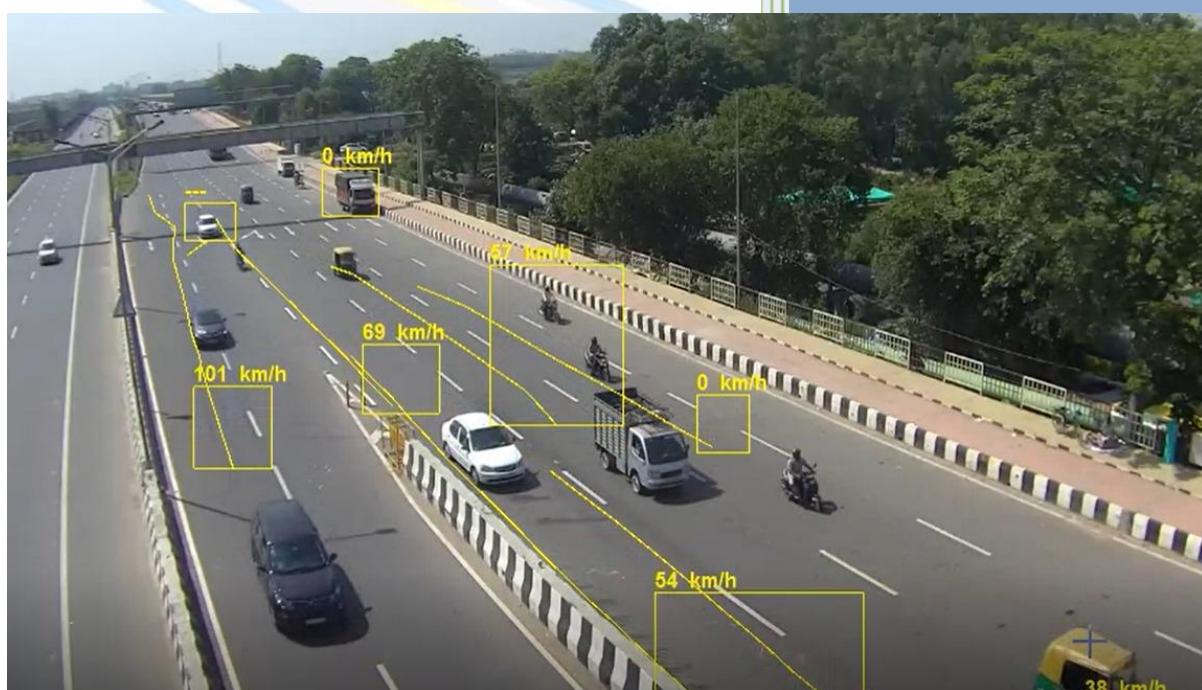


## Video Incident Detection System (VIDS) for National Highways in Zone-1

### Request for Proposal (RFP)



RFP No. NHAI/VIDS Z1/001/03-2021

**National Highways Authority of India**  
G-5&6, Sector-10, Dwarka, New Delhi-  
110075  
March-2021



### **Disclaimer**

The information contained in this RFP document (the “RFP document”) or subsequently provided to Bidder(s), whether verbally or in documentary or any other form by or on behalf of NHAI or any of its employees or advisors, is provided to Bidder(s) on the terms and conditions set out in this RFP document and such other terms and conditions subject to which such information is provided.

This RFP document is not an agreement and is neither an offer nor invitation by NHAI to the prospective Bidders or any other person. The purpose of this RFP document is to provide interested parties with information that may be useful to them in making their technical/ financial offers (“Bid(s)”) pursuant to this RFP document. This RFP document includes statements, which reflect various assumptions and assessments arrived at by NHAI in relation to the Project. Such assumptions, assessments, and statements do not purport to contain all the information that each Bidder may require. This RFP document may not be appropriate for all persons, and it is not possible for NHAI, its employees or advisors to consider the investment objectives, financial situation, and particular needs of each party who reads or uses this RFP document. The assumptions, assessments, statements and information contained in this RFP document, may not be complete, accurate, adequate or correct. Each Bidder should, therefore, conduct its own investigations and analysis and should check the accuracy, adequacy, correctness, reliability, and completeness of the assumptions, assessments, statements, and information contained in this RFP document and obtain independent advice from appropriate sources.

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

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

NHAI also accepts no liability of any nature whether resulting from negligence or otherwise howsoever caused arising from reliance of any Bidder upon the statements contained in this RFP document. NHAI may in its absolute discretion, but without being under any obligation to do so, update, amend, or supplement the information, assessment or assumptions contained in this RFP document.

The issue of this RFP document does not imply that NHAI is bound to select a Bidder or to appoint the Successful Bidder for the Project and NHAI reserves the right to reject all or any of the Bidders or Bids without assigning any reason whatsoever.

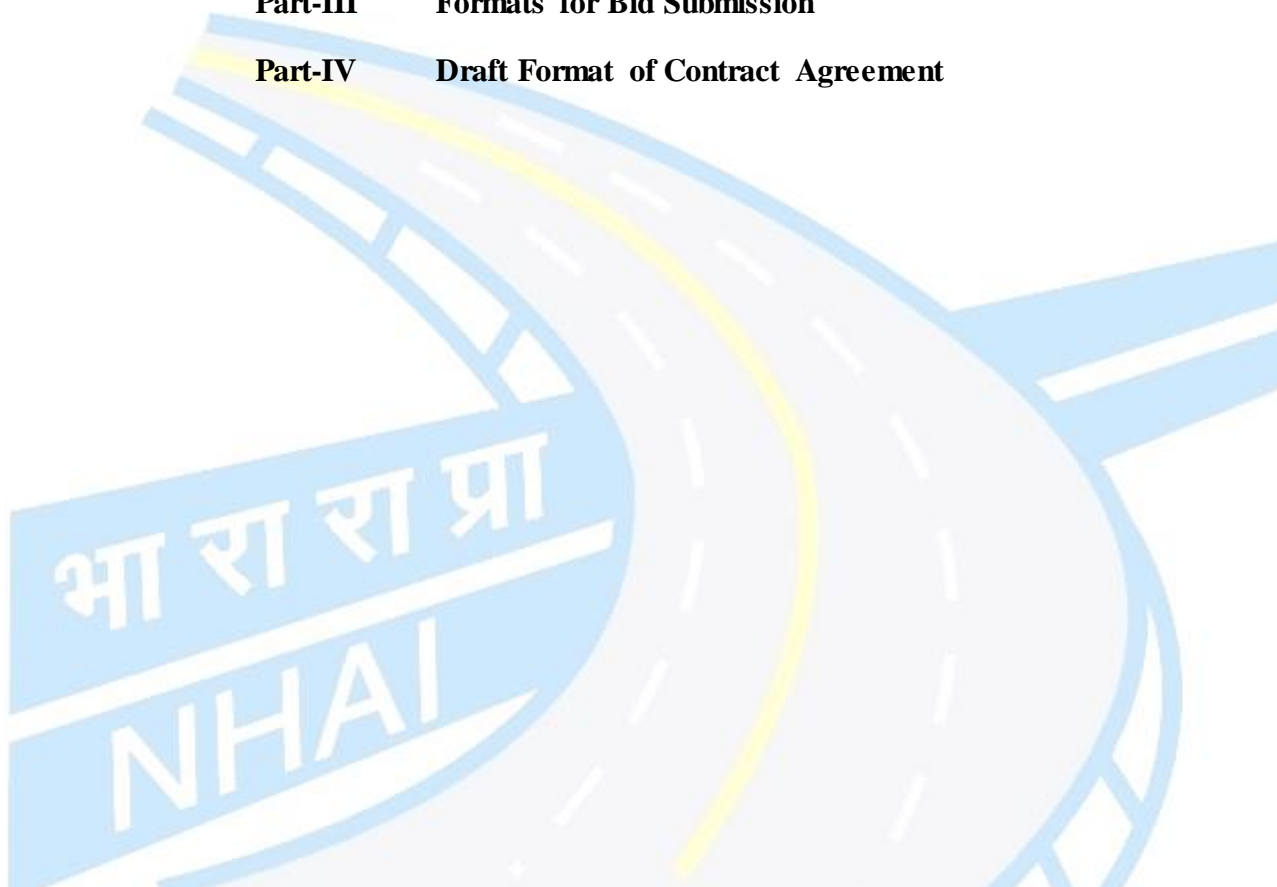
The Bidder shall bear all their costs associated with or relating to the preparation and submission of their Bid including but not limited to preparation, copying, postage, delivery fees, expenses associated with any demonstrations or presentations which may be required by NHAI or any other costs incurred in connection with or relating to Bid. All such costs and expenses will remain with the Bidder and NHAI shall not be liable in any manner whatsoever for the same or for any other costs or other expenses incurred by a Bidder in preparation or submission of the Bid, regardless of the conduct or outcome of the bidding process.



### **Document Composition**

This RFP Documents comprises for following parts.

- Part-I**      **Instructions to Bidders**
- Part-II**     **Terms of Reference**
- Part-III**    **Formats for Bid Submission**
- Part-IV**    **Draft Format of Contract Agreement**



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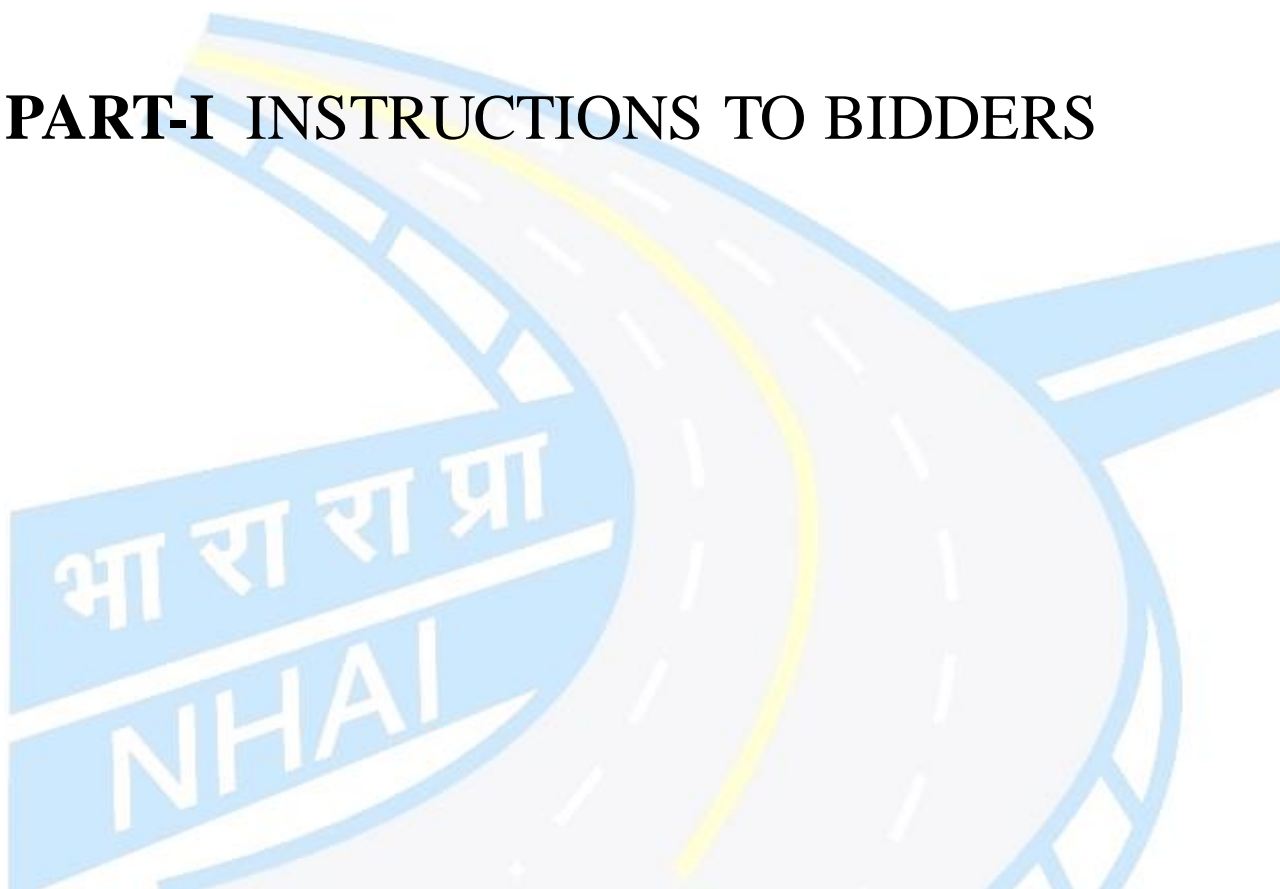
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## **PART-I INSTRUCTIONS TO BIDDERS**





### NOTICE INVITING TENDER

(National Competitive Bidding through e-Tendering mode only)  
RFP No. NHAI/VIDS Z1/001/03-2021 dated 03/03/2021

National Highways Authority of India (Hereinafter referred to as “Authority” or “NHAI”) intends to engage the Contractor for Design, Supply, Installation, Testing, Commissioning, Configuration, System Integration, Operations and Maintenance of Video Incident Detection System (VIDS) for National Highways at 100 locations in each Zone. NHAI reserves the right to order for increase in the no. of locations by upto 100% or decrease on locations by up to 50%, without any change in the Unit Price.

2. The project shall be a complete VIDS solution with provision of skilled resources at all locations for operations and shall be offered to NHAI on **service model**. The period of engagement shall initially be **five years and four months inclusive of project implementation period**. This may be extended, at the sole discretion of NHAI, for another two years subject to satisfactory services and continued requirement of NHAI.

3. The prospective bidders are hereby invited to submit their bids comprising Technical and Financial Bids through e-tendering mode only by the bid due date. Bid shall be valid for 120 days w.e.f. bid due date. The bids should be submitted online only on e-tender portal of NHAI and in the prescribed formats. No change in the formats and / or other mode of bid submission is permissible.



**SCHEDULE OF IMPORTANT EVENTS / ACTIVITIES**

Sl. No.	EVENT(S)	DATE (Unless otherwise notified separately)
1.	Issue of Bid Document	03/03/2021
2.	Pre-bid Meeting	30/03/2021
3.	Last date/ time for online submission of bids (i.e. <b><i>Bid due date</i></b> )	Before 11:00 Hrs. 21/04/2021
4.	Opening of <i>Technical bids</i>	11:30 Hrs. 22/04/2021
5.	Opening of Financial bids	To be intimated to shortlisted/ pre-qualified bidders separately





**TENDER APPLICATION FEE, BID SECURING DECLARATION AND GENERAL TERMS OF BIDDING**

- 1.1. Bidder should pay **Tender Application Fee** (non-refundable) **INR 10,000/- (Rupees ten Thousand only)** through online mode on the e-tender portal of National Highways Authority of India. The Bidder shall also upload the online payment receipt.

Details of designated bank account are as under:

S.No.	Particulars	Details
1.	Name of Beneficiary	National Highways Authority of India
2.	Name of Bank	Syndicate Bank
3.	Account No.	84811010000272
4.	IFSC Code	SYNB0009856

- 1.2. The **Bid Securing Declaration** as per the format in the RFP shall be submitted as part of the bid

- 1.3. Any bid *not accompanied* by an acceptable Bid Securing Declaration and / or Tender Application Fee in the prescribed manner shall be summarily rejected. This information should be provided in the technical bid.

- 1.4. **INVOCATION OF BID SECURING DECLARATION:** The Bid Securing declaration shall be invoked by NHAI as mutually agreed genuine pre-estimated compensation and as damages payable to NHAI for, *inter-alia*, time, cost and effort of NHAI without prejudice to any other right or remedy that may be available to NHAI under the provisions in the RFP and/or under the Contract, or otherwise, under the following circumstances:

- If a Bidder engages in a corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice; or
- If the Bid is withdrawn during the intervening period between the bid due date and the expiration of the Bid Validity; or
- If the bidder tries to influence the evaluation process; or
- If a Bidder having been notified Successful Bidder by NHAI with the issuance of Letter of Award (LOA) during the bid validity period:
  - Fails or refuses to furnish the Performance Security, in accordance with the conditions of RFP; or
  - Fails or refuses to execute/sign the Contract within the stipulated time frame.

- 1.5. No Bidder shall submit more than one Bid for the Project. A Bidder bidding individually or as a member of a JV/Consortium shall not be entitled to submit another Bid either individually or as a member of any JV/ Consortium, as the case may be.

- 1.6. Any condition or qualification or any other stipulation contained in the Bid shall render the Bid liable to rejection as a non-responsive Bid.

- 1.7. The Bidding documents including this RFP and all attached documents, provided by the Authority are and shall remain or become the property of the Authority and are transmitted to the Bidders solely for the purpose of preparation and submission of a Bid in accordance herewith. Bidders are to treat all information as strictly confidential and shall not use it for any purpose other than for preparation and submission of their Bid. The provisions of this Clause 1.8 shall also apply mutatis mutandis to Bids and all other documents submitted by the Bidders, and the Authority will not return to the Bidders any Bid, document or any information provided along therewith.



- 1.8. Notwithstanding anything to the contrary contained herein, in the event that the Bid Due Date falls within three months of the closing of the latest financial year of a Bidder, it shall ignore such financial year for the purposes of its Bid and furnish all its information and certification with reference to the 5 (five) years, preceding its latest financial year. For the avoidance of doubt, financial year shall, for the purposes of this Bid hereunder, mean the accounting year followed by the Bidder in the course of its normal business.



