and English. The content of the Challan form shall be developed in consultation with Jabalpur Traffic Police.
- 8) It shall be possible to integrate payment gateway operator with the system for facilitation of payment.
- 9) It shall possible to sort challans by Thana/Junctions, as required by Jabalpur Traffic Police.
- 10) The Challan generation module shall be seamlessly integrated with the ANPR, RLVD & SVD System. The Challan generating system shall generate and print Challans for all the RLVD & Speed Violation events that are duly validated and checked by the operator.
- 11) The system shall have the functionality to filter out the RLVD, over-speeding, no-helmet driving, triple riding violations etc. based on the following criteria for generation of Challans.
 - a. Number of violations by the particular vehicle
 - b. No of violations by particular category (e.g.,4-wheelers, 2 wheelers)
 - c. No of violations under particular Thana/Police Station jurisdiction
 - d. Paid/Unpaid Challans with all details of the violators
 - e. Ageing Analysis of Pending Challans
- 12) The system should allow payment of e-Challan by violators through various modes such as MP online portal, 311 mobile app, MP treasury portal, traffic police

website, direct cash payment at police stations and other modes as per requirement of JSCL/Jabalpur Traffic Police.

- 13) The system should be able to provide tracking of receipts and payments of e-challans.
- 14) Operator shall 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.
- 15) The Challan generation system shall 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.
- 16) The system shall be able to generate various periodical reports, summaries, MIS reports, query reply etc. as per the requirements of Jabalpur Traffic Police.
- 17) Software up-gradation must be provided by the ITMS System Integrator from time to time as per available technology without further cost impact to Jabalpur Traffic Police.
- 18) JSCL/Jabalpur Traffic Police shall facilitate to provide the entire data of vehicle ownership and driving license for integration with the vendor's application software.
- 19) All database tables, records etc. required for various drop-down menus etc. shall also be created by the ITMS System Integrator.
- 20) The application software shall to be provided by the ITMS System Integrator for handling various processes of the prosecution required by the office of senior police officers, Courts etc. as required.
- 21) The application software should have the capability to export records in CSV, SQL and binary format.
- 22) The software shall be device agnostic and should potentially be able to run on the full range of devices of the same family made by multiple OEMs.
- 23) The software should have dynamic work/ flow with hierarchical login for different levels of Traffic Police officials and user-based rights as per government guidelines which may change from time to time.
- 24) Database Application Software should integrate all the functions of the Traffic Police Department including Traffic Police Stations.
- 25) New versions of application software should be installable with the available user interface.

B. Modules for E-Challan System

The e-challan System Software should consist of the following modules

- 1) Photo Collection
- 2) Violation booking
- 3) e-challan Generation

- 4) Postal dispatches
- 5) Postal Statement
- 6) Postal returns and return info feeding
- 7) Data entry in vehicle Registration remarks database
- 8) Provision to enter comment Sold out vehicles/Fake vehicles /Fake addressed
- 9) Vehicles/Theft Vehicles/Authorized complaints/Multiple owners)
- 10) Identification of Police Stations, Junctions, Courts, Police Staff for the Traffic dept.
- 11) MV Act cases
- 12) Action dropouts as per Court decisions
- 13) Report Generation
- 14) Online Pending Challan Verification
- 15) Online Violation photo view facilities
- 16) Upgrading the e-Challan Software
- 17) Online Uploading photos by the Police in Control room
- 18) Server database and crash recovery of data.
- 19) Regular Backup System
- 20) Performance tuning of the Application, Database tuning, Network tuning, Web Service tuning.
- 21) APIs for sharing e-Challan information for online payment and updation of payment status in e-Challan application server.

C. Security Provisions

A strong and comprehensive information security system based on leading standards and guidelines from Department of Information Technology (DIT) to be followed in integration and implementation. Information within the system should be classified as Public, Confidential and Restricted. Access to the information should be provided based on the classification of the information.

- 1) The system should have provision for preventing unauthorized access and damage to information resources.
- 2) The system should be accessible only after approval from application owner and the competent authorities.
- 3) The access should be role based
- 4) The access control system should cover:
 - Identification
 - Authentication
 - Authorization and Access Control
 - Administration

- Audit
- 5) The system should be able to maintain access control mechanisms, data security and audit trails to ensure that databases are not tampered or modified by unauthorized users.

5.8. Variable Message Sign (VaMS) System

Variable Message Sign (VaMS) System is one of the key component of the ITMS for efficient traffic management as it inform, warn, and guide the motorists on highways, expressways and arterial roads of cities by displaying route /rerouting information, warnings (accidents, congestions), toll rates and special information. It can be also used for public information system by running the social messages and commercials advertisements, special events etc.

5.8.1. Functional Requirements of VaMS System

- 1) VaMS shall use constant current LED driver and restricting power dissipation with in safe limits of operation, to increase LED life time and reduce ageing effects and luminosity losses.
- 2) It shall be capable of high display stability and uniformity with automatic control of intensity in all ambient light conditions including day & night.
- 3) It shall be possible to control VaMS from TCC. The on-board firmware of the VaMS shall provide diagnosis information and report any error status to the TCC.
- 4) It shall support easy access and quick replacement of parts.
- 5) It shall have reliable operation 24x7 without being affected even by severe weather conditions

Minimum Requirement Description of VaMS System	
Dimension Requirements	VaMS shall be full-matrix type (adjustable text size and allow both upper and lower case).
Display Requirements	Electronic-High Luminosity wide viewing angle oval LEDs (Nichia LED or equivalent life time of 1 lac hours) for out-door ambient light shall be used.
Display Requirements	Long life LEDs with minimum working of 1,00,000 hours to Half Life
Display Requirements	VaMS shall automatically adjust their brightness under varying light conditions to maintain legibility
Display	Luminance of VaMS's should meet industry criteria for daytime and night time conditions
Display Requirements	VaMS unit shall have the provision to display online messages received from the command control centre for the duration specified by the user.
Display Requirements	Minimum vertical clearance between the finished road surface and the bottom of the support structure / bottom of the VaMS (whichever is lower) shall be 6.5 m.
Required Size	Minimum 1.92 m x 0.96 m
Refresh Rate	Minimum 1900 Hz

Minimum Requirement Description of VaMS System	
Temp Range	0 to +55 Degrees
Native Brightness	Minimum 7500cd/m ²
Contrast Ratio	Minimum 1200:1
Pixel Requirements	The pixel pitch shall be 10mm or better
Pixel Density	Minimum 10000 pixel / m ²
LED Configuration	R/G/B DIP
Power Input Consumption	100 ~ 240 VAC,
Max Power	≤ 1000 W/Tile
Dimming Capabilities	Minimum 64 Levels
Humidity	10% ~ 90%
IP Level	IP65 Front IP54 Rear
Image Processor for Each LED Wall Display	Signal Input – DVI; Signal Output - RJ - 45
Communication	The communication protocols supported shall be TCP/IP, RS 232
Communication	The signboard unit shall be able to communicate with central command centre computer using GSM data channel (GPRS) / Ethernet will be used to send online messages. System should have secure access mechanism for validation of authorized personnel. It should have a high level of data encryption (128 bit or more) to avoid any hacking into the software.
Communication	GPRS/ Ethernet port shall also be extended to ground level using necessary cables for local troubleshooting.
Communication	Each unit shall be provided with a unique identification number and shall communicate with the designated central command centre system and a local device loaded with relevant software
Communication	VaMS shall have self-test diagnostics features to test the VaMS for correct operation during power on.
Display Protection	The front of VaMS display board should be weather resistant IP 65 rated and rear should be IP 55 keeping the heat dissipation requirement in mind
Power Requirements	230V AC + 15%, 50 Hz single phase power supply (Automatically re-start in the event of an electricity failure)
Power Requirements	Equipment components shall have adequate surge and lightning protection.
Power Requirements	Necessary earthing for electrical and lightning protection to be provisioned as per the industry standards
Power Requirements	UPS of adequate power capacity having 2 hours of back up shall be provided by the vendor to counter any power failure.
Power Requirements	The enclosure for the UPS and battery should be pole mountable / Grounded in ODC with IP65 protected housing and shall be lockable.
Component Requirement	Components should include SNMP Manageable VaMS controller which can be controlled from remote, LEDs, LED matrix boards, pixel

Minimum Requirement Description of VaMS System	
	arrangements showing horizontal and vertical pitch and total number of pixels, power supply (including surge protection, inverter, back-up batteries), communication ports, cable termination, enclosure and mounting accessories.
Software for Layout Management	To be provided by respective OEM. LED Tiles, Image Processor & Software should be from same OEM to ensure compatibility and smooth after sale service support.
Power Distribution	Suitable Power Distribution Board to be provided for individual LED Wall
Support Structure for Variable Message Signboards	
General Requirement	Support structure for the VaMS shall be of MS IS: 2062 Gantry type
General Requirement	Structure should be supported on the ground (shoulder/foot-path) on both the sides of the road through appropriate concrete foundation
General Requirement	Minimum vertical clearance between the finished road surface and the bottom of the support structure/bottom of the VaMS (whichever is lower) shall be 6.5 m as per NHAI guidelines
General Requirement	Support structure shall provide adequate support to the VMS from all four sides as well as top and bottom (at least six to eight connections for mounting the VaMS)
Load Requirement	Structure for display board mounting should withstand wind- speeds up to 100km/hr. and support the weight of at least two VaMS along with structure's self-weight. This should be certified by a structure engineer
Load Requirement	Display board should be secured sufficiently with fasteners and fixtures to the support structure to withstand the mentioned loads.
Painting	Structure shall be painted with one coat of primer and two coats of PU paint. Grey/silver paint or as described by JSCL.
General Requirement	RCC foundation with M20 Grade Ready-mix RCC and required IRON bar structure to take load of Structure weight as well as VMS approved by Structure Engineer
Access	All access panels shall be designed in a way that they can be opened or closed by authorized persons and prevent unauthorized access.