**ELIGIBILITY AND PRE-QUALIFICATION CRITERIA****2.1** Bidders fulfilling the criteria listed below will be empanelled:

S. No.	Criteria
A	<p><b>Firm Details</b></p> <p>a) <b>Field of Business:</b> The bidder should be in the field of Information Technology / Electronics/ Communication Technology/ ITS / System Integration including OEM thereof or <b>System Integrator for at least last 3 years (prior to the date of bid submission)</b>. Copy of relevant and valid Completion Certificate and LOA/Contract of more than 3 years before the date of bid submission should be submitted in the Technical bid.</p> <p>b) <b>Registration Status:</b> The bidder must be a company incorporated / <b>registered in India under the Companies Act 1956 for at least 3 years (prior to the date of bid submission)</b>. Certificate of incorporation / registration must be submitted as documentary proof for the same.</p> <p><b>OR</b></p> <p><b>A wholly owned/51% subsidiary Company registered in India of a Foreign Company</b> having requisite experience. For considering the technical and financial experience of the Parent Company, the subsidiary Company registered in India should provide an undertaking from their Parent Company confirming thereby:</p> <ul style="list-style-type: none"> <li>(i) Perpetual and unconditional access to expertise, personnel and facilities of the Parent Company to the Indian Company; and</li> <li>(ii) Sharing of risks and profits of the Indian Company by the Parent Company.</li> </ul> <p>c) <b>Joint Venture:</b> A Joint Venture (JV)/ Consortium is permissible subject to fulfilling following conditions:</p> <ul style="list-style-type: none"> <li>(i) maximum number of members in the JV or Consortium shall be two;</li> <li>(ii) the parties in a JV or Consortium shall be jointly and severally liable;</li> <li>(iii) members of the JV/ Consortium shall nominate one member as the lead member (the "Lead Member"), who shall have at least 51% (fifty one percent) stake in the JV/ Consortium. The nomination(s) shall be supported by a Power of Attorney, as per the format at Form <b>T-4</b>, signed by all the members of the JV/Consortium.</li> <li>(iv) the Lead Partner, shall be the technology/ solution provider firm/ system integrator company amongst the parties in JV/ Consortium and shall fulfill eligibility condition at a) above;</li> <li>(v) the Bid should include a brief description of the roles and responsibilities of individual members, particularly with reference to financial, technical and O&amp;M obligations.</li> <li>(vi) an individual Bidder cannot at the same time be member of a JV/ Consortium applying RFP. Further, a member of a particular JV/ Consortium cannot be member of any other JV/ Consortium applying for RFP.</li> <li>(vii) members of the JV/ Consortium shall enter into a binding Joint Bidding Agreement, substantially in the form specified at Form <b>T-5</b> (the "Joint Bidding Agreement"), for the purpose of submitting a Bid.</li> <li>(viii) the technical and financial <b>eligibility/ experience of any partner of JV or Consortium shall be considered only if the partner is proposed to have at least twenty six percent (26%) stakes in the JV/ Consortium.</b></li> </ul> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>• <b>No change in the constitution of JV/ Consortium will be allowed during the entire period of contract validity without the prior approval of NHAI.</b></li> <li>• In the event of failure of sustenance of JV/ Consortium, the contract shall be cancelled, bid securing declaration forfeited and each constituent of JV/ Consortium will be debarred</li> </ul>



S. No.	Criteria
	<p>for 2 years from any works of NHAI. Further, the contracts already awarded, if any, shall be terminated and the performance bank guarantees shall be forfeited by NHAI.</p> <ul style="list-style-type: none"> <li>• The documentary proof in support of fulfilling the eligibility criteria by the Consortium/ JV, along-with a Joint Bidding Agreement as well as other relevant documents as stipulated in the RFP document shall be submitted as part of the bid.</li> <li>• The Joint Bidding Agreement should clearly describe the responsibility of each partner.</li> </ul> <p><b>d) Turnover:</b> The Bidder should have minimum annual turnover from Information Technology / Communication Technology / System Integration <b>of INR 9.0 Crores (Rupees Nine Crores)</b> in last 3 consecutive financial years immediately preceding the Bid due date. Certificate from the Statutory Auditor in the prescribed format should be submitted in technical bid.</p> <p><b>e) Net worth:</b> The Bidder should have <b>net worth of 6 Crores (Rupees Six Crores only)</b> in financial year immediately preceding the Bid due date. Certificate from the Statutory Auditor in the prescribed format should be submitted in technical bid.</p> <p>For the purpose of this RFP, net worth (the “<b>Net Worth</b>”) shall mean the aggregate value of the paid-up share capital and all reserves created out of the profits and securities premium account, after deducting the aggregate value of the accumulated losses, deferred expenditure and miscellaneous expenditure not written off, as per the audited balance sheet, but does not include reserves created out of revaluation of assets, write back of depreciation and amalgamation.</p> <p><b>In case of a JV/ Consortium, the weighted combined Turnover and net worth of each partner of JV or Consortium shall be considered in proportion to their stakes in the JV/ Consortium in order to meet the minimum aggregate requirements of those members, who have at least 26% (twenty six per cent) stake in the JV/ Consortium, should satisfy the conditions of eligibility at d) and e).</b></p> <p><b>Provided that each member of the Consortium shall have positive Net Worth in the immediately preceding financial year.</b></p> <p><b>Note:</b> (1) The Bids must be accompanied by the Audited Annual Reports of the Bidder (of each Member in case of a Consortium) for the last 3 (three) financial years, preceding the financial year in which the Bid is made. (2) In case the annual accounts for the latest financial year are not audited and therefore the Bidder cannot make the same available, the Bidder shall give an undertaking to this effect and the statutory auditor shall certify the same. In such a case, the Bidder shall provide the Audited Annual Reports for 3 (three) years preceding the year for which the Audited Annual Report is not being provided. Accordingly, for meeting the Average Annual Turnover criteria, such financial years for which Audited Annual Reports provided shall be considered and Net worth of the latest Audited Annual Report available shall be considered for the purpose of this RFP. (3) Certificate(s) from its statutory auditors specifying the Annual Turnover during the last 3 financial years and net worth of the Bidder, as at the close of the preceding financial year as per Format T-8 shall be provided in support of their claim.</p>
B	<p><b>Technical Strength:</b> <b>ITS/ ATMS/ HTMS/ ITMS / Peripheral Surveillance System Experience:</b> The bidder must have experience of successfully executed Project having similar nature of work <b>during last 10 financial years as under</b> -</p>





S. No.	Criteria
	<p>Single work of INR 12 Crores or above Or two works of INR 7.5 Crores each or above Or three works of INR 6 Crores or above</p> <p><i>Note: The project shall be in Operations and Maintenance phase. Completion certificate signed by the Authorized Signatory of the Client should be submitted in the Technical bid.</i></p> <p>In case of a JV/ Consortium, the aforesaid Technical Strength can be fulfilled by any one or all JV/Consortium members combined who have <b>at least 26% (twenty six per cent) stake in the JV/ Consortium.</b></p> <p><b><u>Definition of similar works:</u></b></p> <p>Establishment of state-of-the-art ITS/ Incident Detection System/ HTMS/ ITMS/Peripheral Surveillance System with at least 1 Traffic Management Centre/ Integrated Command and Control Centre on the involving at least 3 key activities* OR Smart City ITS / Central Processing System/ State of- the-art National / State level Control / Command Centre with 24x7 CCTV based Surveillance involving at least 100 Cameras that have been satisfactorily completed within last 10 years as a prime contractor (single entity of JV member) under reputed PSUs / Central Government or its Department/ Enforcement agencies/ Autonomous Body etc.</p> <p>Note: *at least 3 of the following Key activities shall be deployed on the project</p> <ul style="list-style-type: none"> <li>– Traffic Monitoring Camera/Radar System</li> <li>– CCTV Surveillance system with motion detection</li> <li>– Video based Incident / Violation Detection System</li> <li>– CCTV based RLVD System</li> <li>– Control Room</li> <li>– Video based peripheral monitoring system</li> </ul> <p>Bidder should submit relevant details of each projects in the prescribed format and should enclose Go-live / acceptance / completion Certificate issued by the customer and Work Order / Purchase order / Copy of contract / Letter of Award highlighting detailed scope of project implemented within the last 5 financial years prior to the Bid due date as proof for the same.</p> <p>The bidder shall also furnish the self-evaluation details for its technical experience as per Form T-13 along with the supporting documents (work orders and completion certificate). In order to be technically qualified the bidder shall be able to score atleast 75% marks in the technical experience as per criteria defined in the Form T-13 and evaluated by the Authority.</p>
C	<p>A Bidder blacklisted/ declared ineligible by Ministry of Road Transport &amp; Highways, Government of India or its executing agencies like NHAI, NHIDCL etc. or any other Ministry / PSU / State / Central Government or its Department/ Enforcement agencies/ Autonomous Body etc. shall be ineligible to apply for participating in this RFP.</p> <p><i>Self-declaration to this effect shall be submitted as part of the Bid.</i></p>
D	<p>A Bidder determined non-performing or having been terminated any project during last three years by Ministry of Road Transport &amp; Highways, Government of India or its executing agencies like NHAI, NHIDCL etc. or any other Ministry / PSU / State / Central Government or its Department/ Enforcement agencies/ Autonomous Body etc. will not be eligible to participate in this RFP.</p> <p><i>Self-declaration to this effect shall be submitted as part of the Bid.</i></p>



**E Additional Conditions:**

- E.1** The OEM of each component/ equipment should have direct presence in India from last 1 year having own service and support offices to ensure smooth after sales service support on site. However, if the OEM of any component/ equipment stops conducting its business in India for whatever reason, the corresponding component/ equipment shall be replaced by the contractor at no cost basis to the Authority, if need be.

*The bidder must submit the datasheet of each component in the Technical Submission as part of the Bid, clearly mentioning the make, model, country of origin, and end of life of each component/ equipment in the MAC.*

- E.2** To ensure seamless integration, the Contractor shall deploy equipment of same OEM having seamless interoperability for each categories of the solution components as mentioned below:

- Computing – Workstations, Servers and storage
- Network – Router and switches
- Graphics Display, its Controller and Software
- Surveillance & Access Control – Cameras, VRS, Video Analytics & Management Software, Box Camera Housing etc.
- Security – Firewalls and any other security solution
- Interior works and technical furniture at control centres

*The bidder must submit the documentary proof for the above mentioned requirement and non-compliance matrix for the ToR in the Technical Submission as part of the Bid.*

- E.3** The requirement mentioned in the ToR / Technical Specification document are the minimum requirement. The Contractor shall provide the latest standards or higher specification to meet the functional and technical requirement. Further, any such up-gradation required during the contract duration for ensuring seamless functional and technical requirements shall be the responsibility of the contractor without any additional financial implications to the Authority. In case any specification mentioned in the document are obsolete, he shall provide the latest or higher specification, fully meeting the functional and technical requirement. The Bidder must promptly highlight the compatibility issues in the Non-Compliance Matrix in the technical bid. Any Non-Compliance or Compatibility issue raised by the Contractor after the award of the Work shall not be acceptable under any circumstances. The Contractor must take prior written approval from the Authority before supplying any alternate solution proposed for any obsolete /end of life component, by submitting the proof and undertaking from the OEM proposed in the Technical Bid. However, the same does not relieve the contractor from fulfilling in any of the requirements stipulated in the contract agreement.

- E.4** The Manpower proposed here shall be dedicated for this project and shall not be proposed for any other project or assigned any other project. The resources cannot be changed for at least two years without prior intimation to the authority. The substitute proposed by the Contractor must have more experience than the proposed candidate in all respect (no. of years of relevant experience, no. of similar projects executed, qualification of the replacement candidate, etc.).

- E.5 Undertaking for Country of Origin:** The Bidder shall ensure that none of the key component or its sub-component such as PTZ / TMCS Cameras, VIDS system, Vehicle Speed Detection System, Control Centre / Command Centre / TMC equipment including security devices are procured / sourced from the OEM from any of the region and / or



company barred / banned / blacklisted / having territory dispute / restricted by the any of the Defense Department / any of the Government Department / Authority / PSU / Ministries etc. in India. The Bid may be considered as non-compliance / non-responsive in case this requirement is not fully met by the Bidder(s). The Bidder shall submit an undertaking fully complying to this requirement.

- E6.** Bidders must comply with the Office Memorandum no. F. No. NH-35014/20/2020-H, Government of India, Ministry of Road Transport & Highways dated 04.08.2020 (Detail given at **Appendix-A**), regarding procurement from the country which shares a land border with India.

## 2.2 Conflict of Interest:

2.2.1 A Bidder shall not have a conflict of interest that may affect the bidding process (the **“Conflict of Interest”**). Any Bidder found to have a Conflict of Interest shall be disqualified. In the event of disqualification, NHAI shall invoke the bid securing declaration as mutually agreed genuine pre-estimated loss and damage likely to be suffered and/ or incurred by the NHAI and not by way of penalty for, *inter alia*, the time, cost and effort of NHAI including consideration of such Bidder's Bids, without prejudice to any other right or remedy that may be available to NHAI hereunder or otherwise.

2.2.2 NHAI requires that the selected bidder provides professional, objective, and impartial advice and at all times hold NHAI's interest's paramount, avoid conflicts with other assignments or its own interests. The selected bidder shall not accept or engage in any assignment that would be in conflict with its prior or current obligations to other clients, or that may place it in a position of not being able to carry out the assignment in the best interests of NHAI.

2.2.3 A Bidder shall be deemed to have a Conflict of Interest affecting the bidding process, if:

- (a) a constituent<sup>1</sup> of Bidder is also a constituent of another Bidder; or
- (b) such Bidder, its member or its associate receives or has received any direct or indirect subsidy or grant from any other Bidder, its member or its associate; or
- (c) such Bidder has the same legal representative for purposes of this Bid as any other Bidder; or
- (d) such Bidder, its member or its associates has a relationship with another Bidder, its member or its associates, directly or through common third parties, that puts them in a position to have access to each other's information about the bids, or if they actually share or access each other's information regarding the bids or to influence the bid of either or each of the other Bidder; or
- (e) there is a conflict among this and other assignments of the Bidder (including its member, associates, personnel and subordinates) and any subsidiaries or entities controlled by such Bidder or having common controlling shareholders. The duties of the Bidder will depend on the circumstances of each case. While

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<sup>1</sup> For the purpose of this clause the word *“constituent”* shall include Promoter, Director, Shareholder, Partner, Agent, representative etc.



providing services to NHAI for this particular assignment, the Bidder shall not take up any assignment that by its nature will result in conflict with the present assignment; or

- (f) a Company/firm which has been engaged by the Authority to provide goods and/or works and/or services for a project, and its associates, will be disqualified from providing consulting services for the same project and/or associated services, conversely, a firm hired to provide services for the preparation or implementation of a project, and its associates, will be disqualified from subsequently providing goods or works or services related to the same project and/or associated services; or
- (g) Bidders should be deemed to be in a conflict of interest situation if it can be reasonably concluded that their position in a business or their personal interest could improperly influence their judgment in the exercise of their duties. The process for selection of Bidders should avoid both actual and perceived conflict of interest; or
- (h) The Bidder, its member or Associate (or any constituent thereof) and any other Bidder, its member or any Associate thereof (or any constituent thereof) have common controlling shareholders or other ownership interest; provided that this disqualification shall not apply in cases where the director in direct shareholding of a Bidder, its member or an Associate thereof (or any shareholder thereof having a shareholding of not more than 25%(twenty five percent) of the paid up and subscribed capital; of such Bidder, Member or Associate, as the case may be) in the other Bidder, its Member or Associate, is not more than 25% (Twenty five percent) of the subscribed and paid up equity share capital thereof; 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 section 4A of the Companies Act, 1956/2013. For the purposes of this Clause 2.2.3, indirect shareholding held through one or more intermediate persons shall be computed as follows: (aa) where any intermediary is controlled by a person through management control or otherwise, the entire shareholding held by such controlled intermediary in any other person (the “**Subject Person**”) shall be taken into account for computing the shareholding of such controlling person in the Subject Person; and (bb) subject always to sub-clause (aa) above, where a person does not exercise control over an intermediary, which has shareholding in the Subject Person, the computation of indirect shareholding of such person in the Subject Person shall be undertaken on a proportionate basis; provided, however, that no such shareholding shall be reckoned under this sub-clause (bb) if the shareholding of such person in the intermediary is less than 26% of the subscribed and paid up equity shareholding of such intermediary; or
- (i) For purposes of this RFP Document, Associate means, in relation to the bidder, a person who controls, is controlled by, or is under the common control with such bidder. As used in this definition, the expression “control” means, with respect to a person which is a company or corporation, the ownership, directly or indirectly, of more than 50% (fifty per cent) of the voting shares of such person, and with respect to a person which is not a company or corporation, the power to direct the management and policies of such person by operation of law or by contract.



- 2.2.4 The normal way to identify conflicts of interest is through self-declaration by the Bidder. Where a conflict exists, which has not been declared, competing companies are likely to bring this to the notice of NHAI. All conflicts must be declared as and when the Bidder becomes aware of them.







### CLARIFICATION REGARDING RFP DOCUMENT

- 3.1 A prospective Bidder requiring any clarification regarding the RFP may notify NHAI in writing or e-mail at NHAI's address indicated in the invitation to Bid. NHAI will respond to any request for clarification which is received before the pre-Bid meeting.