5.8.2. VaMS Software Application

1. Capable of programming to display all types of Message having alphanumeric character in English, Hindi and any other Indian regional language combination of text with pictograms signs. The system should have feature to manage video / still content for VaMS display.
2. The application should have capability to send different information like video, text, still images, weather info, city info etc.
3. Capable of controlling and displaying messages/videos on VaMS boards as individual/ group.
4. Capable of controlling and displaying multiple font types with flexible size and picture sizes suitable as per the size of the VaMS.

5. Configurable scheduler on date/day of week basis for transmitting pre-programmed messages/advertisements to any VaMS unit.
6. Shall provide detailed report of actual played information / advertisements in terms of No. of times & Duration in defined time period.
7. Capable of controlling brightness with time scheduling.
8. Capable to continuously monitor the operation of the Variable Message Sign.
9. Access to system only after the appropriate authentication and acceptance.

5.9. Remote Monitoring of Weighbridge of SWM Vehicles

The Remote weight management system of Solid Waste Management (SWM) vehicles shall meet the following requirements:

- i. The system shall be used for capturing the details of SWM vehicles entry/exit at the Kathonda plant/ dumping site. The system shall comprise one ANPR camera and one CCTV camera at entry/exit of the dumping location.
- ii. The details of vehicles entry/exit at the dumping location shall include vehicle registration number, time and status of load in the vehicle (whether the vehicle is full, half-full or empty). It is desired that the load status of the vehicle should be available as percent of vehicle capacity (such as 10%, 20% and so on, up to 100%).
- iii. The system shall also be integrated with the weighbridge installed at the dumping location to capture the weight of the vehicle while going in and out of the dumping location (desirable).
- iv. The system shall be able to generate various reports such as number of vehicles with their load status entered/left the dumping location, total load carried in a day/week/month etc.

5.10. Interior Design specifications of TCC

The entire Traffic Control Center (TCC) Interior environment has to be designed as per industry standard norms to design the Control Center for the Smart City. It should be state-of-art and the design should conform to covering various aspects of (Wall panelling/partition & ceiling). All the material used to design interior including furniture should be fire resistant as per the industry norm. Selection of fire retardant/rated material is must. Further environment friendly material should be used in the design, usage of Hazardous Substances is strictly restricted. Safety of User & control room equipment safety is a high concern area therefore ceiling, panelling, partition and desk must be seismically tested and qualified.

5.10.1. Acoustic Requirements of TCC

1. The TCC being dead zone in acoustical terms, threshold should be lower than the normal.
2. Use of Acoustics and psychoacoustics measurements are must. Selected SI to highlight the same in drawings.
3. Materials which define acoustics; it's the detailing which ensures controlled reverberations & resonances and reflections.

a. Submittals

Ergonomic compliance report for control room layout as per international ISO ergonomic norms to be submitted.

b. Design Criteria

The ceiling, wall panelling and partition must be of modular design, facilitating future equipment retrofits and full reconfigurations without requiring any major modification to the structure.

5.10.2. False Ceiling Design

The ceiling shall be designed to enhance visual feel, with provision for easy installation and maintenance, integrated lighting and scope for integration of building services like HVAC and fire detection/ fighting system.

It is preferred that System Integrator customised and aesthetically designed Acoustic modular Metal False Ceiling with powder coated panels. The all the paint used should be fire retardant and should not contain heavy metals.

All the Panels shall be designed to achieve shape and design as per the design requirement of JSCL.

The JSCL will have final right to approve the design.

- a) The ceiling used must of fire retardant material and shall be free from any such material which can spread surface flames and generate smoke.
- b) The False ceiling should comply Zero / minimum maintenance criteria to minimise down time of the TCC.
- c) The ceiling panels shall be made up of powder coated metal panels to achieve strength. These planks shall be bend through precise accuracy.
- d) All the panels shall be made from heavy duty powder coated modular steel frame (minimum sheet thickness 1 to 1.6mm).
- e) All the panels shall be securely grouted from roof with help of ISI marked fastener and GI self-threaded rods.
- f) Light fitting & AC Diffuser can be defined as per the LUX requirement detailed in the design submitted.

- a) False ceiling should have Sound absorption provisions as per the (NRC)/ (SAA) required standard for the Traffic command centre.

5.10.2.1. Wall Cladding Panels

- b) Panels to be installed shall be of GI sheet of minimum thickness 0.6mm with powder coated flame-retardant paint.
- c) Any Structure to be installed shall be of GI sheet of minimum thickness 1.0mm to 1.6 mm with powder coated flame-retardant paint.
- d) There shall be no deformity in the Powder coating while stretching and forming the panels to be installed.
- e) Panels should have Sound absorption provisions as per the (NRC)/ (SAA) required standard for the Traffic command centre.

5.10.3. Lighting and Illumination

- a) A detailed lightning design shall be submitted considering norms for Environmental requirements for command centres.
- b) A detailed Lux level report to be submitted after the completion of the TCC

- c) Design factors must consider influences such as comfort, health, safety, efficiency and effectiveness of all people through architectural design, control room lighting and lighting therapy.
- d) Illumination levels on the work stations should be maintained at a level of 200lx to 750 lx with an upper limit of 500lx where any kind of visual display units are being used in TCC.
- e) Diming should be provided with a lower limit of maintained 200lx on the work surface at all times.

5.10.4. Furniture and Fixture (Operator Consoles)

5.10.4.1. Physical Structure

The TCC shall have Ergonomically designed desk for the operators to sit and to ensure 24x7 operation with sufficient knee space (min 450mm) and foot space (min 600 mm). Structure shall be made of high strength durable fire retardant. All the metal parts used should be heavy duty and non-corrosive material.

All the designed submitted should be approved by the JSCL before start of manufacturing activities by the System Integrator.

5.10.4.2. Working Surface

- a) The Console Top / working surface should be made of minimum 25 mm thick MDF with High Pressure Laminate finish. The laminate shall be fire retardant, Insulated, Water Proof, Scratch resistant and high hardness. The Table Top should have the ergonomically design metal mount for mounting three 22 to 27 Inches Display monitors for each work station.
- b) The edges of the desk should have Urethane waterfall edge with minimum 50-60mm thickness for operator wrist comfort.

5.10.4.3. Console Design

Consoles must be of modular design, facilitating future equipment retrofits and full reconfigurations without requiring any major modification to the structure or exterior elements.

5.10.4.4. Equipment Mounting

The workstation shall be able to house computer equipment's, Ethernet Points, Power Distribution Unit. Desk leg shall have snap fit covers on the sides to access the wiring.

5.10.4.5. Frame Material

Made of heavy duty Aluminium. The Extrusions shall be duly powder coated with 40+ micron over all surfaces. Console should be Seismic Zone- 4 tested. Aluminium die-casted articulating Monitor arm shall be able to mount monitors complying VESA standards 75 x 75, 100 x 100, 200 x 100 & 200x200 mm. Arm shall allow rotate, tilt and raise the monitors a quick and easy manner. These arms shall be fixed on modular rear wall with help of MS Pole (height 455mm). The rear wall shall be made up of 6063T6 grade Extruded Aluminium. The wall shall be single piece per module and shall have min weight of 5 kg per meter. The wall shall be designed & connected to other modules' wall in such a way that no joints or gaps are visible in the entire width of the console. It should have linear slots running throughout the length to accept modular components. No screws should be visible when joining table top to the Slat wall.

5.10.5. Partitions

Partitions must be modular in nature.

5.10.5.1. Straight Metal Partition

All the properties and material of construction shall be like straight Metal paneling but the partition shall have metal tiles on either side of the frame.

5.10.5.2. Curvilinear Metal Partition

All the properties and material of construction shall be like Metal paneling/partition but the front tiles shall be having perfect curve to meet the aesthetical requirement of the Control room and shall allow easy installation of the video wall on it.

5.10.5.3. Glass Partition

Full glass wall partitions will be made of 12mm Toughened laminated glass with frame-less structure. The glass partition shall be supported by 200-600mm high Modular metal partition (having the same finish as that of wall cladding) from the floor. Proper structure shall be made to ensure the fixing of glass from RCC slab above false ceiling and flooring.

Straight and vertical structural members shall not be visible. Safety film shall be applied on the glass to avoid shattering. Glass shall be fitted on anodized extrusion with tool less technology and having a provision for replacing glass with perforated sheet/acoustic tile by removing the glass.

NOTE: - The nature of installation should be replaceable, expandable and flexible to cater the future expansion/technical up-gradation.

5.10.6. Air Flow

- i. Design to ensure proper flow and throw of air in the Command centre. This requirement is mandatory to create perfect temperature and enough air movement to stay awake and comfortable.

5.10.7. Wall Paneling

- a) Panel should comprise of hexagonal perforations for making the cladding and partitions acoustically sound. Min 20% panels shall be perforated or as required in the control room to achieve the desired acoustic levels.
- b) Materials having adverse impact on the environment and nature shall not be accepted.
- c) Zero / minimum maintenance is the basic requirement, thus wood, painted Gypsum, etc. are not acceptable.

5.10.7.1. Surface Finish

a. For Panels

- i. **Front Panel:** PVC pre-coated GI sheet (sheet thickness: 0.6mm and PVC coating: 0.15mm)
- ii. **Back Cover:** Powder coated GI sheet. (sheet thickness: 0.6mm with powder coating:)
- iii. Panel shall provide better thermal, electrical insulation as compared to normal GI panels. It shall be non-reflective/glare free and be eligible for food contact.

b. For Structure

i. Powder coated sheet. (sheet thickness: 1.0mm to 1.6mm with powder coating)

The metal sheet shall have possibility of being formed mechanically per the specific needs of the project.

c. Material Selection

- **Available Width-** 300mm to 1200mm (in multiples of 150mm).
- **Available Height-** 150mm to 750mm (in multiples of 150mm).
- **Thickness-** 10mm to 15mm for perforated tiles with acoustic fleece without back cover

25mm to 30mm for non-perforated tiles with back covers.

PVC pre-coated sheet:

Core material (compressed polystyrene):

5.10.8. Acoustics

- a) The ambient noise level in the control room must not exceed 45 dB(A) during the length of the working day also it should not be less than 30dB.
- b) The auditory alarms Alarm signals should be at least 10 dB(A) over the background noise of the control room in order to be audible; and less than 15 dB higher than the background to avoid startling staff and affecting speech communication

5.10.9. Wiring for Ceiling Light

- a) Wiring for ceiling lights: For ceiling wiring inter looping will be done and switches will be provided.
- b) The system of wiring shall consist of PVC insulated copper conductor stranded flexible FRLS wires of 1100 volts grade of insulation, in metallic conduits for all exposed wiring and PVC/ metallic conduits for all concealed wiring. Minimum size of copper conductor shall be 1.5 sq. mm for lighting and 2.5 sqmm for power. Colour code shall be maintained for the entire wiring installation that is Red/Yellow/Blue (or as per Local Standards) for the all single phases, Black for neutral and Green for earthing.
- c) Appropriate ferrule will be used in both the side (LDB Side & Switch's Side)
- d) Note – Each Light Fixture will have 3 Wires: Phase, Neutral & Earth.

5.10.10. Switches and Sockets

Compliance to stringent quality norms, Dual shutter mechanism for easy & better fitment Wide & flat switch knob for easy operation. FR grade polycarbonate with high impact resistance, shock proof.

5.10.11. PVC Conduit

- a) The conduits for all systems shall be high impact rigid PVC heavy-duty type and shall comply with I.E.E regulations for standardized conduit 1.6 mm thick as per ISI Mark.
- b) All sections of conduit and relevant boxes shall be properly cleaned and glued using appropriate epoxy resin glue and the proper connecting pieces, like conduit fittings such as Mild Steel and should be so installed that they can remain accessible for existing cable or the installing of the additional cables.
- c) No conduit less than 20mm external diameter shall be used. Conduit runs shall be so arranged that the cables connected to separate main circuits shall

be enclosed in separate conduits, and that all lead and return wire of each circuit shall be run to the same circuit.

- d) All conduits shall be smooth in bore, true in size and all ends where conduits are cut shall be carefully made true and all sharp edges trimmed. All joints between lengths of conduit or between conduit and fittings boxes shall be pushed firmly together and glued properly.
- e) Cables shall not be drawn into conduits until the conduit system is erected, firmly fixed and cleaned out. Not more than two right angle bends or the equivalent shall be permitted between draw or junction boxes. Bending radius shall comply with I.E.E regulations for PVC pipes.
- f) Conduit concealed in the ceiling slab shall run parallel to walls and beams and conduit concealed in the walls shall run vertical or horizontal.

The chase in the wall required in the recessed conduit system shall be neatly made and shall be of angle dimensions to permit the conduit to be fixed in the manner desired. Conduit in chase shall be hold by steel hooks of approved design of 60cm centre the chases shall be filled up neatly after erection of conduit and brought to the original finish of the wall with cement concrete mixture 1:3:6 using 6mm thick stone aggregate and course sand.

5.11. Other Specifications

5.11.1. Video Wall

- 1) Configuration: Seamless Video wall of DLP Cubes. Each cube size to be 70" or more with complete configuration of **(6 cubes x 2 cubes)** with covered base (minimum number of cubes requirement indicated here, however as per requirement it may be increased by JSCL). All cubes have to be of the exact same size, configuration and model wise mandatorily. The wall to be installed in curved fashion with all required support system like Controller / stand for DLP Cubes / Interfaces / Connecting cables.
- 2) Operation 24 X 7: The Video Walls & Controllers and all support systems should be capable of working in 24 x 7 mode without any deterioration in the performance
- 3) Chip Type: DLP single chip
- 4) Native Resolution: Full HD (1920 x 1080)
- 5) Light Source Type: Laser light source with Nichia Laser diodes, Individual cube should be equipped with multiple laser banks and each laser bank should have an array of diodes. Single or multiple diode failure should not impact image display on the screen
- 6) Brightness of Projection: Typ. 2400 Lumens
- 7) Brightness of Cube: Minimum 600 nits and should be adjustable for lower or even higher brightness requirements
- 8) Brightness Uniformity: $\geq 98 \%$
- 9) Aspect ratio: 16:9 / 4:3
- 10) Contrast ratio: Typ. 1000000:1 or more

- 11) Redundant Dual Power Supply: Cube should be equipped with a built in dual redundant power supply
- 12) Hot Swappable Power Supply: The inbuilt power supply should be hot swappable
- 13) Control: IP based control to be provided
- 14) Remote: IR remote control should also be provided for quick access
- 15) Screen should be minimum 3 layers with a Hard Backing to prevent bulging
- 16) Screen to Screen Gap: ≤ 0.2 mm
- 17) Full viewing angle: 180 degrees
- 18) Total Cube depth including screen module should be less than 760 mm or lower
- 19) Maintenance Access: Rear mount
- 20) Inputs in the Cube: DVI-2, HDMI-1, HDbaseT-1, Display port-1, 21
- 21) Output in Cube: DVI – 1
- 22) Source Redundancy: System should able to switch to DP input if primary HDMI input is not available System should also automatically switch back to primary HDMI input from DP input as soon as the primary HDMI input is available again.
- 23) Projection system designed to meet IEC/ EN-60529 (IP6X standard)
- 24) Auto color adjust function: Should be sensor based, the sensor should be installed on top of the engine after the projection lens so that the tolerances of all the glass parts may be accounted for before making the auto adjust.
- 25) Cube control & Monitoring: Video wall should have cube control & monitoring system which can provide video wall status including source, light source, temperature, fan & power information. The system should be based on web-browser architecture. Should be able to provide an error message in three sections:
 - a. Problem area
 - b. Error Module Location
 - c. Error Module Image
- 26) Laser Lamp Life
 - a. Eco mode: 100,000 hours
 - b. Normal mode: 80,000 hours
 - c. Bright mode: 60,000 hours

5.11.2. Video Wall Controller

The Controller should be able to make all the 12 cubes behave as one logical area. It should be possible to display any or all the inputs on the video wall in any desired configuration. Should be possible to increase the no. of inputs if desired at a later stage. The controller should be of same OEM.

- 1) Display controller: Controller to control Video Walls in a matrix of 4 x 3 with 16 DVI outputs (for future expansion), 4 Universal inputs & DUAL LAN INPUTS along with requisite software
- 2) Processor: Single Quad Core Intel®: Xeon/i7 64-bit 2.0 GHz CPU or better
- 3) RAM: 8GB
- 4) HDD: 500 GB Hard Disk, Hard disk Capacity should be upgradable
- 5) RAID: RAID 0 configured with usable space of 500 GB in each controller
- 6) Networking:
 - a. Dual-port Gigabit Ethernet Controller inbuilt
 - b. Support for Add on Network adapters
 - c. Support for Optical Fiber interface Adapters
- 7) Accessories: DVD-R, DVD+RW, Keyboard, mouse
- 8) OS: Supports 64-bit Operating Systems Windows 7
- 9) Power Supply:
 - a. (1 + 1) Redundant AC-DC high-efficiency power supply w/ PFC
 - b. AC Voltage 100 - 240V, 50-60Hz
- 10) Chassis:
 - a. 19" industrial Rack mount movable
 - b. Front Panel should have lockable Door to Protect Drives
- 11) System Reliability:
 - a. Operating Temperature range: 10° to 35°C (50° to 95°F)
 - b. Non-operating Temperature range: -40° to 70°C (-40° to 158°F)
 - c. Operating Relative Humidity range: 8% to 90% (non-condensing)
 - d. Humidity: 10 – 90% non-condensing
 - e. Non-operating Relative Humidity: 5 to 95% (noncondensing)
- 12) Wall configuration: 16 DVI-D Outputs
- 13) Resolution: 1920x1200 per output minimum (WUXGA)
- 14) Universal Inputs: 8 Universal Inputs (Should be able to accept at least 4 kinds of signals i.e. DVI/RGB/Component Video) along with USB 3.0
- 15) Redundancy Support: System Should have the redundancy support for Controller HDD, power supply & LAN (Gigabit Ethernet RJ-45 connection)
- 16) Connectivity: Connectivity between the controller & Video wall should be on Optical Fiber cables only.
- 17) Video Wall, Controller, Cube and wall management: Video Wall, Controller, Cube & Wall management software should be from same OEM for ensuring smooth operations and seamless integration and feature enablement and enhancement. All licenses of the software supplied with Controller and Video

Wall should be with perpetual license and cost of the same should be included in the quoted cost.

- 18) Controller configuration: Two controllers should be provided which can act as backup to each other i.e. a single controller should be able to drive all the cubes of both the video walls.
- 19) Video Wall stand Floor Mount: Video Wall should be mounted on stand with minimum height of 750 mm (two and half feet) with flexibility of 50 mm height
- 20) Warranty: Comprehensive onsite warranty on the DLP video wall and Controller for 3 years

5.11.3. Video Wall Management Software

- 1) Should supports Multi client/Console control the Wall layouts
- 2) Software enable user to display, multiple sources up to any size and anywhere on the display wall.
- 3) Software should support to control the Brightness, Contrast, Saturation, Hue, filtering, Crop and Rotate function as per user requirement
- 4) Software should support for auto source detection
- 5) Software should support auto launch of Layouts according to specified time event by user
- 6) All the Layouts can be scheduled as per user convenience
- 7) system can able to work with 3rd party touch interfaces (Creston, AMX)
- 8) Should support multiple concurrent clients
- 9) Should support console view and KVM

5.11.4. Video Management System

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

- 1) Video Management System shall be used for centralized management of all field camera devices, video servers and client users.
- 2) Video Management System server shall be deployed in a clustered server environment or support inbuilt mechanism for high availability and failover.
- 3) Video Management System shall support a flexible rule-based system driven by schedules and events.
- 4) Video Management System shall be supported for fully distributed solution for monitoring and control with support for devices from different vendors.
- 5) Video Management System shall support ONVIF Profile S & G compliant internet protocol (IP) cameras.
- 6) All the offered Video Management System and cameras must have Open Network Video Interface Forum (ONVIF) compliance. Video Management

System shall be enabled for any standard storage technologies and video wall system integration.