### 3.2 PRE-BID MEETING

- (a) The Bidder or his authorized representative is invited to attend a pre-Bid meeting which will take place at NHAI, G - 5 & 6, Sector-10, Dwarka, New Delhi-110075 as mentioned in the Schedule of Events.
- (b) The Bidders who are interested in attending the pre-bid meeting should confirm NHAI about the participation one day prior to the schedule. The confirmation can be sent to [kamalarora@nhai.org](mailto:kamalarora@nhai.org).
- (c) The purpose of the meeting will be to clarify issues and to answer questions on any matter pertaining to this RFP document. All Bidders are requested to go through the RFP document carefully and submit any queries/ clarifications addressed to the General Manager (HO Division) in the format prescribed in Part III. The Bidder is requested to submit any questions / queries in writing or by email in editable format at [kamalarora@nhai.org](mailto:kamalarora@nhai.org) so as to reach NHAI well before the scheduled meeting.
- (d) Clarifications to the queries will be hosted on NHAI's website/ e-tender portal only.
- (e) Any modification in the RFP document which may become necessary as a result of the deliberations in the pre-Bid meeting shall be made by NHAI separately through issue of an Addendum/ Amendment will be hosted on NHAI's website/ e-tender portal.





## ACCESSING BID DOCUMENTS, PREPARATION AND SUBMISSION OF BID

- 4.1 Detailed RFP document can be viewed / downloaded from NHAI e-tender portal.
- 4.2 Website for accessing RFP is <http://etenders.gov.in>. The Bidders shall submit the proposal as per criteria laid down in the RFP. The tender process timelines are mentioned in the RFP as Schedule of the Tender”.

### 4.3 PREPARATION & SUBMISSION OF BIDS:

- (i) Detailed **RFP** may be downloaded from NHAI’s e-tender portal of NHAI and bid shall be submitted online following the instruction appearing on the screen.
  - (ii) The scanned copies of the following documents shall be submitted as part of bid to NHAI before the prescribed date & time for submission of Bids.
    - a. Tender Application Fee in the manner prescribed.
    - b. Bid Securing Declaration in the manner prescribed.
    - c. Original Power of Attorney in favour of Authorized Signatory in the Format prescribed in this document.
    - d. if applicable, Power of Attorney for Lead Member of JV/ Consortium in the format prescribed in this document.
    - e. if applicable, Joint Bidding Agreement for JV/ Consortium in the format prescribed in this document.
  - (iii) The Technical and Financial bid should be submitted online only in the prescribed format given on the e-tender portal. No other mode of submission is accepted.
- 4.4 **Bid Validity:** The bid should remain valid for a period of 120 calendar days from the bid due date. NHAI will make its best efforts to complete the evaluation process and work award within the bid validity period. Under exceptional circumstances, prior to expiry of the bid validity, NHAI may request bidder to extend the bid validity for specified additional period. Such request by NHAI and reply / response from bidder shall be in writing. The bidder(s) not agreeing to such extension will be allowed to withdraw their bids without invocation of their bid securing declaration.
- 4.5 **Bid Composition:** The Bid shall comprise the following:

**(a) PART 1 (Technical Bid to be uploaded on E-tender portal only. Physical submission of bids is not allowed)**

- i. Technical Bid comprising various formats Form **T-1 to Form T-11** prescribed in Part III.
- ii. Stipulated documentary evidence attested by the authorised signatory in support of their claim for fulfilling the prescribed eligibility criteria and an undertaking on the bidder’s letterheads to the fairness of these documents in support of their claim while submitting the Bids
- iii. Undertaking that the bidder has not been determined non-performing or having been terminated any of his project during last three years by Ministry of Road Transport & Highways, Government of India or its executing agencies like



NHAI, NHIDCL etc. or any other Ministry / PSU / State / Central Government or its Department/ Enforcement agencies/ Autonomous Body etc.

- iv. Undertaking that the bidder has not been blacklisted/declared ineligible by Ministry of Road Transport & Highways, Government of India or its executing agencies like NHAI, NHIDCL etc. or any other Ministry / PSU / State / Central Government or its Department/ Enforcement agencies/ Autonomous Body etc.
- v. Self-declaration i.r.o. any conflict of interest prescribed under para 2.2 of eligibility criteria;
- vi. Other documents
  - a. Copy of Certificate of Incorporation of Company;
  - b. MoA and AoA of the Company / or other document showing object clause of the firm; and
  - c. Signed copy of Integrity Pact in the prescribed format;
  - d. Any other document providing additional information in respect of technical / financial strength as well as technical experience etc. {Ref item No E.1 to E.5} under Eligibility Criteria read with Notes under Form T-9.

**vii. Technical Proposal**

- a. The Bidder shall describe the proposed works in sufficient detail in his Technical Proposal to enable the NHAI to evaluate the technical adequacy of the proposed system. The Technical Proposal shall include the statement of compliance with the Specifications indicating whether the proposed equipment comply with the specified requirements. If the proposed system does not comply with the Specifications, the details of differences shall be described together with the alternative features of facilities offered. The NHAI may reject the non-compliant proposal.
- b. The Bidder shall propose and describe in detail in his Technical Proposal the approach, methodology, technology and procedure of the detailed design of the highway/expressway management system, traffic management system, digital transmission system and associated works. Expected output of the detailed design shall be described together with the submission schedule for review and finalisation by the NHAI.
- c. For the items for which type, procedure, method, or configuration is left to the supplier's design, The Bidder shall clearly indicate in the proposal the type, procedure, method or configuration he chooses with reason.
- d. The Technical Proposal shall describe in detail how the system requirements defined in the Tender Documents will be achieved with block diagram, data flow, and timing chart.
- e. The Bidder shall not submit an alternative proposal. NHAI shall reject such alternative proposal.
- f. The Technical Proposal shall be written in the same sequence as the Specifications. Where the supporting documents are provided, a cross reference shall be prepared. The Technical Proposal shall be written in English.
- g. The Technical Proposal shall include the description of system as a whole and equipment comprising the System. The description shall include how the requirements of the Specifications are achieved. If necessary, block diagram, flowchart, timing chart or other explanatory documents shall be attached.
- h. Equipment comprising the system shall be defined. For each equipment, the following items shall be stated:
  - 1) Electrical and/or mechanical specifications



- 2) Specifications of interface with other equipment
- 3) Human-machine interface, if applicable
- 4) Environmental conditions
- 5) Physical dimensions
- 6) Power consumption
- 7) Operation console layout
- 8) Brand, make, model, and/or type (only one for each component)\*
- 9) Catalogue, brochure, or another supporting document (if any)

**\*Technical proposal with more than one make/model for each component shall be rejected.**

- i. The Bidder shall submit the layout plan of the Operations Room / Control Room in the Technical Proposal for reference.
- j. The Bidder shall include in the Technical Proposal of the Tender the software quality assurance program that he intends to adopt in developing the software.
- k. The Bidder shall propose in the Technical Proposal of the Tender the feasibility and ease with which such applications (additional software packages to run concurrently with the software provided under the Contract) might be implemented using the VIDS proposed by him and shall advise the spare memory capacity and processing power which could be available, but not necessarily provided, within the proposed computer to allow such applications to be implemented.
- l. The Bidder shall state in the Technical Proposal, the third-party software that he proposes. If the Bidder proposes the third-party program that is of limited use, he shall explain the reason for using it in the Technical.
- m. Systems and subsystems that minimize the possibility that failure of any single component or module will cause total system failure shall be provided by the Bidder in Technical Proposal and later in Design Document. Failure of one component or module shall not cause the failure of any other component or module.
- n. The Bidder shall describe in his Technical Proposal application software to be provided to the servers and workstation in the RO Control Centres (RCC) and Incident Monitoring System (IMS) required hereunder.
  - 1) Graphical presentation of module and components comprising application of servers and workstation.
  - 2) Data processing flow in the form of class diagram, use case diagram, sequence diagram, or data flow diagram.
  - 3) Scale or size of the module and components, and programming language used.
  - 4) Extent of the development required for the Project.
- o. Attested copy of the Certifications, test reports, etc. specified in the ToR.
- p. Any other item / document specified in the ToR for submission in Technical Proposal.

**(b) PART 2 Financial Bid (In the prescribed format on E-Tender portal of NHAI)**

- a. Financial bid shall be submitted online on e-tender portal on the prescribed format which may be downloaded<sup>2</sup> well before the bid due date from e-tender portal.

<sup>2</sup> Kindly refer schedule of important events / activities.





- b. The bid should include all the charges payable in full compliance to the Scope of Work and other terms specified in the RFP document. No additional payments whatsoever are envisaged.
- c. The bid should include all statutory taxes/ levies / surcharge on tax etc. but excluding service tax/ GST (as applicable on services). Any tax, and / or any other levies, if altered in future and payable under the law, the same shall be borne by the bidder.
- d. applicable service tax/ GST (as applicable on services) shall be reimbursed by NHAI separately on production of proof of payment; and
- e. Bidder should note that Income tax payable by the Bidder is not reimbursable by NHAI. TDS will be applicable on all payments made by NHAI as per applicable law.
- f. In case of any difference in figures and words, the amount mentioned in words will prevail.

**NOTE: Original documents in physical form** -Physical Submission of originals Bid Securing declaration, POA for signing the Bid, POA for lead member of JV, if any, JBA for JV, if any, Integrity Pact, and experience certificates apostle at foreign origin, if any **shall only be After declaration of Bid Evaluation Result** by the Authority. Bidders (including individual or any of its Joint Venture Members) failing to submit the original documents required as per above shall be unconditionally debarred from bidding in NHAI projects for a period of 5 years.

#### 4.6 COST OF BIDDING

The Bidder shall be responsible for all the cost associated with the preparation and submission of their Bids including subsequent negotiation, visits to NHAI, project site etc. NHAI shall not be responsible in any way liable for such costs, regardless of the conduct or outcome of the bidding process.

#### 4.7 LANGUAGE OF THE BIDS

The Bid and all communications in relation to or concerning the RFP shall be in **English language**. No supporting document or printed literature shall be submitted with the Bid unless specifically asked for and in case any of the documents are in another language, it must be accompanied by an accurate translation of the relevant passages in English, in which case, for all purposes of interpretations of the Bid, the original documents attached with the bid or the information incorporated in the bid shall be final and binding.

#### 4.8 MODIFICATION /SUBSTITUTION/ WITHDRAWAL OF BIDS:

- (i) The Bidder may modify, substitute or withdraw its e-bid after submission prior to the Bid Due Date. No Bid shall be modified, substituted or withdrawn by the Bidder on or after the Bid Due Date.
- (ii) Any alternative/modification in the Bid or additional information supplied subsequent to the Bid Due Date, unless the same has been expressly sought for by the Authority, shall be disregarded.
- (iii) For modification or e-bid, bidder has to click on Edit Bid Option and resubmit digitally signed modified bid.



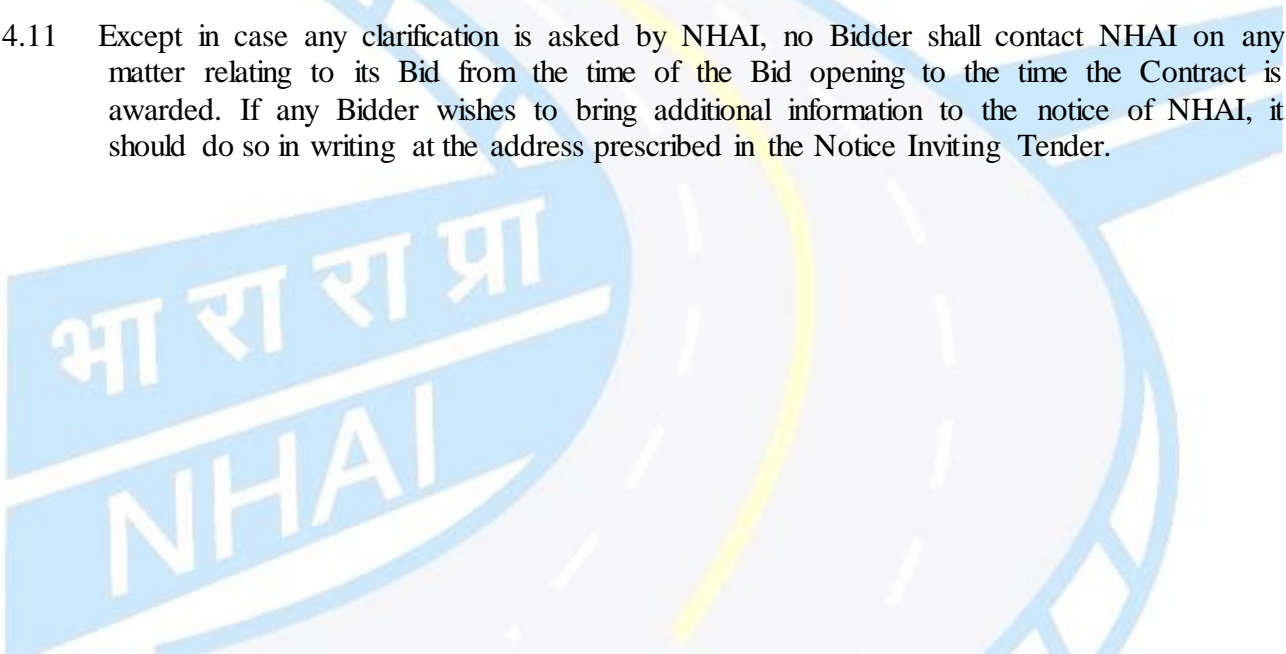
- (iv) For withdrawal of bid, bidder has to click on withdrawal icon at e-tendering portal and can withdraw its e-bid.
- (i) Before withdrawal of a bid, it may specifically be noted that after withdrawal of a bid for any reason, bidder cannot re-submit e-bid again.

#### **4.9 OPENING & EVALUATION OF BIDS**

- (i) Opening and evaluation of bids will be done through online process.
- (ii) The bids will be opened on-line on the due date and time prescribed in the RFP document in the presence of the bidders who choose to attend. The Authority will subsequently examine and evaluate the bids in accordance with the provisions set out.
- (iii) Prior to evaluation of bids, the Authority shall determine whether each Bid is responsive to the requirements of this RFP.
- (iv) 'Financial Bid' of non-responsive bidders shall not be opened.

4.10 To assist in the examination, evaluation, and comparison of Bids, NHAI may, at its discretion, ask any Bidder for clarification of its Bid. The request for clarification and the response shall be in writing or by fax or e-mail, but no change in the price or substance of the Bid shall be sought, offered, or permitted except as required to confirm the correction of arithmetic errors discovered by NHAI in the evaluation of the Bids.

4.11 Except in case any clarification is asked by NHAI, no Bidder shall contact NHAI on any matter relating to its Bid from the time of the Bid opening to the time the Contract is awarded. If any Bidder wishes to bring additional information to the notice of NHAI, it should do so in writing at the address prescribed in the Notice Inviting Tender.





**BID EVALUATION CRITERIA AND SELECTION PROCEDURE**

- 5.1 The bids shall be opened on-line by the Evaluation Committee on the date and time prescribed. Prior to evaluation of the bids, NHAI shall determine as to whether each bid is responsive to the requirements of this RFP document. A bid will be declared non-responsive in case:
- If a bidder submits more than one bid against this RFP
  - Bid is submitted without applicable fee(s) and bid securing declaration
  - If the Authorized Signatory holding Power of Attorney (POA) or the person executing/delegating such POA and Digital Signatory are not the same
  - If a bidder submits a conditional bid or makes changes in the terms and conditions given in this RFP document
  - Failure to comply with all the requirements of RFP document by a bidder
  - If the bid is not submitted in the formats prescribed in the RFP document
  - If any requisite document/ certificate is not in the prescribed format the same shall not be considered while evaluating the bids and the same may lead to bid being declared as non-responsive.
  - A bid valid for a period of time shorter than prescribed in the RFP document
- 5.2 A three-stage procedure shall be adopted for evaluation of the bids.
- 5.3 **Bid Evaluation - First Stage:** The Evaluation Committee shall carry out initial screening of technical bids by examining the statement of qualification, furnished by the Bidder in support of their fulfilment of eligibility against the criteria prescribed in this RFP.
- 5.4 **Bid Evaluation - Second Stage:** The committee after applying the evaluation criteria and point system specified in form T-13 should score **at least 75%** to be considered shortlisted for demonstrating the proof of concept (POC) at any junction chosen by the Authority for a duration of 7 days. The bidder should be able to demonstrate all the requirements of the TOR with the maximum level of accuracy as specified in the RFP. The bidder should be able to achieve 100 points in the SLR during the proof of concept stage to be considered for subsequent stage of bid evaluation i.e. opening financial bid. The bidder shall submit the detailed technical proposal along with the presentation to the Evaluation Committee to establish the consistency of their proposal before proceeding for Proof of Concept Stage.
- 5.4.1 Subcontractors/manufacturers**

Subcontractors/manufacturers for the following major items of supply or services must meet the following minimum criteria, herein listed for that item:

Item	Description of Item	Minimum Criteria to be met
1	Video Incident Detection System	Subcontractor and manufacturers shall have direct presence in India from last 1 year having own service and support offices to ensure smooth after sales service support on site. However, if the OEM of any component/ equipment stops conducting its business in India for whatever reason, the corresponding component/ equipment shall be replaced by the contractor at no cost basis to the Authority, if need be.
2	Central Processing System	
3	RCC & IMS works	
4	GIS Map	
5	Network Management System	
6	Video Management Software	
7	Graphics Display	
8	Facility Monitoring System	
9	Solar / Power Supply work	
10	Access Control System	



11	O&M work of Incident Management	
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Failure to comply with this requirement will result in rejection of the Subcontractor.