- 7) Video Management System shall be enabled for integration with any external Video Analytics Systems both server & edge based.
- 8) All CCTV cameras locations shall be overlaid in graphical map in the Video Management System Graphical User Interface (GUI).
- 9) 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.
- 10) Video Management System shall have an administrator interface to set system parameters, manage codecs, manage permissions and manage storage.
- 11) The Control of cameras and monitoring on client workstations shall be controlled through the administrator interface of Video Management System.
- 12) Video Management System shall support video replay on the GUI for general review and also for pre- and post-alarm recording display.
- 13) The solution design for the Video Management System shall provide flexible video signal compression, display, storage and retrieval.
- 14) Video Management System 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)
 - c. Moving Picture Expert Group-4 (MPEG-4)
 - d. MP4 Export or Latest
- 15) 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.
- 16) The Video Management System shall support field sensor settings. Each channel configured in the Video Management System shall have an individual setup for the following settings, the specific settings shall be determined according to the encoding device.
- 17) The Video Management System 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
- 18) The Video Management System 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.
- 19) The Video Management System shall support bookmarking the videos. Thus, allowing the users to mark incidents on live and/or playback video streams.
- 20) The Video Management System 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.
- 21) Video Management System shall support automatic failover for recording.
- 22) Video Management System should also support dual recording or mirroring if required.

5.11.5. Poles for Traffic Signals

5.11.5.1. Cantilever Pole

- 1) Pole type Hot Dip Galvanized after Fabrication with coating of 86 micron as per IS:2629; Fabrication in accordance with IS-2713 (1980)
- 2) Height (ground-clearance): minimum 6 meters or higher, as per the Location requirements.
- 3) Pole Diameter: Minimum 10 cm diameter pole (ITMS System Integrator to choose larger diameter for higher height)
- 4) Bottom base plate: Minimum base plate of size 300x300x20 mm
- 5) Mounting facilities: To mount Traffic signals, Pedestrian Signals, Switch, PA system etc.
- 6) Pipes, Tubes: All wiring must be hidden, through tubes/pipes. No wires shall be visible from outside.
- 7) 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 minimum 100 cm.
- 8) Protection: Lightning arrester shall be provided, to protect all field equipment mounted on pole.
- 9) For cantilever or Type galvanized pole: Height 6.5 Meters long Pole having diameter 125 mm with a base plate is 300 x 300 x 20 mm.
Pole sheet thickness is 4mm, with a suitable Arm length: -

- a) For 2 lane Road 3 meters - ARM
- b) For 3 lane road 4.5 meters - ARM
- c) For 4 Lane Road 6 meters – ARM

Arm to be made available on both sides where space for centrally mounted pole is available.

5.11.5.2. Standard Pole

- 1) Pole type Hot Dip Galvanized after Fabrication with Silver coating of 86 micron as per IS:2629; Fabrication in accordance with IS-2713 (1980)
- 2) Height (ground-clearance): minimum 4.5 up to 6 meters, as per project site requirements. Based on the location requirement suitable size standard pole to be considered.
- 3) Pole Diameter: Minimum 10 cm diameter pole (ITMS System Integrator to choose larger diameter for higher height)
- 4) Bottom base plate: Minimum base plate of size 30x30x1.5 cm
- 5) Mounting facilities: To mount Traffic signals, Pedestrian Signals, PA system Switch, etc.
- 6) Pipes, Tubes: All wiring must be hidden, through tubes/pipes. No wires shall be visible from outside.
- 7) 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.
- 8) Protection: Lightning arrester shall be provided, to protect all field equipment mounted on pole.

5.11.6. Gantry for RLVD system/ANPR/SVD system

As per the location and ITMS system components requirement ITMS System Integrator should propose Gantry installation at the specified locations. ITMS SI is required to conduct the feasibility survey for the gantry installation at the specified junctions /locations and present the gantry designs to the JSCL for the final approval

The gantry should be aesthetically designed should be cladded with ACP or other appropriate material sheets to meet the urban aesthetic and durability standards.

S No	Description
1	Design Codes: Design should comply to following Standards/Codes/ and Documents
a	Load combination as per IS 800: 2013
b	Indian Standard IS 875 (Part 3):2015
c	PLG 07 (High Mast for Lighting & CCTV)
d	Deflection Criteria As per clause no. 2.3.2.3 of PLG 07
i	Maximum Deflection (in mm) – 25 times the nominal height (in m)
ii	Maximum Rotation (in degree) – 0.111 times the nominal height (in m)

S No	Description
e	Design Life of the structure should be minimum 15 years.
f	Basic Wind Speed shall be 120 km/h.
g	Ghust Effect Factor 3.5
h	6 Bolts Foundation Mount
2	MATERIAL GRADES
a	Pole shaft: A36 or Equivalent
b	Base plate: A572-50 or Equivalent
c	Anchor bolts: EN8 Grade
d	Structural shapes for Channel, angle, pipes as per IS:808 / IS:1161 / IS:2329 (YS: 240 Mpa or Equivalent)
e	Connection Bolts: Grade 5.6
3	Galvanization
a	Galvanizing of the structure need to be in compliance w A123/153. Galvanizing zinc tank should be lead free and Minimum Average Galvanization thickness should be 86 microns.
4	Tractability and Test Report
a	Manufacturer of the structures should have systems in place that shall provide the following levels of test report traceability: direct, one-to-one traceability to pole shafts and base plates batch to other structural components. The test reports and inspection records are maintained at manufacturer place. When requested, these can be provided to the customer no sooner than two weeks after the fabrication of the component
5	Dimension
a	Octagonal CCTV Pole height should be minimum 5.5 m height with minimum 3 m to 7.5 m cantilever arm.
b	There should be 7 m clear height available from the top of base plate. Structure joints should be such that they must accommodate the camera load and meet deflection criterion.
6	Type of Foundation
a	The Structure should have design foundation with appropriate Grade of concrete (M20) and should comply the soil test report 10T/SBC for foundation and J bolt Anchor Design
b	Steel anchor J bolts are embedded in the foundation. Base plate is welded at bottom of pole shaft and pole is fixed to foundation through base plate to anchor bolts connection.
c	The length of J bolt should be 1000 MM and dia of the J bolt should be 25 MM
d	The distance between the bottom of the Base Plate to the Top of the concrete foundation should be max 1.5 times of the J bolt Diameter and this gap to be filled with the cement grout and sealed.

The gantries shall have provision for placing multiple cameras, signage boards and other equipment. The gantries shall be aesthetically designed and should be cladded with ACP or other appropriate material sheets to meet the urban aesthetic and durability

standards. ITMS System Integrator shall submit minimum 3 designs for gantries to JSCL and shall design/build the gantries as per the final design approved by JSCL.

5.11.7. 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 ITMS System Integrator for efficient management of the system, reporting, SLA monitoring and resolution of issues. Enterprise Management Solution should provide end-to-end, comprehensive, modular and integrated management of IT infrastructure components to maximize the availability of IT services and SLA performance. The proposed EMS should automatically document problems and interruptions for various IT services offered and integrate with the service level management system for reporting on service level agreements (SLAs).

The proposed EMS solution must consist of the following core modules:

- A. Network Management System
- B. SLA Management
- C. Integrated Performance Management System:
- D. Application Performance Management System

5.11.7.1. Network Management System

The system shall provide fault and performance management of the network infrastructure that various services operate in. The proposed solution shall provide the following features:

- 1) 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 the topology map view from a single central console.
- 2) The proposed Network Fault Management console must also provide network asset inventory reports and SLA reporting for the managed network infrastructure.
- 3) The proposed solution must automatically discover manageable elements connected to the network and map the connectivity between them.
- 4) The system must be able to support mapping and modelling of the infrastructure grouped by network connectivity, physical location of equipment and user groups or departments.
- 5) The modelling of network connectivity must be performed using standard or vendor-specific discovery protocols to ensure speed and accuracy of the network discovery.
- 6) The proposed solution should provide root-cause analysis with multiple root cause algorithms inbuilt for root cause analysis. It should also have a strong event correlation engine which can correlate the events on the basis of event pairing, event sequencing etc.

5.11.7.2. SLA Management

- 1) The proposed service management system should provide a detailed service dashboard view indicating the health of each of the ITMS components/solutions as well as the SLAs.
- 2) The proposed Service Dashboard should provide a high-level view for executives and other users of the system. The system should provide an outage summary that gives a high-level health indication for each service as well as the details and root cause of any outage.
- 3) The system must breakdown SLA by the hour and should allow to drill down on each hour to report violations.
- 4) The Service Level Agreements (SLAs) definition facility must support defining a set of one or more service Guarantees that specify the Service obligations stipulated in an SLA contract for a particular time period (weekly, monthly, and so on). Guarantees supported must include one that monitors service availability (including Mean Time to Repair (MTTR), Mean Time between Failure (MTBF), and Maximum Outage Time thresholds) and the other that monitors service transaction response time.
- 5) The system must provide the capability to designate planned maintenance periods for services and take into consideration maintenance periods defined at the IT resources level. In addition, the capability to exempt any service outage from impacting an SLA must be available.

5.11.7.3. Integrated Performance Management System

This provides a comprehensive end-to-end performance management across key parts of the network infrastructure. It should allow identifying trends in performance in order to avert possible service problems.

- 1) The proposed performance management system shall integrate network, server and database performance information and alarms in a single console and provide a unified reporting interface for network components. The current performance state of the entire network & system infrastructure shall be visible in an integrated console.
- 2) Provide flow-based reporting for network troubleshooting and capacity management.
- 3) Provide Database Performance Monitoring.

Network Performance Management System

- 1) The Network Performance Management consoles must provide a consistent report generation interface from a single central console.
- 2) This central console shall also provide all required network performance reports (including latency, threshold violations, packet errors, availability, bandwidth utilization etc.) for the network infrastructure.
- 3) It shall provide comprehensive health reporting to identify infrastructure in need of upgrades and immediate attention.

Server Performance Monitoring

- 1) The proposed server performance management system shall integrate network performance management systems and provide the unified performance state view in a single console.

Database Performance Monitoring

- 1) The proposed database performance management system shall integrate network and server performance management systems and provide the unified view of the performance state in a single console.
- 2) It should be able to automate monitoring, data collection and analysis of performance from single point.
- 3) It should also provide the ability to set thresholds and send notifications when an event occurs, enabling database administrators (DBAs) to quickly trace and resolve performance-related bottlenecks.

5.11.7.4. Application Performance Monitoring

- 1) The proposed solution must provide a real-time application topology map to triage and quickly pinpoint the component causing a performance bottleneck in the end-to-end transaction flow.
- 2) The proposed solution must determine if the root cause of performance issues is inside the monitored application, in connected back-end systems or at the network layer from a single console view.
- 3) The proposed solution must proactively monitor 100% of real user transactions, detect failed transactions, gather evidence necessary for triage and diagnosis of problems that affect user experiences and prevent completion of critical business processes.
- 4) The proposed solution must gather available performance indicator metrics from all within real-time production environments and real user transactions 24x7 with minimal overhead on monitored applications without sampling.

5.12. Storage/Recording Requirements

It is proposed that the storage solution shall be modular enough to ensure compliance to the changes in storage / recording policy, to be evolved upon initial deployment of the system. The following storage requirements shall be fulfilled by the ITMS SI as scope for the project:

- i. 30 days storage of all the traffic monitoring camera feeds to be stored at Data Centre primary storage and Flagged data (critical incidents) shall be stored for approximately 90 days at secondary storage
- ii. 30 days storage for all traffic enforcement violations RLVD, SVD and No helmet, Triple riding at Data Centre primary storage and Flagged data (valid violations) shall be stored for approximately 90 days at secondary storage
- iii. 30 days storage of all the ANPR at Data Centre at Data Centre primary storage and Flagged data (critical incidents) shall be stored for approximately 90 days at secondary storage.

- iv. Backup storage of all flagged data shall be stored for 3 years.
- v. Data on storage would be over-written automatically by newer data after the stipulated time period. If some data is flagged by police personnel (or by designated personnel) as important data / evidence data due to some reporting of crime or accident in the area or due to court order or due to suspicious activity, it would need to be stored for longer duration, as per requirements and under governing Laws.
- vi. Full audit trail of reports to be maintained for 90 days.
- vii. ITMS System Integrator is expected to carry out the storage requirement estimation and supply as per the solution proposed.

Estimated Minimum Storage Requirement

Sl. #	Minimum Storage requirement	TB
1	Primary Storage	150
2	Secondary Storage	500

5.13. Technical Specifications of UPS for Junction at Each ARM

UPS for Junction at Each ARM		
S No	Description	
1	Capacity	Min 2.0 KVA (with Min 60 min Backup)
2	Input Voltage Range	190VAC to 240VAC
3	Input Frequency	50-60Hz
4	Input Phase	Single Phase with Ground
5	Output Voltage	220-230 VAC (regulated)
6	Output Frequency	50Hz (+- 1Hz)
7	Automatic charge battery in UPS off mode	Yes
8	Short-circuit and overload protection	Yes
9	Over heat protection	Yes
10	Noise Level	<50dBA

5.14. Technical Specification for Junction Housing

Technical Specification for Junction Housing		
S No	Description	
1	Size	15RU (25"X19"X20") Usable space or more as per the requirement
2	Protection	IP55
3	Construction	Welded Pre-Galvanized Plain Steel Construction 1.5 mm thick
4	Front Door	dual lockable steel door with 2mmthickness with gasket sealing, 2 Fan options for hot air execution
5	Equipment Mounting	vertical mounting rail for equipment 2 n pair (heavy duty (2.0 mm thickness)
6	Load Bearing Capacity	min 45KG
7	Ventilation	Side Walls Louvered Side Walls for Air Filter Fitting with FAN

8	Canopy	Integrated Canopy on top, 50mm extra coverage from front door side
9	Shelf	adjustable slot with Minimum two slots
10	Power Distribution Unit (PDU)	Min 2 Nos 5Amp 6 Socket (Type D)
11	Cable Manager	Horizontal PVC
12	Lock	Suitable inter Lock (top and bottom) and option for putting extra pad lock
13	Label	Asper the requirements of the JSCL
14	Traceability	AL Anodised SR no Plate
15	Colour	RAL 7035
16	Cable Entry	Bottom access Through cable glands – PG
17	Safety Standard	EN 60950

5.15. Technical Specifications of On Line UPS for TCC

On Line UPS for TCC		
SN	Technical Specifications	
1	Capacity	Three Phase 3 Wire for over 10 KVA or higher as per the requirement
2	Output Wave Form	Pure Sine wave.
3	Input Power Factor at Full Load	>0.90
4	Input Voltage Range	305-475VAC at Full Load
5	Input Frequency	50Hz +/- 3 Hz
6	Output Voltage	400V AC, Three Phase for over 5 KVA UPS.
7	Output Frequency	50Hz+/- 0.5% (Free running); +/- 3% (Sync. Mode).
8	Inverter efficiency	>90%
9	Over All AC-AC Efficiency	>85%
10	UPS Function (shutdown)	UPS should shutdown with an Audio alarm and Visual indication on following conditions
		Output Under and Over Voltage
		Battery Low
		Inverter Overload
		Over Temp
11	Battery Backup	4 Hours in full load.
12	Battery	VRLA ((Valve Regulated Lead Acid) SMF with 5 years warranty
13	Indicators & Metering	Indicators for AC Mains, Load on Battery, Fault, Load Level, Battery Low warning, inverter On, UPS on Bypass, Overload, Digital Meer for the Input Output Frequency, Battery Voltage and output Load current
14	Audio Alarm	Battery low, mains failure (any phase, over temp, Inverter Overload, battery Low and any other important fault

5.16. Functional & Technical specifications of Drone Camera Surveillance System

S.No.	DETAILS	SPECIFICATIONS
1	Physical Characteristics	
a	Drone/UAV weight with battery	<4kg
b	Drone/UAV size with propellers	<105cmx105cm
c	Propellers	Carbon Fiber
d	Frame	Carbon Fiber material for extreme sturdiness, weather resistance and lightweight
2	Drone/UAV performance characteristics	
a	Endurance for flight	50 minutes with all payload depending on wind condition
b	Range	4 km radius or more in communication LOS (Line of Sight)
c	Maximum launch altitude	2000m AMSL (above mean sea level)
d	Maximum operating altitude	200m AGL (above ground level)
e	Functional temperature range	0 degree C to +50 degree C
f	Wind Resistance	Minimum 16 knots
3	Operational Characteristics	
a	Launch & recovery	Autonomous vertical take-off and landing (VTOL)
b	Space required for recovery	Not more than open area of 10m x 10m
c	Flight modes	<ul style="list-style-type: none"> Fully autonomous take-off and landing. Hover at defined way-point Autonomous way-point navigation (pre-defined) Remotely piloted vehicle (RPV) mode for video-based navigation (videography possible in RPV mode)
d	Propulsion system	With electrical rechargeable lithium polymer battery
e	Fail-safe (FS) features	<ul style="list-style-type: none"> Return to home on communication failure Return to home / land on low battery Return to home on high winds
f	Packaging	Backpack that houses all the sub-systems which allow the complete system to be carried and operated on field by the crew safely and conveniently
g	Operating Crew	2 persons
4	Payload Characteristics	
a	Payload replacement time	<2 minutes
b	Payload freedom (for daylight payload) (in flight)	<ul style="list-style-type: none"> Pan: 360 degree continuous and Tilt: 0 degree to 90 degree
c	Payload (mandatory)	<ul style="list-style-type: none"> HD Zoom Camera: 10 x Optical or more an 4 x digital or more Gimbal stabilization

S.No.	DETAILS	SPECIFICATIONS
		<ul style="list-style-type: none"> Additional electronic stabilization at all zoom levels
5	Communication link characteristics	
a	Communication link capability all real time	<ul style="list-style-type: none"> Transmit control commands from GCS to Drone/UAV Transmit telemetry data from Drone/UAV to GCS Transmit day and night video from Drone/UAV to GCS
b	Video link	Analog
c	Frequency bank	2.4 GHz or 5.8 GHz up-link and down-link
6	Ground control station (GCS) characteristics	
a	Computing hardware	Laptop/tablet with battery lasting more than 2 full endurance flights in one charge
b	GUI display parameters	<ul style="list-style-type: none"> Geographic map along with Drone/UAV location, Drone/UAV trajectory, camera view polygon, way-points, flight plan Real-time video from the Drone/UAV with on-screen display of important parameters like Drone/UAV co-ordinates and range from Drone/UAV, true north indication, distance from home etc. Real time video should be displayed at all times during the flight Artificial horizon indicating Drone/UAV altitude
c	Maps	<ul style="list-style-type: none"> Capability to work with Google Maps or other available open source maps Capability to interact Geo-referenced maps provided in at least one of the commonly used digital map formats (gifs, tiff etc.)
d	User control	<ul style="list-style-type: none"> One click take-off/land/hover Set altitude of the Drone/UAV Way-point navigation RPV mode which allows Drone/UAV to be flown in semi-autonomous mode by looking at the on-board video Dynamic flight plan adjustment
e	Joystick control	<ul style="list-style-type: none"> Full camera controls <ol style="list-style-type: none"> Plan/Tilt Zoom In/Out RPV Mode Altitude control
f	Video	<ul style="list-style-type: none"> Video recorded in commonly portable video format (AVI/MP4 etc.) Video recording on/off