In the case of a Bidder who offers to supply and install major items of supply under the Contract that the Bidder did not manufacture or otherwise produce, the Bidder shall provide the manufacturer's authorization, using Form MAN, showing that the Bidder has been duly authorized by the manufacturer or producer of the related plant and equipment or component to supply and install that item in India. The Bidder is responsible for ensuring that the manufacturer or producer complies with the requirements and meets the minimum criteria listed above for that item.

#### 5.4.2 Technical Presentation to NHAI

Before completing technical evaluation - second stage, NHAI may invite all responsive bidders to make a detailed technical presentation to NHAI before proceeding for proof of concept stage. Schedule of technical presentation shall be informed. Each responsive bidder shall be allowed 15 minutes to make a detailed technical presentation to the evaluation committee. The presentation should be crisp and should precisely address following aspects concerning the bidder:

- Detailed methodology and technical work plan
- Broad system architecture and design
- Technology Contractors which the bidder proposes to incorporate in the solution proposed to address the ToR requirements.
- Non-Compliance Matrix for ToR.
- Certification(s), Affiliation(s), Authorised Partner(s) of OEM/Other leading technology providers/ System Integrators.
- Ratings if any, achieved by international/national agencies in the field of IT/Communications/ Electronics / Networking

*Note: Bidders are instructed to strictly adhere to the prescribed time limit for their presentation.*



- 5.5 **Bid Evaluation - Third Stage:** In this stage, financial bids of only those Bidders shortlisted after second stage shall be opened, i.e. the Bidders have Technical Score of minimum 75% marks after Technical Proposal Evaluation will be opened. The date of opening shall be intimated to such bidders.
- 5.6 The Financial Bid Evaluation will be based on the Total Cost quoted by the Bidder in the Financial Bid which would be the basis for total pay-outs, but will exclude the GST (if applicable).
- 5.7 If there is a discrepancy between words and figures, the amount in words shall prevail. If the Bidder does not accept the correction of errors, its Bid shall be rejected and the bid securing declaration will be invoked.
- 5.8 The Financial Bids shall be opened online. The Evaluation Committee will determine whether the submitted Financial bids are complete (i.e. whether they have included cost of all items of the corresponding proposals; if not, then the cost towards such missing items will be considered as NIL, but the bidder shall, however, be required to carry out such obligations without any additional compensation. In case under such circumstances, if NHAI feels that the work cannot be carried out within the overall cost as per the submitted financial bid, such proposals shall be considered non-responsive.
- 5.9 **Selection and award criteria:**  
The Lowest Bidder shall be the Selected Bidder. The L-2 bidder shall be kept in reserve and may be invited to match the Bid submitted by the Lowest Bidder, in case such Lower Bidder withdraws or is not selected for any reason. In the event that L-2 Bidder does not match the Bid of the Lowest Bidder, the Authority may, in its discretion, shall invite fresh bids.
- 5.10 The Successful Bidder shall be intimated by NHAI through Letter of Award (LoA). Upon issue of LoA the Successful Bidder shall be required to furnish Letter of Acceptance and Performance Security and other guarantees as prescribed in the RFP document. NHAI shall have the right to get the bank guarantees verified from the respective issuing bank. Upon receipt of verification, the successful bidder shall be invited to sign the contract with NHAI. The format of Contract Agreement is prescribed in the RFP Document.
- 5.11 NHAI reserves the right to reject any bid which is non-responsive and no request for alteration, modification, substitution, or withdrawal shall be entertained by NHAI in respect of such bids.
- 5.12 **IMBALANCED BID:**  
Further, in case where the bid of the successful firm is less than 85% of the average of all bids received, the successful consulting firm shall have to submit an Additional Performance Security (APS) in the form of a Bank Guarantee for 3% of the contract amount. The other requirements of APS are same as those of Performance Security. , NHAI may also require the Bidder to produce detailed price analysis for any or all items of the Bill of Quantities, to demonstrate the internal consistency of the proposed System. If the Bidder does not accept the additional Performance Security, its Bid shall be rejected and the bid securing declaration shall be invoked and L-2 Bidder shall be considered to be the Successful Bidder.



## PERFORMANCE SECURITY

- 6.1 Upon issue of a Letter of Award (LoA) by NHAI, the Successful Bidder shall be required to furnish an unconditional and irrevocable Performance Security in the form of a Performance Bank Guarantee (PBG) in the prescribed format **within a period of 15 days**. The PBG shall be for an amount of 3% of its Total Bid Value quoted in the financial bid and should be in favour of "National Highways Authority of India", New Delhi. **The Performance Security shall be valid for period of seven (7) years**. In case the contract is extended, the Contractor shall extend the validity of PBG appropriately such that it remains valid until one year beyond completion of the contract.
- 6.2 The PBG from following banks shall only be accepted:
- a) State Bank of India or its subsidiaries.
  - b) Any Indian Nationalized Bank.
  - c) IDBI or ICICI Bank.
  - d) A Foreign Bank (issued by a branch outside India) with a counter guarantee from SBI or its subsidiaries or any Indian Nationalized Bank.
  - e) Any Scheduled Commercial Bank approved by RBI having a net worth of not less than 500 Crores as per the latest Annual Report of the Bank. In the case of a Foreign Bank (issued by the branch of India) the net worth in respect of the Indian operations shall only be taken into account.
- 6.3 The acceptance of the PBG shall also be subject to the following condition:
- a) The capital adequacy of the Bank shall not be less than the norms prescribed by RBI.
  - b) The bank guarantee issued by a Cooperative Bank shall not be accepted.
- 6.4 Deleted
- 6.5 In case of imbalanced Bid, the additional performance security shall be required to be submitted by the Successful Bidder as per clause 5.12, in addition to the 3% PBG, to ensure that it shall perform the contractual obligations to the satisfaction of NHAI despite such lower bid value and this additional performance security shall also be treated as performance security for encashment/ forfeiture.





### MISCELLANEOUS

- 7.1 This RFP document also includes a format of the Contract Agreement to be executed with the successful bidder for providing stipulated services to NHAI. Bidders are advised to study the RFP document along with its amendment/ addendum carefully. Submission of the bid will be deemed to have been done after careful study and examination of ground realities as well as all the instructions, eligibility norms, terms & conditions, requirements and specifications available in the RFP document with full understanding of its implications. The Bidder is expected to examine carefully all the instructions, conditions of Contract, forms for submitting Technical and Financial Bids and scope of work in the RFP document before submitting their Bids. Failure to comply with all the requirements of RFP document shall be at the Bidder's own risk. Bids, which are not substantially responsive to the requirements of the RFP document, shall be declared non-responsive and shall not be considered for evaluation.
- 7.2 No bidder shall submit more than one bid against this RFP. If more than one bid is received from the same bidder, all such bids shall be summarily rejected.
- 7.3 NHAI will be at liberty to keep the credentials of the bidders submitted by them at bidding stage, in public domain and the same may be uploaded by NHAI on its web site. The bidders shall have no objection if NHAI uploads/ hosts the information pertaining to their credentials as well as of their key personnel.
- 7.4 The bidding process shall be governed by, and construed in accordance with, the laws of India and courts at New Delhi shall have exclusive jurisdiction over all disputes arising under, pursuant to and/or in connection with the bidding process.
- 7.5 Any dispute arising out of this procurement process shall be referred to Society for Affordable Redressal of Disputes (SAROD). The decision of the SAROD in this regard shall be final and binding on the parties.
- 7.6 NHAI, in its sole discretion and without incurring any obligation or liability, reserves the right, at any time, to;
- (i) Suspend and/or cancel the bidding process and/or amend and/or supplement the Bidding Process or modify the dates or other terms and conditions relating thereto;
  - (ii) Consult with any Bidder in order to receive clarification or further information;
  - (iii) Retain any information and/ or evidence submitted to NHAI by, on behalf of, and/ or in relation to any Bidder; and/or;
  - (iv) 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.
- 7.7 NHAI is not bound to reply/ respond to any representation/ letter or request for Change in Scope of work, eligibility criteria or any relaxation in respect of the tender conditions..
- 7.8 It shall be deemed that by submitting the Bid, the Bidder agrees and releases NHAI, its employees, agents and advisers, irrevocably, unconditionally, fully and finally from any and all liability 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 with the bidding process and waives, to the fullest extent permitted by Applicable Law, any and all rights and/ or claims it may have in this respect, whether actual or contingent, whether present or in future.





**7.9 Verification and Dis-qualification:** NHAI reserves the right to verify all statements, information and documents submitted by the Bidder in response to this RFP and the Bidders shall, when so required by NHAI, make available all such information, evidence and documents as may be necessary for such verification. Any such verification or lack of such verification, by NHAI shall not relieve the Bidders of its obligations or liabilities hereunder nor will it affect any rights of NHAI thereunder.

**7.10** NHAI reserves the right to reject any Bid and/ or declare it non-responsive, if:  
(i) At any time, a material misrepresentation is made or uncovered, or  
(ii) The Bidder does not provide, within the time specified by NHAI, the supplemental information sought by NHAI for evaluation of the Bid.

*Such misrepresentation/ improper response shall lead to the disqualification of the Bidder. If such disqualification/ rejection occurs after the bids have been opened and the lowest bidder gets dis-qualified/ rejected, then NHAI reserves the right to take any such measure as may be deemed fit in the sole discretion of NHAI including annulment of the Bidding process.*

**7.11 Amendment to RFP Documents:**

- (a) Any modification in the RFP document shall be made by NHAI separately through issue of an Addendum/ Amendment.
- (b) At any time prior to the bid due date, NHAI, may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder, modify the conditions specified in the RFP document by an amendment. Any amendment/ addendum thus issued shall be part of the RFP document and shall be communicated by hosting the same on NHAI's web site only and should be taken into consideration by the prospective bidders while preparing their Bids.
- (c) In order to give prospective Bidders reasonable time to take the amendment into account in preparing their bid, NHAI may, at its discretion, extend the bid due date.
- (d) The Bidder must read all the instructions in the RFP and abide by the same accordingly.

**7.12 INDEMNITY**

The Bidder shall, subject to the provisions of the Contract, indemnify NHAI for any direct loss or damage caused on account of any act/ omission of the bidder.

**7.13 PROPRIETARY DATA**

All documents and other information provided by NHAI or submitted by a Bidder to NHAI shall remain or become the property of NHAI. Bidders are to treat all information as strictly confidential. NHAI will not return any bid or any information related thereto. All information collected, analysed, processed or in whatever manner provided by the Successful Bidder to NHAI in relation to the services shall be the property of NHAI.

**The Contractor shall not keep any copy of the data/ video with them without prior permission of the NHAI. The Contractor shall not use any data / video for any purpose other than that permitted by NHAI.**

Adequate cyber security measures shall be taken to protect the entire system and data from cyber-attacks and data theft.

**7.14 CORRUPT OR FRAUDULENT PRACTICES**



NHAI requires Bidder observe the highest standard of ethics during the procurement and execution of the Contract. In pursuance of this policy NHAI:


- (a) Defines, for the purposes of this provision, the terms set forth below as follows:
  - (i) “Corrupt Practice” means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in Contract execution;
  - (ii) “Fraudulent Practice” means a misrepresentation of facts in order to influence a procurement process or the execution of a Contract to the detriment of NHAI, and includes collusive practice among Bidders (prior to or after Bid submission) designed to establish Bid prices at artificial non-competitive levels and to deprive NHAI of the benefits of free and open competition;
  - (iii) “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;
  - (iv) “Undesirable Practice” means (i) Establishing contact with any person connected with or employed or engaged by NHAI with the objective of canvassing, lobbying or in any manner influencing or attempting to influence the bidding process; or (ii) having a Conflict of Interest; and
  - (v) “Restrictive Practice” means forming a cartel or arriving at any understanding or arrangement among Bidders with the objective of restricting or manipulating a full and fair competition in the bidding process.
- (b) will reject a bid if it determines that the Bidder has engaged in corrupt or fraudulent or coercive or undesirable or restrictive practices in competing for the Contract in question;
- (c) will blacklist/ declare a bidder ineligible, either indefinitely or for a stated period of time, to be awarded any Contract by NHAI if it at any time determines that the bidder has engaged in corrupt or fraudulent or coercive or undesirable or restrictive practices in competing for, or in executing, a NHAI Contract.

#### **7.15 Integrity Pact:**

Bidder shall comply with the provisions of the Office Memorandum No. 13030/09/2008-Vig. Dated 28.01.2013 issued by NHAI (Copy enclosed) at **Appendix-I**.



## Appendix-I

	<b>भारतीय राष्ट्रीय राजमार्ग प्राधिकरण</b> (सड़क परिवहन और राजमार्ग विभाग) <b>National Highways Authority of India</b> (Ministry of Road Transport and Highways) पी-5 एवं 6, सेक्टर-10, द्वारका, नई दिल्ली-110075 G-5 & 6, Sector-10, Dwarka, New Delhi-110075	टैलफोन / Phone: 91-11-25074100/250741209 फैक्स / Fax: 91-11-25093507 / 25093514
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NO.13019/8/2009-Vig. Dated : 28<sup>th</sup> January, 2013

Office Memorandum

**Sub: Adoption of Integrity Pact (IP) for NHAI Projects-reg.**

In suppression of OM No. NHAI/CMC/IP/IEM/2011-12 dated 13.08.2012 and OM of NHAI/CMC/IP/IEM/2011-12 dated 14.08.2012, it has been decided to implement the concept of Integrity Pact in NHAI projects. The Integrity Pact (IP) envisages an agreement between the prospective bidder and the buyers committing the persons/officials of both the parties, not to exercise any corrupt influence on any aspect of the contract. The IP also envisages empanelment of Independent External Monitors (IEM). The IEM may review independently and objectively whether and to what extent parties have complied with their obligations under the pact.

2. NHAI is going to appoint IEM shortly for implementation of the IP in NHAI. MoRT&H vide its letter no. C-13019/8/2009-Vig. dated 18.11.2011 has approved applicability of adoption of IP in NHAI works as mentioned below:

- (i) Civil Works above Rs.100.00 crore
- (ii) Services such as consultancy, engineering etc. above Rs.5.00 crore

3. In this connection, all the officers of NHAI are hereby requested to implement and follow the concept of IP and adopt the same in all future projects of NHAI as scrupulously in works included in para.2 above as per Model Agreements (copy enclosed) for each category. This Model Agreement would be provided to the bidders at NIT/ Pre-bid /Technical bid stage, whichever applicable, with instruction to submit the same after signing it. Contractor/ concessionaire / consultant / bidder would be required to submit this duly signed agreement (signed by the same signatory competent/authorized to sign the relevant contract agreement) along with their Technical Bid/Tender Documents. The representative authorized to sign contract agreement, on behalf of NHAI, would sign the same while signing the contract so that this may be made a part of the contract document and binding for both the parties signing the contract.

4. It is clarified that IP should cover all phases of the contract, i.e. from the stage of Notice Inviting Tender (NIT) / pre-bid stage till the conclusion of the contract, i.e. the final payment or the duration of warranty / guarantee / defect liability / concession period, whichever applicable. The IEM would be, invariably, cited in the NIT. Further, information relating to tender in progress and under finalization would need to be shared with IEM on monthly basis.

contd.2.



5. After implementation of Integrity Pact, NHAI has to send progress/status in the implementation of IP enabling CVC to include the same in their annual report as prescribed in the CVC circular no. 10/5/09 dated 18.05.2009 and subsequent circular no.31/08/10 dated 13.08.2010 (copies enclosed). Further, an internal assessment of the impact of IP shall be carried out periodically by the CVO and reported to the CVC through their report or special report, wherever necessary. In view of this, status of implementation of IP would be reported by all divisions to CVO on monthly basis.

6. All the Divisions engaged in purchase/procurement shall ensure strict compliance of this.

This issues with the approval of Chairman, NHAI.

- Encl: (1) Model Agreement for category (i) works  
(2) Model Agreement for category (ii) works  
(3) CVC's Circular no. 10/5/09 dt. 18.05.09  
(4) CVC's Circular no.31/08/10 dt.13.08.10

To

1. All PIUs/CMUs
2. All ROs
3. All CGMs at HQ
4. All GMs at HQ
5. CVO, NHAI

Copy for information to:

1. PS to Chairman
2. All PS to Members

  
(B.N.Sahay)  
General Manager (CMC)



**INTEGRITY PACT FORMAT**

*(To be executed on plain paper and submitted along with Technical Bid. To be signed by the bidder and same signatory competent/ authorized to sign the relevant contract on behalf of NHAI)*

RFP No. NHAI/VIDS Z1/001/03-2021 dated 03/03/2021

This Integrity Pact is made at \_\_\_\_\_ on this \_\_\_\_\_ day of \_\_\_\_\_ 2021

Between

National Highways Authority of India (NHAI), a statutory body constituted under the National Highways Authority of India Act, 1988, which has been entrusted with the responsibility of development, maintenance and management of National Highways having its office at G-5 & 6, Sector – 10, Dwarka, New Delhi, hereinafter referred to as “**The Principal**”, which expression shall unless repugnant to the meaning or contract thereof include its successors and permitted assigns.

And

\_\_\_\_\_, hereinafter referred to as “**The Bidder/ Contractor/ Contractor**” and which expression shall unless repugnant to be meaning or context thereof include its successors and permitted assigns.

**Preamble**

Whereas, the Principal intends to award, under laid down organizational procedures contract/s for ..... The Principal values full Compliance with all relevant laws of the land, rules of land, regulations, economic use of resources and of fairness/ transparency in its relations with its Bidder(s)/ Contractor(s)/ Contractor(s).

And whereas to meet the purpose aforesaid, both the parties have agreed to enter into this Integrity Pact (hereafter referred to as Integrity Pact) the terms and conditions of which shall also be read as integral part and parcel of the Tender documents and contract between the parties. Now, therefore, in consideration of mutual covenants stipulated in this pact, the parties hereby agree as follows and this pact witnesseth as under:

**Article 1- Commitments of the Principal**

- (1) The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles:
  - (a) No employee of the Principal, personally or through family members, will in connection with the tender for or the execution of a contract, demand, take a promise for or accept for self or third person any material or immaterial benefit which the person is not legally entitled to.
  - (b) The Principal will during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular before and during the tender process provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential/ additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.
  - (c) The Principal will exclude all known prejudiced persons from the process, whose conduct in the past has been of biased nature.
- (2) If the Principal obtains information on the conduct of any of its employees which is a criminal offence under the IPC/PC Act or any other Statutory Acts or if there be a



substantive suspicion in this regard, the Principal will inform the Chief Vigilance Officer and in addition can initiate disciplinary actions as per its internal laid down Rules/ Regulations.

**Article 2- Commitments of the Bidder(s)/ Contractor(s)/ Contractor(s)**

The Bidder(s)/ Contractor(s)/ Contractor(s) commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution.

- (a) The Bidder(s)/ Contractor(s)/ Contractor(s) will not, directly or through any other person or firm, offer, promise or give to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any material or other benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.
- (b) The Bidder(s)/ Contractor(s)/ Contractor(s) will not enter with other Bidders into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.
- (c) The Bidder(s)/ Contractor(s)/ Contractor(s) will not commit any offence under the relevant IPC/ PC Act and other Statutory Acts; further the Bidder(s)/ Contractor(s)/ Contractor(s) will not use improperly, for purposes of completion or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
- (d) The Bidder(s)/ Contractor(s)/ Contractor(s) of foreign origin shall disclose the name and address of the Agents/ representatives in India, if any. Similarly, the Bidder(s)/ Contractor(s)/ Contractor(s) of Indian Nationality shall furnish the name and address of the foreign principle, if any.
- (e) The Bidder(s)/ Contractor(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract. He shall also disclose the details of services agreed upon for such payments.
- (f) The Bidder(s)/ Contractor(s)/ Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.
- (g) The Bidder(s)/ Contractor(s)/ Contractor(s) will not bring any outside influence through any Govt. bodies/ quarters directly or indirectly on the bidding process in furtherance of his bid.

**Article 3- Disqualification from tender process and exclusion from future contracts**

- (1) If the Bidder(s)/ Contractor(s)/ Contractor(s) before award or during execution has committed a transgression through a violation of any provision of Article-2, above or in any other form such as to put his reliability or credibility in question, the Principal is entitled to disqualify the Bidder(s)/ Contractor(s)/ Contractor(s) from the tender process.
- (2) If the Bidder(s)/ Contractor(s)/ Contractor(s) have committed a transgression through a violation of Article-2 such as to put his reliability or credibility into question, the Principal shall be entitled to exclude including blacklist and put on holiday the Bidder(s)/ Contractor(s)/ Contractor(s) for any future tender/ contract award process. The imposition and duration of the exclusion will be determined by the severity of the transgression. The severity will be determined by the Principal taking into consideration the full facts and



circumstances of each case particularly taking into account the number of transgressions, the position of the transgressors within the company hierarchy of the Bidder(s)/ Contractor(s)/ Contractor(s) and the amount of the damage. The exclusion will be imposed for a minimum of 1 year.

- (3) A transgression is considered to have occurred if the Principal after due consideration of the available evidence concludes that “On the basis of facts available there are no material doubts”.
- (4) The Bidder(s)/ Contractor(s)/ Contractor(s) with its free consent and without any influence agrees and undertakes to respect and uphold the Principal’s absolute rights to resort to and impose such exclusion and further accepts and undertakes not to challenge or question such exclusion on any ground, including the lack of any hearing before the decision to resort to such exclusion is taken. This undertaking is given freely and after obtaining independent legal advice.
- (5) The decision of the Principal to the effect that a breach of the provisions of this Integrity Pact has been committed by the Bidder/ Contractor/ Contractor shall be final and binding on the Bidder/ Contractor/ Contractor.
- (6) On concurrence of any sanctions/ disqualification etc. arising out from violation of integrity pact the Bidder/ Contractor/ Contractor shall not be entitled for any compensation on this account.
- (7) Subject to full satisfaction of the Principal, the exclusion of the Bidder/ Contractor/ Contractor could be revoked by the Principal if the Bidder/ Contractor/ Contractor can prove that he has restored/ recouped the damage caused by him and has installed a suitable corruption prevention system in his organization.

#### **Article 4- Compensation for Damages**

- (1) If the Principal has disqualified the Bidder(s) from the tender process prior to the award according to Article 3, the Principal shall be entitled to invoke the bid securing declaration apart from any other legal right that may have accrued to the Principal.
- (2) In addition to 1 above, the Principal shall be entitled to take recourse to the relevant provisions of the contract related to Termination of Contract due to Contractor/ Contractor’s Default. In such case, the Principal shall be entitled to forfeit the Performance Bank Guarantee of the Contractor/ Contractor and/or demand and recover liquidated and all damages as per the provisions of the Contract Agreement against Termination.

#### **Article 5 - Previous Transgressions**

- (1) The Bidder declares that no previous transgressions occurred in the last 3 years immediately before signing of this Integrity Pact with any other Company in any country conforming to the anti-corruption/ Transparency International (TI) approach or with any other Public Sector Enterprise/ Undertaking in India or any Government Department in India that could justify his exclusion from the tender process.
- (2) If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or action for his exclusion can be taken as mentioned under Article-3 above for transgressions of Article-2 and shall be liable for compensation for damages as per Article-4 above.

#### **Article 6 - Equal treatment of all Bidder(s)/ Contractor(s)/ Contractor(s)/ Subcontractor(s)**





- (1) The Bidder(s)/ Contractor(s)/ Contractor(s) undertake(s) to demand from all sub-contractor(s) a commitment in conformity with this Integrity Pact, and to submit it to the Principal before contract signing.
- (2) The Principal will enter into agreements with identical conditions as this one with all Bidder(s)/ Contractor(s)/ Contractor(s) and Subcontractor(s).
- (3) The Principal will disqualify from the tender process all Bidders who do not sign this Pact or violate its provisions.

**Article 7 - Criminal charges against violating Bidder(s)/ Contractor(s)/ Contractor(s)/ Sub-contractor(s)**

If the Principal obtains knowledge of conduct of a Bidder/ Contractor/ Contractor or Subcontractor, or of an employee or a representative or an associate of a Bidder/ Contractor/ Contractor or Subcontractor, which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the same to the Chief Vigilance Officer.

**Article 8 - Pact Duration**

This Pact begins when both parties have legally signed it. It expires for the Contractor/ Contractor 12 months after his Defect Liability Period is over or 12 months after his last payment under the contract whichever is later and for all other *unsuccessful* Bidders 6 months after the Contract has been awarded.

If any claim is made/ lodged during this time, the same shall be binding and continue to be valid despite the lapse of this pact as specified above, unless it is discharged/ determined by Chairman of NHAI.

**Article 9 - Other Provisions**

- (1) This Pact is subject to Indian Law Place of performance and jurisdiction is the Registered Office of the Principal i.e. New Delhi.
- (2) Changes and supplements as well as termination notices need to be made in writing.
- (3) If the Bidder/ Contractor/ Contractor is a partnership or a consortium, this pact must be signed by all partners or consortium members.
- (4) Should one or several provisions of this Agreement turn out to be invalid, the remainder of this Agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions.
- (5) Any disputes/ differences arising between the parties with regard to term of this Pact, any action taken by the Principal in accordance with this Pact or any relation thereof shall not be subject to any Arbitration.
- (6) The actions stipulated in this Integrity Pact are without prejudice to any other legal action that may follow in accordance with the provisions of the extant law in force relating to any civil or criminal proceedings.

In witness whereof the parties have signed and executed this Pact at the place and date first done mentioned in the presence of following witnesses:

\_\_\_\_\_  
[For & On behalf of the (Principal)]

(Office Seal)

Place:-----

\_\_\_\_\_  
[For & On behalf of the Bidder/ Contractor/  
Concessionaire/ Consultant]





Date: \_\_\_\_\_

Witness 1:

(Name & Address)

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Witness 2:

(Name & Address)

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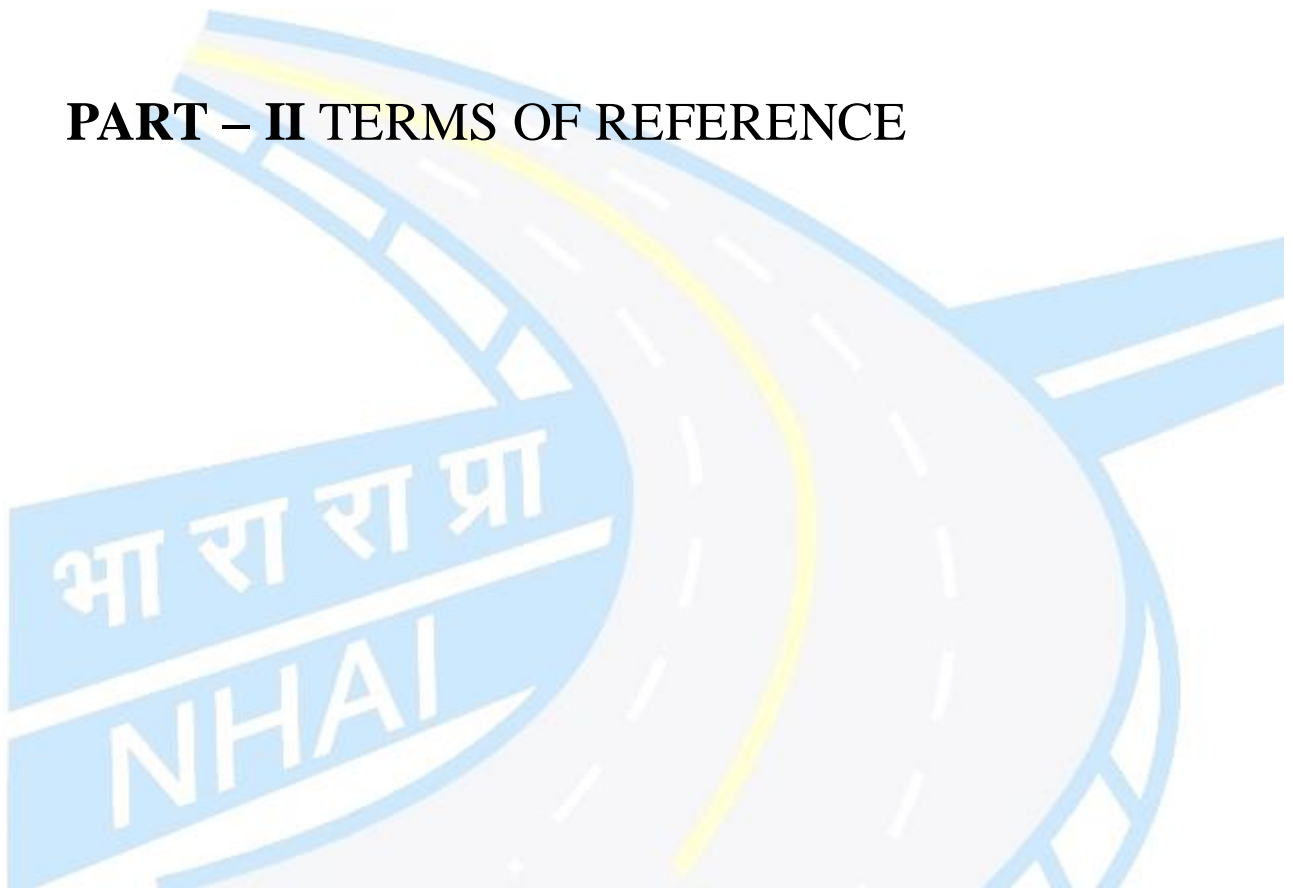
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## **PART – II TERMS OF REFERENCE**



**Abbreviations**

The following abbreviations shall refer to the words presented hereunder throughout Particular Technical Specifications:

Acronym	Definition
ANSI	American National Standards Institute
AP-DATEX	Application Profile- Data Exchange
API	Application Programming Interface
ASB	Amber Siren Beacon
ATM	Asynchronous Transfer Mode
ATMS	Advance Traffic Management System
ATS	Automatic Transfer Switch
BFTL	Badarpur Faridabad Tollway Limited
CCD	Charge Coupled Device
CCTV	Closed Circuit Television
CIF	Common Intermediate Format
CMOS	Complementary Metal-Oxide-Semiconductor
CSC	Contactless Smart Card
CSCRW	Contactless Smart Card Reader/Writer
CSMA/CD:	Carrier Sense Multiple Access with Collision Detect
D/D	Detailed Engineering Design
DC Power	Direct Current Power
DCT	Discrete Cosine Transform
DDR	Dual Data Rate
DEG	Diesel Engine Generator
DLP	Defects Liability period
DSF	Dispersion- Shifted Fibre
DSRC	Dedicated Short Range Communications
DVD	Digital Video Recorder
DWDM	Dense Wavelength Division Multiplexing
ECC	Error Correcting Code
EIRP	Equivalent Isotropically Radiated Power
EIRR	Economic Internal Rate of Return
ETSI	European Telecommunications Standards Institute
F/S	Feasibility Study
FOC	Fibre Optic Cable
FON	Fibre Optic Node
FTP	File Transfer Protocol
GBIC	Gigabit Interface Converter
GPRS	General Packet Radio Service
GSM	Global System for Mobile Communications
HDTV	High-definition Television
HP&MC	High Personage & Military Convoy
HTTP	Hypertext Transfer Protocol
PPP	Point – to – Point Protocol
PTZ	Pan, Tilt, and Zoom (function)
PVC	Polyvinyl Chloride
QCIF	Quarter Common Intermediate Format
RAID	Redundant Array of Inexpensive Disks
RFP	Request for Proposal
RPR	Receipt Printer
SCADA	Supervisory Control and Data Acquisition
SDH	Synchronous Digital Hierarchy
SDTV	Standard-definition Television
SIM	Subscriber Identity Module

Acronym	Definition
IC	Interchange
IC Card	Integrated Circuit Card (ICC)
IHMCL	Indian Highway Management Company Limited
IP	Internet Protocol
IP-PBX	Internet Protocol - Private Branch Exchange
ISO	International Organization for Standardization
IT	Information Technology
ITS	Intelligent Transport System
ITU-R	International Telecommunication Union – Radio communications Sector
ITU-T	International Telecommunication Union - Telecommunication Standardization Sector
JPEG	Joint Photographic Experts Group
LAN	Local Area Network
LCD	Liquid Crystal Display
LC-IPC	Lane Computer-Industrial PC
LDP	Large Display Panel
LED	Light-emitting Diode
MAC	Media Access Control
MCBF	Mean Cycle Between Failures
MCU	Master Communication Unit
M-JPEG	Motion - Joint Photographic Experts Group
MoRTH	Ministry of Road Transport and Highway
MPEG	Moving Picture Experts Group
MTBF	Mean Time Between Failures
MTTR	Mean Time to Repair
NH	National Highway
NHA	National Highways Authority of India
NTP	Network Time Protocol
NVR	Network Video Recorder
O&M	Operation and Maintenance
OD	Origin/Destination
ONVIF	Open Network Video Interface Forum
P/Q	Prequalification
PA	Parking Area
PBX	Private Branch Exchange
PCS	Physical Coding Sublayer
PCU	Passenger Car Unit
PDB	Power Distribution Board
PIU	Project Implementation Unit
PKG	Package
PMU	Project Management Unit
UDP	User Datagram Protocol
UHF	Ultra-High Frequency
UPS	Uninterruptible Power Supply
VDS	Vehicle Detector System
VHF	Very High Frequency
VIDS	Video Incident Detection System including all electronic/electrical and digital equipment, wiring, software, hardware, cabling, networks, data connections, electricity connections supporting civil work, poles, housings etc. associated with the project shall be included in the definition of VIDS
VoIP	Voice over IP
VRS	Video Recording Server



## Section 01 General Requirements

### 1. Background

The work will include Design, Supply, Installation, Testing, Commissioning, Configuration, System Integration, Operations and Maintenance of Video Incident Detection System (VIDS) for National Highway.

The project shall be a complete VIDS solution with provision of skilled resources at all locations for operations and shall be offered to NHAI on service model. The period of engagement shall initially be five years and four months including implementation period. This may be extended for another two-year subject to satisfactory services and continued requirement of NHAI.

This RFP describes functional requirements envisaged by NHAI. In addition, the minimum technical requirements have been prescribed in this document, wherever indispensable. The Contractor is responsible for the design of complete project and the system architecture as per the best industry practices, to deliver state-of-the-art solution to NHAI. Any consideration affecting safety, security, redundancy, and compliance to stipulated provision prescribed by government authorities is the responsibility of the Contractor and shall be duly taken care of to ensure adherence to minimum functional and technical requirement stipulated in this document as well as the SLA parameters.