S.No.	DETAILS	SPECIFICATIONS
		<ul style="list-style-type: none"> Capability to take image snapshots with on screen display parameters at any time during flight
g	Pre flight check	Capability to perform pre-flight checks of the complete system before every flight for confirming the suitability of flight-worthiness
h	Others	<ul style="list-style-type: none"> Essential telemetry data logging Export of flight path in kml format for reviewing in Google Earth Port for data/video transfer to external storage device.
7	Other Parameters	
a	Training	<ul style="list-style-type: none"> Four persons per drone Duration: Minimum 5 days
b	Hand-holding / Troubleshooting	A dedicated after-sales support team will provide telephonic assistance to solve doubts arising during operation of Drone/UAV, post the training period.
c	Warranty	Three year warranty

5.16.1. Required Modules and output

The ITMS System Integrator shall provide required services and need to ensure the required in house capacity to render the following services including backend software analytics:

5.16.1.1. Modules

- **Module - 01:** Crowd Monitoring at public events
- **Module - 02:** Vehicle Monitoring at public events

5.16.1.2. Desired outputs

1. 360-degree Videography and high-resolution imagery for crowd and Vehicle monitoring
2. Real time automatic identification of suspicious and potentially unsafe activities/ situations using cameras and high-end software analytics
3. Analytics reports for all of the scope mentioned for Drone Surveillance system

5.17. 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. ITMS System Integrator are required to undertake their own requirement analysis and may propose higher specifications that are better suited to the requirements.
- 3) All IT Components should support Ipv4 and Ipv6

- 4) Technical Proposals should be accompanied by OEM's product brochure / datasheet. The Bidders shall provide complete make, model, part numbers and sub-part numbers for all equipment/software quoted in the Technical proposal.
- 5) The Bidders should ensure that only one make and model is proposed for one component in their Technical Proposal
- 6) The Bidders should ensure complete warranty and support for all equipment from OEMs.
- 7) All the back-to-back service agreements should be submitted along with the Technical Bid.
- 8) All equipment, parts should be original and new.
- 9) The user interface of the system should be a user friendly Graphical User Interface (GUI).
- 10) All the hardware and software supplied should be from the reputed Original Equipment Manufacturers (OEMs). JSCL reserves the right to ask replacement of any hardware / software if it does not conform to all the requirements specified in the RFP.

6. Service Level Agreements

The ITMS System Integrator shall have to meet the Service Levels, as defined herein. The Service Levels have been segregated into:

- Implementation Service Levels
- Post-Implementation Service Levels

6.1. Implementation Phase Service Level

6.1.1. Timely Completion of Project Milestones

Definition	Timely Completion of Project Milestones would comprise all milestones and deliveries including supply, installation and commissioning of ITMS Solutions that are to be completed as part of the project deliverables as per the defined timeframe, as per the Agreement. Week is defined a seven-day calendar period, e.g. one starting with Sunday and continuing through Saturday.
Service Level Requirement	All the milestones/ deliverables defined in the have to be completed within the timelines without any delay.
Measurement of Service Level Parameter	To be measured in number of weeks of delay from the date of completion as defined in the Agreement.
Default Charge for non-achievement of Service Level Requirement	Default Charge of 0.25% of the corresponding value of line item(s) per week delay

6.2. Post Implementation Service Level

6.2.1. Availability Measurement Calculation for a Month

Availability of Project components for a month shall be measured using following formula.

$$\{[(\text{Actual Uptime} + \text{Scheduled Downtime}) / \text{Total No. of Working Hours in a Month}] \times 100\}$$

Wherein,

“**Actual Uptime**” shall mean, of the Total Hours, the aggregate number of hours in any month during which each equipment/Hardware/application is actually available for use.

“**Scheduled Downtime**” shall mean the aggregate number of hours in any month during which each equipment, is down during total Hours, due to preventive maintenance, scheduled maintenance, infrastructure problems or any other situation which is not attributable to ITMS System Integrator failure to exercise due care in performing ITMS System Integrator responsibilities. The JSCL would provide a maximum of 04 hours of planned downtime for the preventive maintenance (as part of scheduled downtime) per month per equipment/service.

“**Total Working Hours**” shall mean the total hours over the measurement period i.e. one month (24 * number of days in the month).

Downtime Calculation

The recording of downtime shall commence at the time of registering the call with Helpdesk/ITMS System Integrator for any downtime situation for the equipment. Downtime shall end when the problem is rectified and the Hardware/equipment is available to the user.

Down time shall not be considered for following:

- 1) Pre-scheduled preventive maintenance and health checks (Scheduled Downtime).
- 2) Downtime arising out of the incidents not attributable to ITMS System Integrator.

6.2.2. General Terms

The SLA shall be monitored and Default Charges computed on monthly basis.

- 1) In case, the Default Charges hit the cap during three consecutive months, the same shall be considered an ITMS System Integrator’s Event of Default.
- 2) Default Charges for a month shall be capped at ten percent (10%) of the total Service Charge for the given month.
- 3) The number and format of reports shall be as per requirements provided by JSCL.
- 4) In case, JSCL so desires, the SLAs may be reviewed on yearly basis and may be amended based on mutual agreement. Till such time, any revision is mutually agreed, the existing SLAs shall continue to be in force.
- 5) SLA shall be excluded in case of incidents/instances not attributable to the ITMS System Integrator.

6.2.3. Availability of Field Equipment

Definition	<p>Availability of Field equipment shall mean that the equipment is able to perform its intended functions.</p> <p>Field equipment shall include Traffic Signal, field components of ITCS, PA system, enforcement cameras and other ITMS devices used in the field.</p>
Service Level Requirement	The average availability of the Field equipment should be at least 99% in a month.
Measurement of Service Level Parameter	<p>$\{[(\text{Actual Uptime} + \text{Scheduled Downtime}) / \text{Total No. of Working Hours in a Month}] \times 100\}$</p> <p>Each category of Device must separately meet the minimum Availability Standard of Performance on monthly basis</p>
SLA Exclusion	<p>Excludes:</p> <ul style="list-style-type: none"> • Scheduled downtime, subject to agreed schedule • Vandalism damage

Default Charge for non-achievement of Service Level Requirement	If the ITMS System Integrator is not able to meet the above defined service level requirement, then any deviation from the same would attract a default charge as per the following:			
	Availability (Monthly average)	>= 98 % to <99%	>= 97% to <98%	<97%
	Default Charge per month	Rs. 50 per percentage Point drop below Service Level for traffic signals (per traffic signal installed)	Rs. 75 per percentage Point drop below Service Level for traffic signals (per traffic signal installed)	Rs. 100 per percentage Point drop below Service Level for traffic signals (per traffic signal installed)
		Rs. 25 per percentage Point drop below Service Level for enforcement system as below: For ANPR / Other system – per camera For RLVD/SVD/ system – per lane	Rs. 50 per percentage Point drop below Service Level for enforcement system as below: For ANPR / Other system – per camera For RLVD/SVD system – per lane	Rs. 75 per percentage Point drop below Service Level for enforcement system as below: For ANPR / Other system – per camera For RLVD/SVD system – per lane
	Rs. 50 per percentage Point drop below Service Level for other system such as remote monitoring of weighbridge of SWM vehicles, Drone Camera Based surveillance	Rs. 75 per percentage Point drop below Service Level for other system such as remote monitoring of weighbridge of SWM vehicles, Drone Camera Based surveillance	Rs. 100 per percentage Point drop below Service Level for other system such as remote monitoring of weighbridge of SWM vehicles, Drone Camera Based surveillance	

6.2.4. Availability of ITMS Applications

Definition	Application availability refers to the total time when the ITMS Applications is available to the users for performing all activities and tasks. ITMS Applications shall include all applications being proposed by the ITMS System Integrator such as Applications for ANPR, RLVD, SVD, E-Challan Application etc.										
Service Level Requirement	The average availability of the ITMS Applications should be at least 99.5 % in a month										
Measurement of Service Level Parameter	$\frac{\{(Actual\ Uptime + Scheduled\ Downtime)\}}{Total\ No.\ of\ Working\ Hours\ in\ a\ Month} \times 100\}$										
SLA Exclusion	Any scheduled and approved preventive maintenance activity by the ITMS System Integrator should be carried out with prior approval JSCL/Jabalpur Police. Such scheduled and approved preventive maintenance activities shall preferably be carried out during night time (11 PM to 5 AM) and shall not exceed two instances in a quarter and each instance shall not exceed 4 hours.										
Default Charge for non-achievement of Service Level Requirement	<p>If the ITMS System Integrator is not able to meet the above defined service level requirement, then any deviation from the same would attract a default charge as per the following:</p> <table border="1"> <tr> <td>Application Availability (Monthly average)</td> <td>>= 99.25 % to <99.5%</td> <td>>= 99.0% to <99.25%</td> <td>< 99.00%</td> </tr> <tr> <td>Default Charge per month</td> <td>Rs. 25,000</td> <td>Rs. 50,000</td> <td>Rs. 1,00,000 (per 0.20 % drop or part thereof subject to minimum of Rs. 1 lakh)</td> </tr> </table>			Application Availability (Monthly average)	>= 99.25 % to <99.5%	>= 99.0% to <99.25%	< 99.00%	Default Charge per month	Rs. 25,000	Rs. 50,000	Rs. 1,00,000 (per 0.20 % drop or part thereof subject to minimum of Rs. 1 lakh)
Application Availability (Monthly average)	>= 99.25 % to <99.5%	>= 99.0% to <99.25%	< 99.00%								
Default Charge per month	Rs. 25,000	Rs. 50,000	Rs. 1,00,000 (per 0.20 % drop or part thereof subject to minimum of Rs. 1 lakh)								

6.2.5. Application Response Time

Definition	Application response time refers to the page load time, i.e. the time for loading a webpage of the ITMS Applications. ITMS Applications shall include all applications being proposed by the ITMS System Integrator such as Applications for ANPR, RLVD, SVD, E-Challan Application etc.
Service Level Requirement	The average application response time for users (time taken for loading of a web page) should not exceed 10 seconds in a month.
Measurement of Service Level Parameter	Application response time shall be measured on the basis of automated reports. The data should be captured through automated tools every 30 minutes during the working hours.