### 2. Scope of work

- A. The 'Bidder' hereafter may be called as 'Contractor' shall conduct the field survey, preparation of design drawings and supply of equipment and materials, spare parts, test equipment, tools and materials, factory inspection (inspection of equipment & materials upon delivery), training, transportation and site delivery, construction and installation, preparation of as-built drawings, testing and commissioning of the project.
- B. The scope of the works under this RFP is deployment of Video Incident Detection System (VIDS) including the Digital Transmission System, on service model by the Contractor including the design, supply, installation, operation & maintenance of all system, networks, data, and any other component necessary to effectively & efficiently implementation of the project. All the requirements specified herein are the minimum requirements.
- C. The Contractor should rent out office space for setting up atleast one regional control centre for each regional office of NHAI and one IMS sub-centre near for each PIU under whose jurisdiction the location of VIDS lies. The location of the control centre and sub centre should be near RO/PIU or any other location as specified by NHAI. The Contractor shall intimate NHAI before finalising the building / location. All civil and interior works for construction and setting up the Control centre and sub-centres, including any related electrical, lighting, DG set, power backup, HVAC works, etc. shall be in the scope of the Contractor.
- D. The Contractor shall also undertake the works that are not specifically mentioned in this RFP and in the reference Drawings but essential for the efficient implementation and operations of the project.
- E. The requirements stated herein shall be construed as minimum requirement and meeting the respective requirements shall not relieve the Contractor from the responsibility of supplying the system that functions efficiently as an integrated solution and carry out its Operation & Maintenance for a period of five years as stipulated.
- F. The Contractor shall check and review the design and RFP prepared by the NHAI and included in the Contract Documents, and execute the supplemental and/or additional and/or detailed design work as necessary at the Contractor's cost and time, so that the Contractor will supply and deliver the workable system which will suit the intended purpose when completed. The Contractor shall promptly notify the NHAI and the NHAI (or its representatives) of NHAI, of any error, omission, fault or any other defect in the design of or RFP for the Works which he discovers when reviewing the Contract Documents or in the process of execution of the Works or during the Operation & Maintenance Phase.
- G. The Bidder shall quote for the entire system and facilities on a "single responsibility" basis such that the Contract Price covers all Contractor's obligations mentioned in or to be reasonably inferred from the Contract Documents in respect of the design, manufacture, procurement, construction, installation, adjustment and testing of the Works and remedying





any defect therein so as to maintain the required level of service at all times. This includes all requirements under the Contractor's responsibilities for testing and commissioning of the systems and facilities, and where required by the Contract Documents, the acquisition of all permits, approvals and license, etc.; the training services and such other items and services as may be specified in the Contract Documents.

- H. The Contractor shall be responsible for Integration of VIDS system and sub-systems with the ATMS deployed on the NH stretch, Control Centres of other ITS/ATMS projects of NHAI, NHAI HQ Control Centre/ Command Centre, NHAI Mobile App for the road users, etc. as per the requirement raised from time to time by the IT/Electronics/HO division of NHAI or its authorized agency. Therefore, the contractor update its system on regular basis as part of its services but without any additional cost to NHAI.
- I. The following events are to be captured through the VIDS with the accuracy level as specified in the Service level requirements
  - Traffic Count and Classification (two wheelers, three wheelers, four wheelers, LMV, trucks/Buses, Multi axle Vehicles)
  - Movement in wrong direction
  - Parking/Unauthorised stoppage on highway
  - Over Speeding upto 200 kmph
  - Accident Detection
  - Unauthorised Pedestrian Movement across the Highway
  - Overtaking/unsafe driving patterns
  - Traffic volume on all arms of the junctions
  - Volume of Turning Traffic
- J. The system should be capable of recording high resolution Video starting from 15 seconds prior to the accident upto 30 seconds after the accident capable of atleast 36x optical zoom and atleast 16x of digital zoom. The cameras should have the feature of optical defog, autofocus, and should automatically be able to adjust to any lighting conditions so that the video quality remains unaffected. The minimum illumination shall be of 0.002 lux for colour video and 0.0002 lux for black and white image with automatic grain control. The camera should be capable of recording black and white video even in 0 lux with any suitable technology upto a distance of 150 meters on each arm of the junction. The cameras should be able to record clear video upto a distance of 300 metres during day time as Full HD video. The cameras should have a frame rate of 60 FPS at 1920 x 1080 pixels also known as Full HD.
- K. The VIDS system should be able to capture the incidents with suitable optical zoom so that the videos of the incident are captured in greater details. The VIDS system should be able to identify atleast the make, model and colour of vehicles travelling upto a speed of 200 kmph with a reasonable degree of clarity so that the same can be shared with enforcement agencies to identify the vehicles easily if so required by NHAI. It must be ensured that all the lanes are covered by the cameras at all times, even during an ongoing incident. The lens size and shutter speed should be of appropriate capacity to meet the functional requirements as specified in these terms of reference.
- L. All the videos captured by the cameras should atleast be available on storage (harddrive and cloud storage) for atleast one week after the day of its recording. However, provision should be available to store the recording for upto 15 days on specific request of NHAI. The operators shall have the option to manually zoom the cameras remotely without affecting any other functions of the VIDS.
- M. The future integration of the VIDS system with the ATMS whenever installed on the subject stretch shall be undertaken by the VIDS contractor at its own cost including up-gradation of the hardware or software if required for the same.
- N. All the arms of the junction must be covered through video surveillance with VIDS so that any incident on any lane of the highway or the cross road is captured for the distance and quality as specified in above paras.
- O. All the associated storage requirement, server requirement, Local Processing unit (LPU) requirement with adequate network connectivity, Central Processing Systems, all the hardware & software requirement and all other components necessary for achieving the



objective specified in the terms of reference are to be assessed by the bidder on their own and the same shall be deemed to be included in the financial proposal of the bidder.

- P.** Multiple streams should be available for the live viewing at NHAI HQ, RO, PIU level in addition to the RCC and IMS sub-centre along with provision of addition of at least 3 other state govt./central govt. agencies for live stream.
- Q.** This VIDS software interface for the shall support Incident / Accident Management by:-
- a) allowing the operator of RCC/IMS Sub-centre to locate and mark (with a mouse) an accident / incident on the GIS map of the highway and initiate the Incident management actions.
  - b) Displaying a contextual on-line checklist for the operator to follow in sequence. Further by clicking on each item of the checklist shall automatically activate the related VIDS equipment to aid in the management viz.,
    - i) seamless audio connection for the Traffic Management console operator, via the integrated audio communication unit, irrespective of the communication media (Mobile radio, Mobile phone/landline, road-side Emergency telephone), to the ambulance, Trauma Care Centres, Patrol & other O&M vehicles
    - ii) automatic Pan, Tilt and Zoom of the nearby camera to view the accident
    - iii) Bringing on the VMS –wise message edit screen (by interfacing with the VMS Control software) to create and dispatch messages to VMS boards and mobile apps of registered road users). The checklist itself shall be derived from the relevant Traffic Management and rescue procedures captured either in the Operation (O&M) manual of the highway or based on world-class practices relevant for the highway.
  - c) Logging the timestamp of the operator operating each element of the checklist to aid in 'post-mortem' analysis of the operator's performance towards establishing his /her efficiency and further training needs.
  - d) Automatically performing pre-defined actions related to each of the above elements (e.g. Identification of the accident spot on the road shall control the nearby cameras to 'look' in the direction of the accident spot)
  - e) Aiding on-line tracking (via GPS) of the various O&M vehicles like the Ambulance, Tow-vehicle and the Patrol vehicle supported with dynamic display of information like shortest route, travel time to the accident spot, Trauma Care Centre etc.
  - f) Providing a user-programmable facility, as an aid, for the automatic generation of VMS messages depending on incidents based on e.g. information measured by the MET sensors and sensors installed on the highway or by the MET department (e.g. the generation of a Visibility Alert signal in the event of visibility going below 1 km). This module shall alert the operator on generating the message which shall then be deployed on the operator's approval.
- R.** The VIDS Dashboard for RCC and IMS Sub-centre shall have following functionalities:
- a. Map analysis of ATMS planning and operations.
  - b. Asset Management of ATMS like PTZ, TMCS, VIDS, VSDS, Route Patrol, Maintenance, Recovery vehicle location, and Route to reach the incident spot.
  - c. Identify surrounding development by other Authorities or illegal development which can potentially be a hazardous to road using temporal satellite imagery for example detection of queue length at the toll plazas, detecting the changes around highway like unauthorised structure built nearby highway or unauthorised occupancy on ROW/buffer area, nearby water body analysis, agriculture land and green belt analysis etc. This will help the NHAI to identify gaps and improve those by implementing various strategies like position of barricading at unauthorised access points, identifying the congestion at toll plazas, identifying water logging probability, removal of illegal encroachment, positioning of CCTV surveillance etc.
  - d. Demarking area of highway which is more susceptible to potential hinderances on highway like by cattle, wildlife, prohibited vehicle entry from etc. from nearby inhabitancies.



- e. **Road condition analysis** on Map and satellite imagery for regular monitoring, improvement planning and implementation. Along with monitoring of implementation / upgradation works.
  - f. GIS based road maintenance planning and monitoring by marking them on Map and monitoring the activity through GIS enabled mobile app by tagging location and photographs of respective location of road asset and work in progress.
  - g. GIS enabled planning of diversions for safety of vehicle movement on maintenance area, installation area, and work in progress. This feature shall be made available by the Contractor to NHAI and NHAI (or its representatives) before the start of the installation of roadside equipment at the site, for planning of the diversion and monitoring of the work in progress.
  - h. The Software should have capability of visualising GIS layers, attribute integration and analysis of layers.
  - i. The software should support GPS data for showing emergency and maintenance vehicle on Map
  - j. The web module should have out of box standard GIS functions like: Pan, Zoom, Identify, Measurement (Line, Area), Search, query, etc.
  - k. The software should have tool for creation of topology. Symbology tools for visualizing the spatial data as per the defined colour scheme and annotation tools facility for visualizing the spatial data as per defined label placements or placing the labels from attribute table.
  - l. Software should have facility of advanced rule base labelling for dynamic placement of labels as per the extent, defined position and priority of layers by defining the different classes and should have the option to set the scale labels at specified scale.
  - m. Geo-Processing feature and functions like Buffer, Union, Intersection, Identity, Update, Eliminate, Dissolve, Clip/Erase, Convex Hull, Thiessen, Merge, simplify should be available.
  - n. It should have CAD tools for 2D & 3D GIS data conversion, CAD tool for Raster to vector (R2V) and topology creation.
  - o. The software CAD functionality should support native drawing file formats like DWG, DXF, DGN and should have capability to render photo-realistic 3D rendering.
  - p. The software should be COTS based and OGC certified.
  - q. It should have Image processing capability georeferencing, visual interpretation of the satellite imagery and classification tools to helps in classifying images in user defined classes. image enhancement algorithm such as Linear, Logarithmic, Histogram Equalize, Histogram Matching, Density Slice, Gaussian, Squire root, Tone Balancing, and Raster Vector Analysis,
  - r. The software should have image filtering, vegetation indices calculation, linear algebraic combination, band Math, change detection, image extraction, mosaicking, image visualization, filtering, georeferencing, atmospheric correction, transformation tools, change management, feature extraction, classification etc.
  - s. The software should support all type of Standard GIS Data format, Imagery formats, and RDBMS.
  - t. GIS Tools functionalities such as Data creation, Import/Export tools, Transformation Techniques, Theme management, Geometric correction.
  - u. The software should have feature to identify and query various spatial Data.
  - v. The software should have Map composer, report module and Map print layout functionality.
- S.** control the integrated audio communication unit to aid the operator seamlessly communicate with various stakeholders via a host of communication media like telephone landlines, mobile telephony, mobile wireless etc. The communication should be initiated on selection of a context sensitive checklist element or by selection of suitable icons on the workstation screen during the Traffic monitoring or accident / incident management. This unit shall support communication between the Traffic manager and a single stake holder or a group of stakeholders. As a back-up option this unit shall also enable such communication via physical pushbuttons located on the unit.
- T.** There shall also be a provision to generate a range of reports to aid planning and strategizing enforcement which shall be circulated to RO, PIU and NHAI HQ on periodicity as decided by the Authority including those





- related to the acquired data,
  - VMS messages edited and sent,
  - Equipment availability,
  - System related events including those related to
    - System malfunction and restoration
    - User login – logout
    - VIDs events detected
    - Mobile App messages received
    - Sytem Uptime/downtime
  - The module shall further provide detailed performance reports on all aspects ranging from detection of incidents, through the field Operations team (Patrol vehicles, Break-down cranes and Ambulances) actions, Traffic Management Console operator and other ATMS Control Centre operator actions.
  - Detailed formats of each report shall be provided by the NHAI (or its representatives) during Detail Design Phase.
- U.** The VIDS system shall have the ability to record an audit trail of when users log in that shows what changes they have made, what video they have viewed and what they have exported.
- V.** The VIDS shall allow for the configuration of what drives to use for recording video. Those drives may be local drives, direct attached storage drives or iSCSI drives.
- W.** VIDS shall support the mobile application for both iOS and Android platform capable of viewing multiple simultaneous live video streams and playing a recorded video stream.
- X.** The VIDS software shall have an open architecture supporting IP cameras and encoders from multiple manufacturers providing high-resolution megapixel features.
- Y.** Multiple control room consoles/workstations shall be able to simultaneously view live video and audio and/or recorded video and audio from the storage/video server. All storage / video servers shall also be able to simultaneously provide live and/or recorded video to one or more consoles. Its operator shall be able to push the video to another operator console seamlessly.
- Z.** The VIDS software shall be able to send a predefined email based on an event trigger. The VIDS software shall also support SSL and TLS connections for transmissions of the mail.
- AA.** The VIDS shall be capable of multi streaming on all connected workstations/ consoles in the entire network of the regional office simultaneously along with provision for use by remote users. The remote users shall have full functionalities as are available for the control centre operators.
- BB.** It shall be possible to configure multiple monitors simultaneously on one workstation / console
- CC.** Recording of all video transmitted to the VIDS shall be continuous, uninterrupted and unattended.
- DD.** VIDS shall have Suspect Tracking feature to configure camera links between cameras to follow a suspect between different camera.
- EE.** Inactivity timeout feature shall be provided to save the bandwidth
- FF.** Archive bookmarks feature shall be available to specifically archive bookmarked video and create a second copy of important video.
- GG.** VIDS shall automatically generate alarm / alert in case of any video loss or failure.
- HH.** The VIDS software shall be used to connect different types of events, such as input triggers, to a desired action such as recording video or triggering an alarm. The VIDS software shall recognize the following event types: video motion, video loss, input trigger, health monitoring, IP camera connection, software trigger and analytics, camera preview style, hovering, server disconnect, archive alarm - failure on archiving target, such as bad mount point and any other events as are necessary for effective monitoring and implemenation of the project
- II.** The RCC shall have a video wall displaying At least the following information:
- 1) GIS Map of the Stretch with each lane
  - 2) live video streaming
  - 3) VIDS live video streaming and Incident Pop-ups
  - 4) speed live data
  - 5) Traffic Condition





- 6) Traffic count and classification
- 7) Traffic Event using Image Icon (Type and Location)
- 8) Emergency call status
- 9) Information Provision by VMS (as applicable)
- 10) Status of each equipment plotted on the GIS Map
- 11) NMS

**JJ. Local warning flashing lights and Alarm:**

The local VIDS controller shall be enabled to provide appropriate local warnings (in the interest of road safety) to vehicles on the main carriageway on detection of incidents like reverse traffic (along with warning to the RCC) and shall have the following features:

- a. Pole mounted flashing lights of minimum 300mm diameter with a visibility of at least 500m shall be used for local warning.
- b. There shall be at least ten such warning lights each mounted typically at a distance of 100 meters and 200 meters before the incidence monitoring point when seen from the direction of travel. The above distances shall be suitably optimized during detailed engineering. Two warning lights shall be installed in the median and three on the shoulder side.
- c. The lights shall be ideally powered by a local solar PV based power supply withinbuilt Li-ion battery and shall be interconnected with the incident detection system either by cable or by wireless (GSM based).
- d. During periods of poor visibility, as detected by the VIDS or RCC / Sub-centre operator, the lights shall go into a flashing mode until visibility improves to a level for adequate incident detection. The RCC / Sub-centre operator shall have the option to turn on/off the lights remotely.
- e. The above lights shall stop flashing either on the event of the disappearance of the detected incident(s) or on the occurrence of a reset from the RCC / Sub-centre operator.
- f. In case of failure of the VIDS the above lights shall, by default, switch to the flashing mode.

**KK. Probe Data System:**

- a. A probe car system is envisaged that receives and processes location data from the project vehicles equipped with GPS device and show the location of GPS devices attached to patrol vehicle or another management vehicle as one of the components of ATMS.
- b. The system will use the vehicle location data of maintenance, patrol and emergency vehicles fitted with GPS device and deployed on the project.
- c. The supply and installation of GPS devices is not under the scope of this Contract. The Contractor shall only be required to establish the data communication system between vehicles and Probe Data System console in TMC under the scope of work of this Contract.
- d. However, the Contractor shall provide the GPS devices for the vehicles and portable VMS provided by the Contractor.
- e. It shall be the responsibility of the Contractor to furnish all necessary hardware, software and database, install equipment at the specified location, provide necessary cabling, integrate all system components, and deliver a complete operational system including such works as required for the transmission of the probe data on 24/7 basis.
- f. The probe car system will be prepared for generating traffic condition information and utilising the cumulated data as statistics for the measures on transport such as traffic management etc.
- g. It collects vehicle location information dynamically. A probe sensor installed in vehicle consists of Global Positioning System (GPS) unit, processor unit, communication unit and power supply unit.
- h. The satellites send time signals. The time signals are received by the GPS unit on the earth. The GPS unit receives the signals from several satellites and identifies its location on the earth.
- i. The accuracy of the location generally ranges 10 to 100 m, depending on such factors as quality of GPS unit, high-rise buildings around etc. The probe sensor periodically sends the recorded data such as vehicle location in terms of longitude/latitude and recording time to the TMC.



- j. The vehicle locations shall be displayed on the GIS map in real-time in TMS and all sub-centres.
- k. The probe data will be received periodically at the TMC and shall be analysed to show the location of maintenance vehicle on the road network of digital road map.
- l. The analysed data is converted into traffic congestion information and provided to the road users. The cumulated probe data is processed as historical data for higher accuracy of congestion information.
- m. **Data List** - The vehicle location data shall be generated at an interval of 10 seconds in each GPS device on board vehicle. The probe car system shall receive all vehicle location data as they are sent from vehicles. The data includes the following items:
  - 1) Device ID
  - 2) Vehicle type
  - 3) Location (Longitude and Latitude)
  - 4) Date & time of data
  - 5) More detailed structure of the GPS data will be provided to the Contractor.
- n. **Data validation:** The system shall scrutinize the data received and any abnormal data such as data without time stamp, data value outside of the range, and data with longitude and latitude outside of the vehicle coverage area shall be removed from the data.
- o. **Map matching:** The system shall have map matching function to project the location of vehicle onto the nearest point along the vehicle route. If the distance between original point and projected point is longer than the pre-set threshold, the data shall be disregarded.
- p. **Data storage and retrieval function**
  - i. All data shall be recorded and stored in the probe car server for analysis and future usage. The raw vehicle location data sent from GPS device and processed location data after map matching shall be kept for three (3) months.
  - ii. Data retrieval and presentation software shall be provided that shows the original location data, location data after map matching.
- q. **Screen Display Functions**
  - i. The information display shall be schematic map-based interface and as well in the form of a list. The schematic map-based display shall cover the entire Project and be able to enlarge individual locations on the map when selected. The enlarged view shall be able to display the details for each selected location.
- r. **Reporting functions**
  - i. Probe Data System Server shall publish/print as a minimum the reports listed below. The reports shall be produced as pre-scheduled or on-demand by system operator. It shall be possible to produce the reports in a portable file format.
  - ii. Operation and error log List of roadside equipment those are operational or malfunctioned
  - iii. Error record
- s. **Communication Network**
  - i. The data transmission of vehicle tracking data shall be made through IP based network provided by communication provider. The network equipment of the system shall have high reliable and secure connectivity.
- t. All the third-party GPS on board Unit shall be subjected to test before Acceptance test, during installation work and upon completion depending on the test item.
- u. Two types of test, function and performance test and general test shall be conducted. They include (as a minimum):
  - i. Communication and performance of GPS On Board Unit.
  - ii. Probe Data System Server application and reports.
  - iii. Locating function on map.
  - iv. Data logging function.

**LL.** VIDS Software shall be integrated with **Vaahan** Database and NPCI FASTag Mapper for fetching the Vehicle owner contact details of errant commuters detected by the VIDS System or reported by the route patrolling team with an evidence under violation of any traffic and



safety rule / law on the project stretch based on manual identification of the vehicle number (if possible) if at all required for reporting to enforcement agencies.

#### **MM. Security & related Incident Management Service**

The VIDS Project shall be designed for an end-to-end multi-layer security blanket to protect applications, services, data and the infrastructure from malicious attacks or theft from external (through internet) and internal (through intranet) hackers. Using Firewalls and Intrusion detection systems such attacks and theft should be controlled and well supported (and implemented) with the security policy. The virus and worms attacks should be well defended with Gateway level Anti-virus system, along with console level Anti-virus mechanism. VIDS should be designed to make use of the Secure Socket Layer (SSL)/Virtual Private Network (VPN) technologies to have secured communication between Applications and its end users. Furthermore, all the system logs should be properly stored & archived for future analysis and forensics whenever desired.

These Service Levels would be calculated for each of the following types of incidences:

##### **a) Virus Attack**

Any virus infection and passing of malicious code shall be monitored at the gateway level or user complains of virus infection shall be logged at the help desk system and collated every quarter.

##### **b) Denial of Service (DoS) Attack**

Non-availability of any services shall be analysed, and forensic evidence shall be examined to check whether it was due to external DoS attack.

##### **c) Intrusion**

Intrusion is an illegal act of entering, seizing, or taking possession of data hosted by ATMS. Compromise of any kind of data hosted by ATMS.

##### **d) SPAM**

SPAM is an unsolicited bulk messages, especially advertising, indiscriminately. SPAM statistics on monthly basis shall be monitored through reports generated by Anti-SPAM software.

#### **NN. Records and Reports**

The Contractor shall prepare and submit the various reports as stipulated herein in a form mutually agreed. Each report shall contain as a minimum the information listed below.

For every incident reported, the system shall gather the information about the details of incident and site condition. List of Incident summarized the information to be collected for different type of incident shall be prepared by Contractor.

The system shall prepare the following auto generated reports:

##### **a) Daily report**

- 1) List of incidents reported by incident category
- 2) Time of intimation about the incident to concerned agencies
- 3) Weather condition
- 4) Time and Date
- 5) Video of the incident (minimum 2 minutes)
- 6) General Traffic behaviour
- 7) Traffic count and classification
- 8) Traffic Volume for any time duration as specified by NHAI
- 9) Peak and Lean Traffic Hours
- 10) Co-relation between time, traffic volume and incidents reported
- 11) Response time of on-road units of NHAI, Police, Fire Department etc. for managing the incident
- 12) Contact summary (numbers by category) with Emergency caller, patrol team, traffic police and other relevant agencies
- 13) Record of Traffic Regulation
- 14) Ambulance Dispatch & Arrival Report
- 15) Fire Engine Dispatch & Arrival Report
- 16) Any other details as required by NHAI in compliance of the TOR





## b) Monthly report

- 1) Number of intimations sent to Emergency caller, patrol, police, NHAI and others for each day.
- 2) Number of incidents occurred by category for each day
- 3) Co-relation between time, traffic volume and incidents reported  
Operators who responded to a call (such as emergency call) shall prepare the reports listed below. The report shall be compiled immediately after responding to the call and shall not be left unrecorded.

## c) Call Record made by the operator at RCC and IMS sub-centre to the NHAI, Police, Fire Department etc. for managing the incident

- 1) Time
- 2) Party contacted
- 3) Incoming or outgoing
- 4) Call content

## d) Clearing/Recovering Record of Object on Road

- 1) Time when information is received
- 2) Receiver
- 3) Contact source
- 4) Caller
- 5) Type or kind and name of object
- 6) Location and direction (clockwise/counter clockwise)
- 7) Lane number
- 8) Time cleaning is ordered
- 9) Name of person instructed
- 10) Contractor to which clearing is requested
- 11) Time of arrival at site
- 12) Time of clearing work completion

Operator at day shift shall brief about all reports to the night shift operator. The system generated reports shall be automatically mailed to the NHAI HQ, RO & PIU. However, the clean reports after filtering the false negatives, false positives and other irregularities shall be submitted to NHAI HQ, RO & PIU. However, it is clarified that the SLR shall be judged on the auto generated reports by VIDS. When night shift finishes the duty, all reports shall be requiring manual interventions shall be submitted to NHAI.

The Contractor shall also prepare and submit to the NHAI as minimum the following deployment reports:

- a) Duty plan of the operation team with the name of traffic management chief and operators on a weekly basis.
- b) Daily attendance record with In-time and Out Time for all Contractor's staff working at Traffic Control Centre.
- c) Daily report of operation as stipulated in the operation manual and as agreed with between NHAI and Contractor.

The reports mentioned above are a minimum requirement. The NHAI reserves the right to reasonably demand more reports other than those listed above after the commencement of Services by the Contractor

**OO. Equipment Location**

- a. VIDS shall be installed at such suitable locations so as to cover the junctions/blackspots identified by NHAI and intimated to the contractor. The VIDS shall be installed at a suitable location from the connecting / merging road to monitor the sectional traffic volume on the main carriageway. The list of tentative locations for each zone shall be provided by the NHAI. Tentative 100 accident prone locations/junctions/black spots etc. shall be selected in each zone for VIDS by NHAI





- b. The VIDS shall be installed on a dedicated pole to be provided by the Contractor. The clearance of 8 meter shall be secured.

**PP. Operation & maintenance requirement:** Apart from installation of VIDS system, the scope of contract also includes Operation and Maintenance of the System for a period of 5 years from the date of Completion of VIDS system. Except otherwise specified in the Operation & Maintenance Specifications of NHAI's Requirements, it is the Contractor's responsibility to provide sufficient manpower to implement flawless execution of VIDS in operation in the manner originally intended, that is to collect road, traffic and weather condition data, process and analyse the data into useful information, disseminate the information to road users and undertake the Services that are not specifically mentioned in these requirements but essential for the safe and efficient traffic operation on the Project. The Contractor shall maintain qualified staff at the RCC, Sub Centre and other places wherever required necessary, tools, shop facilities, equipment, consumables, transportation and materials and perform all works necessary to maintain in good working manner all the systems and associated equipment.

The scope shall also include the following:

1. House Keeping of RCC and Sub Centre by a house keeping supervisor, housekeeper, security guard, cleaner, gardener and miscellaneous workers.
2. Administrative work such as purchases, account, human resource, public relation
3. Building maintenance and recurring charges such as electricity bills, water bill, telephone, data connections, all statutory taxes, levies etc.
4. The Bidders shall describe the methodology and outline to execute proposed Services both Operation & Maintenance in sufficient detail in his Services Proposal to enable the NHAI to evaluate the technical capability and qualification of the Bidder and to judge whether the proposal is adequately responsive or not.
5. The Contractor shall update and furnish the Service Proposal two (2) months before expected starting date of Operation period for finalisation by NHAI.
6. The Services Proposal shall describe the operation and maintenance activities taking Manufacturer or OEM recommendations for all hardware and software into consideration and shall be written in the same sequence as the NHAI's Requirement. Where the supporting documents such as brochure, article, report, or paper are provided, they shall be attached at the end of the proposal or in a separate volume and a cross reference shall be prepared. The Services Proposal shall be written in English.
7. The Contractor shall prepare a list of equipment to be covered by the maintenance based on the actual configuration and quantity of the equipment. If the Contractor provides any additional equipment not specifically mentioned in the NHAI's Requirements to complete the VIDS required under the Contract, they shall be included in the scope of maintenance work.
8. This plan shall be updated as necessary during the O&M period so as to reflect the actual conditions of O&M.

### 3. Work Demarcation between VIDS/ITS Project and Civil Project/NHAI

The Bidder shall coordinate with civil project agency for effective and efficient implementation of the project. However, it is clarified that all the civil work associated with the project implementation shall be the responsibility of the VIDS contractor and any damage to the highway property during the erection of the poles, excavation works for laying of ducts, wires, cables etc. & installation of equipment shall be repaired by the VIDS contractor at its own cost to a condition of Highway as was existing before the start of the VIDS work.

### 4. Standards

- a. All equipment the Contractor (included by the bidder in the bid) supplies shall be new and subject to Factory Acceptance tests to the satisfaction of the NHAI (or its representatives). Unless other standards are specifically required to be complied with herein or in the Contract, all materials and



components used under the Contract and all design calculations and tests shall be performed in accordance with Indian standards.

- b. In the absence of such standards in India, relevant clauses of international standards including but not limited to International Electro technical Commission (IEC), Institute of Electrical and Electronic Engineers (IEEE), International Organization for Standardization (ISO), International Telecommunication Union Telecommunication Standardization Sector (ITU-T) shall be applied.
- c. In the absence of such standards in India and the international standards mentioned above, industry standards generally accepted and approved in one of the major industrialized countries such as Great Britain, Japan, U.S.A, and Germany shall be applied.
- d. Whenever in the RFP reference is made to the Japanese Industrial Standards (JIS), British Standards (BS), American Association of State Highway Transportation Officials (AASHTO) standards, American Society for Testing and Materials (ASTM) standards, and American National Standards Institute (ANSI) standards, and the like, it shall be understood that equivalent internationally acknowledged standards will be accepted.
- e. If Bidder offers materials, equipment, design calculations or tests which conform to the standards other than those specified standards, full details of the differences between the proposed standard and the specified standards shall be submitted when required by the NHAI (or its representatives).

#### **4.1 Deleted**

#### **4.2 Deleted**

#### **4.3 VIDS System / Sub System**

The VIDS systems / sub-systems implementation on the Project shall meet the applicable latest versions of the international/national standards, and can be a technological solution based on CCTV/PTZ Cameras/Radar based technologies or any other better technology which can achieve the objectives envisaged in the Terms of reference within the Service level requirements stipulated in the RFP.

#### **4.4 Cable Installation Work**

The Bidder shall submit the National/International standards of specifications of the materials, equipment, design calculations or tests proposed as the technological solution for various components, equipment, cables, wiring etc. required for the efficient functioning of the VIDS in full details as part of the technical proposal.

#### **4.5 Other Standards - Deleted**



## 5. Management

### 5.1 Consortium or Joint Venture

#### 5.1.1 Consortium

The Prime Contractor of the consortium shall be fully responsible for any fault of the other constituent firms of the consortium. The Prime Bidder/Contractor shall undertake the entire obligations under the Contract to the NHAI just as though it had executed the Contract as one single Contractor for the Works.

#### 5.1.2 Joint Venture

The Leader of the joint venture shall act on the execution of the obligations under the Contract just as the Prime Contractor under the case of consortium described above. The representative officers of such joint venture company shall concurrently be senior members of the Prime Contractor.

Should the joint venture company become bankrupt or insolvent, or have a receiving order made against it, or compound with his creditors, or be a corporation commencing to be wound up, or be under any situation the NHAI would feel uneasy to leave the execution of the Contract to their hands, then the Leader shall take over the entire obligations independently under the Contract just as though it were the single Contractor under the Contract.

#### 5.1.3 Organizational and Membership Changes

Should the consortium or joint venture company which has been awarded the Contract ever undergo any membership or organizational changes or alterations, the NHAI shall be advised beforehand for his consent on any changes or alteration.

### 5.2 Contractor's Personnel and Their Responsibilities

- a. The Contractor shall provide all personnel necessary for the execution of the Works, such as the Project Manager and any other personnel as per their own assessment and requirement to fulfil the Contractor's obligations under the Contract during the implementation as well as O&M phase. These personnel shall be able to read, write and converse in English.
- b. The Contractor shall form a multi-disciplinary team for undertaking this assignment. The agency shall be fully responsible to deploy its resources / personnel whose qualifications and experience fully commensurate with the task/responsibilities assigned and to achieve the objectives under the. The Personnel deployed should be experienced enough and should have proficiency in the requisite techniques / skills so as to provide practical, realistic, and actionable service.
- c. The Contractor will make available technical person who is adequately skilled enough to independently resolve any operational issues in the complete system and regularly interact with NHAI. **Aadhar enabled Biometric Fingerprint machine** shall be installed at each location / IMS unit by the Contractor for daily attendance management of the Project and O&M staff.
- d. The Contractor shall submit the attendance record with each service invoice and NHAI (or its representatives) shall have the access to the logs of biometric attendance management system for verification of the actual manpower working days in a month.
- e. Detailed requirement of technical resources for control centre organisation and staffing has to be assessed by the bidder at their level.

#### 5.2.1 Project Manager

- a. The Project Manager shall be bestowed with authority to receive and carry out the directions and instructions from the NHAI. The Project Manager shall be an engineer with minimum 12 years of relevant experience in same field and well versed in the expressway/highway surveillance and control systems, computer system, data communication system and Traffic Management System. He/ She shall be preferably be the resident of any of the states covered under the Zone for which the tender has been invited to fulfil the Contractor's obligations under the Contract and shall be given full responsibility to enter into negotiations regarding overall matters arising out of the Contract.
- b. The Project Manager shall be primarily a full-time person for the execution of the Contract from the date of the written acceptance of the Tender/bid to the issuance of the Certificate of





Commissioning for the Whole Works. From the date of issuance of the Certificate of Commissioning for the Whole Works to the Final Acceptance, he shall be assigned to the Project at least on an as-needed basis.

#### **5.2.2 Deleted**

#### **5.2.3 Deleted**

#### **5.2.4 Project Meeting**

The Contractor shall be available for progress meetings which will be called for by the NHAI. The notice of such meetings shall be given by the NHAI in writing and delivered to the Contractor via email at least two (2) hours in advance on the planned meeting date.

#### **5.2.5 Progress Report**

The Contractor shall prepare three (03) copies of monthly progress report every month and submit to the NHAI during the implementation phase. The format of the report shall be agreed upon by the NHAI and the Contractor.