Default Charge for non-achievement of Service Level Requirement	If the ITMS System Integrator is not able to meet the above defined service level requirement, then any deviation from the same would attract a default charge as per the following:			
	Response Time (Monthly average)	> 10 secs to <12 secs	>=12 secs to < 16 secs	>= 16 secs
	Default Charge per month	Rs. 20,000	Rs. 30,000	Rs. 50,000

6.2.6. Availability of Network Connectivity

Definition	Network Availability refers to the total time when the connectivity is available to the users.			
Service Level Requirement	The average availability of the Network connectivity at various project locations except DC should be at least 99% in a month.			
Measurement of Service Level Parameter	Total Uptime of the Network Connectivity in a month in minutes)/ (Total Time in a Month in minutes)] *100 The above time would be calculated on 24 X 7 basis.			
SLA Exclusion	Any scheduled and approved preventive maintenance activity by the ITMS System Integrator should be carried out with prior approval JSCL/Jabalpur Police. Such scheduled and approved preventive maintenance activities shall preferably be carried out during night time (11 PM to 5 AM) and shall not exceed two instances in a quarter and each instance shall not exceed 4 hours.			
Default Charge for non-achievement of SLA	Connectivity per location (Monthly average)	>= 98 % to <99%	>= 97% to <98%	<97%
	Default Charge per incident (per month)	Rs. 15,000	Rs. 20,000	Rs. 25,000 (per percentage drop or part thereof)

6.2.7. Security & Incident Management

Definition	<p>Security incidents could consist of any of the following but not limited to:</p> <ul style="list-style-type: none"> • Virus Attack – This shall include malicious code infection of any of the desktops/servers in the network. • Denial of Service Attack – This shall include non-availability of service • Data Theft – Compromise of any kind of data through network. • Intrusion – Unauthorized access to ITMS Application / network resulting in loss of confidentiality/Integrity/ availability of data.
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Service Level Requirement	Zero incident
Measurement of Service Level Parameter	Count of incidents of security breach including Virus Attack, Denial of Service Attack (DoS), Intrusion in a month
Default Charge for non-achievement of SLA	If the ITMS System Integrator is not able to meet the above defined service level requirement, then any deviation from the same would attract a default charge of Rs. 5,000 per incident.

7. Indicative Bill of Materials

The Proposed Indicative Bill of Materials for the Project is as given in as below

Table 7-1: Proposed Indicative Bill of Materials

Sl. #	Line Item/Description	Unit	Quantity
A	TRAFFIC MANAGEMENT COMPONENTS		
1.	Intelligent Traffic Control System (ITCS) for a T-Junction with complete hardware and software including traffic controller, LED aspects including pedestrian Lamp Heads- Stop Man/ Walk Man, non-intrusive detectors (Thermal / Radar/ Video), mounting infrastructure, UPS, Outdoor Cabinet with suitable mounting, earthing, surge protection arrangement, accessories etc. as required.	Junction	7
2.	Intelligent Traffic Control System (ITCS) for a 4-arm Junction with complete hardware and software including traffic controller, LED aspects including pedestrian Lamp Heads- Stop Man/ Walk Man, non-intrusive detectors (Thermal / Radar/ Video), mounting infrastructure, UPS, Outdoor Cabinet with suitable mounting, earthing, surge protection arrangement, accessories etc. as required	Junction	12
3.	Intelligent Traffic Control System (ITCS) for a 5-arm Junction with complete hardware and software including traffic controller, LED aspects including pedestrian Lamp Heads- Stop Man/ Walk Man, non-intrusive detectors (Thermal / Radar/ Video), mounting infrastructure, UPS, Outdoor Cabinet with suitable mounting, earthing, surge protection arrangement, accessories etc. as required	Junction	1
4.	PA system including hardware, software mounting infrastructure, accessories etc.	Location	20
5.	Variable Message Sign (VaMS) System including Hardware, Software, UPS, mounting infrastructure, Installation and Integration with TCC	Number	10
6.	PA System Software Application at TCC	Licence	1
7.	ITCS Software Application at TCC	Licence	1
8.	Variable Message Sign (VaMS) System Software at TCC	Licence	1
B	TRAFFIC ENFORCEMENT COMPONENTS		
9.	Red Light Violation Detection (RLVD) System including Speed Violation Detection (SVD), No Helmet, Triple Ridding with complete hardware and software including Speed detectors (Radar /Camera/ Thermal Camera/ any other non-intrusive sensor), ANPR cameras, IR Flashes, Overview Cameras, Local Processing Unit, with cabling, accessories & Mounting Infrastructure Switch /Router, Junction UPS, software licenses etc. as required	Junctions/Lane	20/96
10.	Preparation of Junction Infrastructure (Zebra, Stope Line Reflective Sign edges for RLVD, Speed, Stop Line etc.) as per IRC guidelines for enforcement.	Junctions	20

Sl. #	Line Item/Description	Unit	Quantity
11.	ANPR System for all lane coverage both directions (with Vehicle Count, Classification with vehicle registration no Plate capture) including Hardware, Software, Local Processing Unit, with cabling, accessories & mounting infrastructure, junction UPS switch /Router etc. as required	Location/Lane	3/18
12.	Speed Violation Detection System with complete hardware and software including Speed detectors (Radar /Camera/ Thermal Camera/ any other non-intrusive sensor), ANPR cameras, IR Flashes, Overview Cameras, Local Processing Unit, with cabling, accessories & mounting infrastructure, UPS, switch /Router etc. as required	Locations/ Lane	5/24
13.	RLVD (including Speed, No Helmet, Triple Ridding etc.) Application Software at TCC	License	1
14.	ANPR Software Application at TCC	License	1
15.	SVD Software Application at TCC	License	1
16.	E-Challan software Application at TCC including integration with State/ RTO/ National database, Payment Portal/Mobile App / Payment Gateway etc.	License	1
C	Other Components		
17.	Required Hardware / Camera/ Sensors and System Software along with cabling, accessories & Mounting Infrastructure as required for Solution of Remote Monitoring of Weighbridge of SWM vehicles entry/exit at the Kathonda Plant, Jabalpur	Location	1
18.	Application Software at TCC for solution of Remote Monitoring of Weighbridge of Solid Waste Management (SWM) vehicles	License	1
19.	Required Hardware / Camera/ Sensors/ Connectivity Equipment/ communication link / Manpower Training/ System Software/ along with accessories etc. as required for Solution of Drone Surveillance System	No.	5
20.	Application Software at TCC for solution of Drone Surveillance System	License	1
D	DATA CENTER AND TCC		
21.	ICT and Non-ICT Infrastructure for Data Center including but not limited to Racks, Servers, Storage, Operating systems, RDBMS, Firewall, Antivirus, Backup, cabling, Electrical Panelling, Earthing, Networking, Switches, Routers etc. as required.	No.	1
22.	Enterprise Management System (including SLA Management, Helpdesk Management, Network Management, etc.)	No.	1
23.	Integration with City CCC	LS	1
24.	Online UPS for the Data Centre and TCC (including redundant UPS)	No.	2
25.	Video Wall DLP Laser Cube - 70" in 6x2 matrix including mounting	No.	12
26.	Video Wall Controller including software	No.	1
27.	Video wall Management software License	No	1
28.	Monitoring Workstations each with 3 Monitors 21 inches including operating system, peripherals, Microsoft Office suite etc.	No.	15

Sl. #	Line Item/Description	Unit	Quantity
29.	Heavy duty Network Printers (MFC) [High speed and Duplex with Printing capacity of 5000 Pages per day] for printing of challans	No.	2
30.	Local Printer	No.	1
31.	EPABX with extensions for all DC/TCC staff	No.	1
32.	Civil Work and interior design including masonry work, flooring, false ceiling, lighting partitioning work for Data Centre and TCC, conference/ meeting rooms, furniture and fixtures for TCC & conference/meeting rooms, one 55" TV, terminal desks (for 15 workstations), etc.	LS	1
33.	Fire Safety System with alarms	LS	1
34.	Access Control System (RFID based, for all staff)	LS	1
35.	Air Conditioning for Data Centre and TCC	LS	1
36.	Rodent Repellent system	Set	1
E	CONNECTIVITY		
37.	Junctions with the following systems: <ul style="list-style-type: none"> • ITCS • PA system • RLVD System • Triple Riding • No Helmet 	Location	20
38.	Locations with ANPR System	Location	3
39.	Locations with Speed Violation Detection System	Location	5
40.	Locations with VaMS	Location	10
41.	Locations for Remote Monitoring of Weighbridge of SWM vehicles	Location	1
42.	Internet Leased line connectivity for Data Center & TCC	Location	1
43.	Telephone Line	Number	1
F	CAPACITY BUILDING & TRAINING		
44.	Functional training - For Traffic Management and Traffic Enforcement solutions	Training Day	4
45.	Administrative Training - For Traffic Management and Traffic Enforcement solutions	Training Day	4

Note: Quantity mentioned above is indicative only and may vary as per the requirement of the JSCL.

8. Annexure I –List of Indicative Locations

8.1. Indicative List of Locations for Proposed ITCS, PA system and RLVD system

SI #	Name of Junction/Location	No. of Arms	Currently Signalised (Yes/No)	Lanes on Major Corridor (Single carriageway)	Lanes on Minor Corridor (Single carriageway)
1	Damoh naka Chowk	4- arm Junction	Yes	4	1
2	Choti Line Junction	4- arm Junction	No	3	4
3	Jabalpur Hospital Jn.	T- Junction	Yes	2	2
4	Russel Chowk	T- Junction	Yes	2	3
5	Naudra Bridge Junction	T- Junction	No	2	2
6	AdharTal	T- Junction	No	2	2
7	Tripuri Chowk	T- Junction	No	2	1
8	Old Bus Stand 'T' Piont	T- Junction	Yes	3	2
9	Bloom Chowk Junction	4- arm Junction	Yes	2	4
10	Ranital Chowk	5- arm Junction	Yes	4	3
11	Malviya Chowk	T- Junction	No	2	2
12	Bandaria Tiraha	T- Junction	yes	2	2
13	Madan Mahal Chowk	4- arm Junction	Yes	2	4
14	Raddi Chowk	4- arm Junction	Yes	2	4
15	Gohalpur Chowk	4- arm Junction	No	3	2
16	Rampur Choraha (Granade Chowk)	T- Junction	No	2	2
17	Baldevbagh Jn.	4- arm Junction	Yes	3	3
18	Labour Chowk	4- arm Junction	Yes	2	4
19	Karamchand Chowk	4- arm Junction	No	3	2
20	ISBT Chowk	4- arm Junction	Yes	2	4
21	Ahinsa Chowk	4- arm Junction	Yes	2	2
22	Ekta Chowk	4- arm Junction	No	2	2
23	Collectrate Chowk	4- arm Junction	No	3	3
24	Thana Madotal Tiraha	T- Junction	No	2	2
25	Teen Patti Chowk	4- arm Junction	Yes	2	4

Note: JSCL shall decide the final Locations/Junctions to be covered under the ITMS project out of the above indicative list or may add any other junction also, as per its requirements.

8.2. Indicative List of Proposed Locations for ANPR System

SI #	Proposed Location	Remarks
1.	Medical College	City entry/exit point
2.	Police Chowki Thana Gaur Barela, Barela Road	City entry/exit point
3.	Jabalpur Engineering College, Ghana Road	City entry/exit point
Total		

Note:

- 1) Total 18 lanes to be covered across above indicative locations.
- 2) JSCL shall decide the final Locations/Junctions to be covered under the ITMS project out of the above indicative list or may add any other Locations/Junctions also, as per its requirements.

8.3. Indicative List of Locations for Speed Violation Detection System

Sl. #	Name of Location	No. of lanes to be covered
1.	Deen Dayal Junction towards NH by-pass	3 lanes on each side
2.	Near Dhanvantri Nagar crossing	2 lanes on each side
3.	Near Maharajpur Junction towards NH by-pass	3 lanes on each side
4.	Near Medical College	2 lanes on each side
5.	IIITDM College, Dumna Road	2 lanes on each side
Total		Total 24 lanes

Note: JSCL shall decide the final Locations/Junctions to be covered under the ITMS project out of the above indicative list or may add any other Locations/Junctions also, as per its requirements.

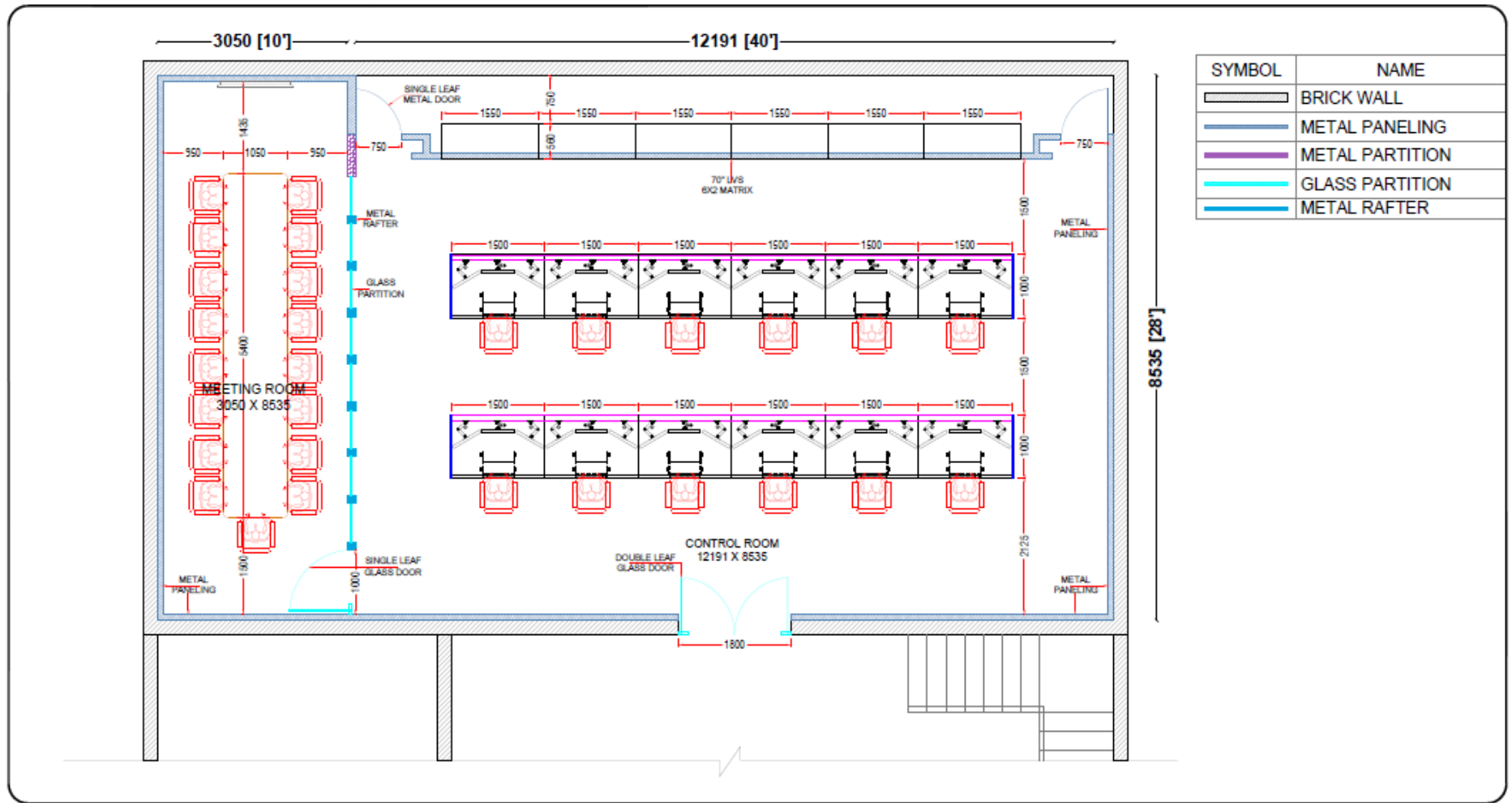
Annexure II – Indicative list of activities for E-challan process

Steps	Process Description	Actor	Remarks, if any
1.	RLVD/SVD/ANPR system detects a violation and captures the image of the Number plate of the vehicle and overview camera (in case of RLVD system) captures a snapshot of the surrounding Following violations to be - Red Light violation - Stop line violation - Speed limit violation - Triple riding on two-wheelers - Driving two-wheelers without helmet	System	1. "Confidence level" for the System to be set. Automatic e-challan generation to be based on the set Confidence Level. 2. E-challan to be generated automatically for confidence level above set value.
2.	In case the confidence level is below the set value, the operator validates the "Number" with the image(s) of the Number plate as popped up by the system.	ITMS System Integrator	
3.	The System checks the registration details of the "Number" with the RTO database (MP transport database and Vahan Database)	System	
4.	The operator validates the vehicle registration details for issuance of e-challan. Operators prepares an exception list based on the following: - Mismatch in information captured by the System and the information as per RTO database. - Incomplete details relating to address, contact number as per RTO database due to which challan cannot be dispatched to violators.	ITMS System Integrator	
5.	The system automatically calculates the penalty for different types of violation as per the MV Act, as applicable.	System	
6.	In case of any discrepancy/incompleteness in the information regarding the address of the vehicle owner provided in the RTO database, the operator validates the details of the driver owner by calling up the contact number (wherever contact numbers are provided) as provided in the RTO database, and also updates the e-Challan database based on the confirmation received from the vehicle owner.	ITMS System Integrator	In case of discrepancy where contact number are not provided or where the information regarding address of vehicle owner cannot be confirmed due to any reason, those cases have to be dropped, and e-challan cannot be issued.
7.	Printing of e-Challan by Operators after proper verification of Name, address and Contact details	ITMS System Integrator	

Steps	Process Description	Actor	Remarks, if any
8.	Signing of printed copies of e-Challan. Provision also to be made for digital signature by police official	Police dept.	<ol style="list-style-type: none"> 1. Mechanism shall be worked with Traffic Police for signing of e-Challan hard-copies. 2. System Integrator to maintain a copy of signed e-challan for future reference, Hardcopy as well as soft copy.
9.	Dispatch of hardcopy e-challan by speed post/registered post. And, also a soft copy via email/WhatsApp wherever applicable.	ITMS System Integrator	Speed post shall be mandatorily sent to vehicle owners.
10.	Payment option for e-challan - MP Online - Madhya Pradesh Police e-Challan - MP Treasury portal - 311 mobile App - Payment in cash at police station	Public	The System shall integrate with existing payment options.
11.	For payment in cash at police station - System Integrator to update the ITMS system, based on the challan payment receipts received from the police.	ITMS System Integrator	<ol style="list-style-type: none"> 1. Police to maintain triplicate copies of challan payment receipt - one for violator, one for police records and one for System Integrator. 2. System Integrator shall arrange to collect the challan payment receipts from designated police stations in Jabalpur on a periodic basis, say, daily, every two days, or as decided by JSCL and Police dept.
12.	Police dept. deposits the accumulated cash received against issued challan at govt. treasury.	Police dept.	
13.	The system to generate reminder e-challan for challan pending for more than specified duration as finalised by JSCL/Police dept.	System	
14.	Reminder to payment to challan to be sent to violators via speed post	ITMS System Integrator	
15.	Various reports to be generated by the system, including but not limited to: - Dashboard - Total challans issued - Challan paid - No. of challan pending - Types of default/violations - Various analyses	ITMS System Integrator	

Note: The above steps and roles are indicative and shall be finalized at the time of implementation phase.

Annexure III - Tentative Layout of the TCC



Note: Provided Layout and location/address of TCC is indicative only and JSCL shall decide the final Locations of TCC.