#### **5.2.6 Operations and Maintenance Personnel**

The Contractor shall provide adequately skilled technical and operations personnel during the O&M phase for operating and maintaining the VIDS system and sub-systems, as per their own assessment to fulfil the Contractor's obligations under the Contract during the implementation as well as O&M phase. The general roles of the personnel during the O&M period are as under:

- a. The personnel shall address any down time/ trouble shooting as and when required at any location of service.
- b. The resources shall be available on full time basis 365 days in the year at control centres RCC & IMS Sub-centre.

#### **5.2.7 Curriculum Vitae**

Within a month after the date of the Contract execution, the Contractor shall submit to the NHAI, detailed written statements including the names, duties, curriculum vitae of all foreign and local personnel candidates to be employed as Key Personnel as per their assessment.. Where subsequent changes or additions in foreign personnel are proposed, these replacements or additions shall have at least equivalent experience and qualifications, and detailed written statements of their experience and qualifications shall be submitted to the NHAI prior to their assignment.

#### **5.2.8 Removal and/or Replacement of Personnel**

- a. Except as NHAI may otherwise agree, no changes shall be made in the above Key Personnel. If, for any reason beyond the reasonable control of the Contractor, it becomes necessary to replace any of the Personnel, the Service Provider shall forthwith provide as a replacement a person of equivalent or better qualifications.
- b. If NHAI or its representatives (i) finds that any of the Personnel has committed serious misconduct or has been charged with having committed a criminal action, or (ii) has reasonable cause to be dissatisfied with the performance of any of the Personnel, then the Service Provider shall, at the written request specifying the grounds therefore, forthwith provide as a replacement a person with qualifications and experience acceptable to the NHAI (or its representatives) .

#### **5.2.9 Sub-Contracting / Assignment**

- a. If any activity / services / infrastructure and / or any obligations in whole or in part under this project is required to be / subcontracted/ outsourced by the Contractor, the Contractor shall inform the same to NHAI including the terms and condition set-forth by the Contractor in its sub-contracting agreement. For avoidance of any doubt the Contractor shall remain solely responsible for all the works / delivery of services to NHAI under the scope of this project.





- b. The Contractor shall inform NHAI to sub-contract the non-key services such as civil works, interior and furnishing of control centre to any agencies specialised to do such work.

### 5.2.10 Performance standards and Service level requirements

- a. The Contractor shall undertake to perform the services with the highest standards of professional and ethical competence and integrity.
- b. Keeping in view the sensitivity involved, the personnel deployed should maintain confidentiality / integrity at all times and work in a professional manner to protect the interest of NHAI. The firm shall promptly replace any personnel assigned under this project that NHAI/ NHAI (or its representatives) considers unsatisfactory.
- c. The service level requirement (SLR) during the O&M period are defined as under:
- Accuracy of all the incidents during any time of the day or night will have a weightage of 70 points. The accuracy of VIDS will be assessed by a committee at PIU level by analysing a continuous video of any duration as deemed necessary by the committee from any week of the month and comparing results with the reports generated irrespective of the time of day/night or weather conditions
    - Accuracy more than or equal to 95% - 70 points
    - Accuracy more than or equal to 90% but less than 95% - 60 points
    - Accuracy more than 85% but less than 90% - 50 points
    - Accuracy less than 85% - 0 points with one letter of warning
  - IT System and Network uptime- will have a weightage of 30 points: It will be defined as "one minus the fraction of unscheduled down time as per relevant period" expressed as a percentage. This is equivalent to the number of actual service hours or fractions thereof delivered compared to the number of agreed scheduled service hours for each calendar month. System will be considered unavailable if any Network Outage happens. The following is the SLR for this item:
    - System uptime- more than equal to 99% - 30 points
    - System uptime- more than equal to 98 but less than 99% - 20 points
    - System uptime- less than 98% - 0 points with one letter of warning
  - Payment eligibility as per SLR compliance: The payments will be made as per the SLR compliance on an average for all the VIDS locations under the Zone as per the following criteria:
    - 90 to 100 points-100% of payable will be paid
    - 85 to 89 points- 95% of payable will be paid
    - 80 to 84 points- 90% of payable will be paid
    - Less than 80 points- 80% of payable will be paid along with issuance of a warning letter
    - On attaining warning letter for three consecutive months for either of the above criteria the Authority can proceed for termination of the contract and forfeit the performance security (and APS) of the contractor

## 6. Time Schedule

1. System Design : to be finalised within 1.5 months from the date of signing of the Contract
2. Installation : to be completed by 3 months from signing of contract
3. Testing & Commissioning : to be completed before 15 days of trail run
4. Trial run : 15 days from the due date of commissioning (i.e. total implementation period of four months)
5. O&M period : 60 months from the date of issue of Commissioning Certificate



## 7. Liquidated damages/ Penalties

### 7.1 Delays in setting up the system

Failure by the Contractor to complete the works or completion of punch points of SIT within 30 days of issuance of notice by the NHAI (or its representatives) or delay in completion of work for any of the milestones as per the above Time Schedule within the stipulated time and to have remedied all reported defects within the time prescribed by the NHAI (or its representatives) for the cure period of up to 15 days shall result in the application of the penalties for delays. The penalty will be applied @ 0.5 % of the annual contract value per week of delay in system commissioning or delay in completion any of the above six milestones (system design, etc.) up to a maximum of 10 % of the Contract value.

1. Once the liquidated damages reach maximum limit, NHAI may consider termination of the contract and forfeiture of the performance bank guarantee. NHAI also reserves the right to debar the Contractor from further participation in NHAI's subsequent tenders due to its non-performance for a period decided by it.
2. Upon termination of the Agreement due to service defaults, NHAI may choose to allocate the said site to any other Contractor, at its sole discretion and at the risk and cost of the defaulting Contractor
3. In case of delay due to reasons beyond the control of the Contractor, upon such request from the Contractor and recommendation from the NHAI (or its representatives) , NHAI may, in its sole discretion, consider suitable extension of time (EOT) without imposing any liquidated damages upon the Contractor. However, the Contractor shall submit such request at least 30 days before the completion schedule / timeline/ milestone. In case of the delay in submission of the request for EOT, the penalty will be applied @ 0.5 % of the annual contract value per week of delay in submission of request for EOT.

### 7.2 Non-Compliance to Safety Standards at site

Failure by the Contractor's personnel in maintaining the safety standards at the site at any time shall attract penalty on every instance noticed by the NHAI (or its representatives).

1. Staff working without safety gears – penalty of INR 10,000 per instance. In case of repeated instance by the same staff member of the Contractor, the penalty shall be doubled per instance. The Contractor shall have to replace the repeated offenders / sub-Contractor (safety lapses more than 3 times) with immediate effect.
2. Improper safety measures at site / safety hazard to the commuters due to poor workmanship, etc., / Contractor's vehicle wrongly parked at site / Contractor's vehicle moving in wrong direction / working during low visibility hours or at night time without proper safety measures warning signages and lighting/ improper traffic diversion / non-standard warning signages etc. / unauthorised lane closure / traffic rule violation – minimum penalty of INR 1,00,000 per instance shall be imposed on recommendation of the NHAI (or its representatives) . In case of repeated instance, the penalty shall be doubled per instance. The Contractor shall have to replace the repeated offenders / sub-Contractor (safety lapses more than 2 times) with immediate effect. NHAI shall also take legal action against the errant staff / sub-contractor of the Contractor, as such safety lapses may lead to major safety concern / hazard for the road users as well as the workers.

#### 7.2.1 Penalty for Delay in Staff Mobilisation

Delay in submission of detailed written statements and/or mobilization of aforesaid Key Personnel shall attract penalty @ INR 10,000/- (Rupees Ten Thousand) per day per Key Personnel. In case the delay is more than 3 weeks, NHAI reserves the right to invoke the Bid Securing Declaration and PBG towards the aforesaid penalty and may proceed with the revocation of LOA or termination of the project, as the case may be.



### 7.3 Other Penalties

1. Penalty of INR 10,000 shall be levied on the Contractor for delay of each working day from the due date of submission / expiry: i) the insurance policy documents, ii) design documents, iii) manuals, iv) monthly /periodic reports to be submitted during the entire period of the Contract, etc.
2. The Penalty as specified in 5.2.10 for non-compliance of SLR.

## 8. Factory Tests, Inspection and Certification

### 8.1 General

All equipment, components, spare parts, and software to be delivered or installed under this Contract shall be tested, inspected, and certified prior to delivery in accordance with these specifications.

### 8.2 Contractor's Quality Control Manager

The Contractor shall designate a single Quality Control Manager for all equipment to be supplied under the Contract. This individual must have experience as a quality control manager, and he shall not report to the production personnel. NHAI (or its representatives) shall communicate directly with the Quality Control Manager and his superior, the latter to be defined by the Contractor. The Manager shall be appointed early in the system detailed design stage and shall be involved in the design related discussions. The Manager shall ensure that the personnel undertaking the tests are not the same personnel who are involved in the production of equipment.

### 8.3 Test Procedures

- a. For off-the-shelf or routinely manufactured equipment or components, a test or inspection certificate shall accompany each delivery and NHAI (or its representatives) can conduct the Factory acceptance test (FAT) randomly or for each key component. In addition, the Contractor shall submit the factory's routine testing procedures for each key component to the NHAI (or its representatives) for review and scrutiny at least 21 days before scheduling the FAT.
- b. The FAT for equipment, components or software requiring special order, tooling or development is mandatory and can be conducted by NHAI (or its representatives) at the factory/manufacturing unit. The Contractor shall submit to NHAI (or its representatives) proposed factory test items and test procedures for review as soon as the System Detailed Design is accepted. These tests shall be executed by interfacing as many different kinds of equipment as possible so as to ascertain their suitability as system components. Where there is no appropriate equipment at that particular time to connect to certain equipment, the test shall be executed by connecting to a simulator.
- c. If NHAI (or its representatives) decides that equipment is defective or produced not in accordance with the Contract, he may reject the equipment, and will inform the Contractor of the reasons in writing within 14 days.

### 8.4 Defects

Should a defect be detected during one of the tests, the cause of the defect shall be ascertained and documented. For minor defects which do not require re-design of the equipment, the defect shall be rectified, and the test be repeated. If a design change is required, NHAI (or its representatives) shall be so informed, and the revised design shall be submitted to NHAI (or its representatives) for review and finalisation.

### 8.5 Test Certificate

Test certificates will be issued only for the actual equipment that has passed the tests. For sampling test of equipment, if any defect is detected in any one sample, the entire lot shall be tested, and the results shall be reported to the NHAI (or its representatives) for his review.





## 8.6 System Integration Test (SIT)

- a. The SIT shall also incorporate the network-manageable portions of the VIDS system including the VIDS system interface to the RCC, IMS, ATMS Control Centres, and NHAI HQ Command centre.
- b. The SIT shall begin after earlier stages of testing have been successfully completed (i.e. FAT and SAT) and accepted by the NHAI (or its representatives). When possible, the SIT shall be conducted during the harshest environment period deemed for that particular equipment. The duration of the SIT will be agreed with the NHAI (or its representatives) prior to starting.
- c. In the event of a system, subsystem, equipment, or ancillary component failure, with the exception of consumable items such as fuses, the Project shall be shut down for purposes of testing and correcting identified deficiencies (System Shutdown). System Shutdown is defined as any condition which, due to work performed by the Contractor, results in the Project, or any system, subsystem, equipment, or ancillary component thereof to cease operation.
- d. The SIT shall be re-started after the identified deficiency has been corrected.
- e. If the total number of System Shutdowns exceeds three (3) due to the same system or subsystem, ITS equipment, or ancillary component;
  - (i) The system, subsystem, ITS equipment, or ancillary component shall be removed and replaced with a new and unused unit.
  - (ii) All applicable FAT and SAT, as deemed necessary by the NHAI (or its representatives) shall be performed and the SIT shall be restarted upon written intimation from the NHAI (or its representatives)
- f. Time extensions shall not be granted to perform the SIT due to any failures. Failures during the SIT shall be rectified at no additional cost to the NHAI.
- g. Upon the successful completion of the SIT and all the required submittals, testing, training, and documentation have been successfully submitted to and approved by the NHAI (or its representatives) , the NHAI (or its representatives) shall provide written notice of Final Acceptance.
- h. The notice of Final Acceptance implies that the system is ready for commercial operation subject to adequate training provided to the Operations and Maintenance personnel.

## 8.7 Handover Certificate

The Contractor shall provide a project handover certificate on the agreed upon date for the final handover of the system.

## 8.8 Inspection

All equipment can be inspected before delivery and upon arrival at the site. The inspection can be performed on the following items:

- 1) Painted surfaces and colour
- 2) Condition of assembly
- 3) Design and dimensions
- 4) Parts arrangement

## 8.9 Cost of Test and Inspection

The testing cost allowed for shall cover full cost of providing all facilities, labour, consumable parts, and appliances required in connection with all inspection and tests of completion on the site or on the manufacturer's premises, and all other expenses as may be required for passage of the NHAI or its representatives to attend the test.

## 9. Tests on Completion

### 9.1 General

The Contractor shall keep a clear record of all tests conducted. The record shall include time, place, equipment, procedure, functions, persons attending, and faults or problems encountered. The test results, even if they are not satisfactory, shall be documented and submitted to the NHAI (or its representatives) and NHAI for review.





## 9.2 Tests on Completion for a Portion of Works

### 9.2.1 Procedure

- a. The Contractor shall give due notice to the NHAI (or its representatives) and NHAI seven (7) days in advance of the proposed date and contents of the Tests on Completion for a Portion of Works.
- b. Tests on Completion shall be performed for the portion of Works completed in the previous one-month period.
- c. When the NHAI (or its representatives) has received satisfactory test results, he shall notify the Contractor in writing that the equipment is ready for trial operations. If the NHAI (or its representatives) decides the equipment is not in accordance with the Contract, he may reject the equipment, and he shall inform the Contractor as to the reasons why the equipment was rejected in writing within a reasonable time.

### 9.2.2 Test Items

- a. After the delivery and installation of the equipment at the site, tests on completion for that portion of Works can be conducted for each of equipment.
- b. Appearance of the equipment and required operations in standalone mode shall be examined in this test. Test items to be tested at Tests on completion are specified in the section of component systems in these specifications.

## 9.3 Tests on Completion for the Whole of Works

### 9.3.1 General

During the Test on Completion, all the functions of the equipment required under the Contract shall be tested. The test shall be conducted with the attendance of the NHAI (or its representatives).

### 9.3.2 Procedure

- a. The Contractor shall submit, at least 14 days in advance, to NHAI (or its representatives) the date(s) on which the Tests on Completion for the Whole Works are to be undertaken.
- b. The Contractor shall forward to the NHAI (or its representatives) duly certified copies of the test results when the tests have been successfully completed. When the NHAI (or its representatives) has received the test document and is satisfied with the test results for trial operations, he will notify the Contractor in writing that the whole works are ready for trial operations.
- c. If major defects are uncovered in the tests, the Contractor shall prepare and submit to the NHAI (or its representatives) for review and finalisation, a proposal to remedy the defects. The Contractor shall not take corrective actions before the proposed remedies have received the NHAI (or its representatives) intimation. Minor faults and defects detected during the Tests on Completion may be corrected during the trial operation period.

## 9.4 Test Conditions and parameters

The following conditions and parameters shall be applicable for each stage of testing i.e. .FAT, SAT, SIT, and Additional tests:

- a. The acceptance of each stage of testing does not imply that testing is complete at that stage. If problems are found at a later date or stage of testing, it may be necessary to return to an earlier stage of testing after repairs have been made to the system. If at a later stage of testing, an item of equipment is replaced, repaired, or significantly modified, the equipment shall be retested to the level necessary to isolate any problem and establish a course of action to remedy the situation.
- b. The NHAI (or its representatives) shall sign the trial test documents as proof of a successful trial test for each item of VIDS equipment and ancillary components. If the test trial is unsuccessful, the NHAI (or its representatives) shall be given minimum seven (7) full business days' prior notification before rescheduling another test trial.
- c. VIDS equipment that fails to conform to the requirements of any test will be considered defective and the equipment will be rejected by the NHAI (or its representatives) . In the event



a defect is determined, it shall be determined whether it is limited to a specific unit or could be potential problems in all such units. Equipment rejected because of problems limited to the specific unit may be offered again for retest provided all issues of non-compliance have been corrected and re-tested and evidence thereof submitted to the NHAI (or its representatives). The evidence thereof shall include as a minimum a technical report detailing the investigation that has been undertaken to determine the cause of the failure. The report shall detail, as a minimum, the symptoms, cause and what action was required to remedy the failure. This report shall be submitted and approved by the NHAI (or its representatives) and NHAI prior to a new test date being scheduled.

- d. In the event that the VIDS equipment malfunctions during the test period, the NHAI (or its representatives) may declare a defect and require replacement of all equipment at no additional cost. When a defect is declared, the test and test period shall be restarted from the beginning for that specific VIDS equipment.
- e. If VIDS equipment has been modified or replaced as a result of a defect, a report shall be prepared and delivered to the NHAI (or its representatives) for acceptance. The report shall describe the nature of the failure and the corrective action(s) taken. If a failure pattern, as defined by the NHAI (or its representatives), develops, the NHAI (or its representatives) may direct that design and construction modifications be made to all similar units without additional cost to the NHAI. In the case of problems common to many units, all units shall be modified at no additional cost to the NHAI.
- f. The Test procedures and guidelines mentioned in the RFP are the minimum requirement to be fulfilled by the Contractor. In addition to the minimum tests prescribed in the RFP, the NHAI (or its representatives) shall instruct the Contractor to conduct the test he deems relevant for any subsection at the Factory and / or at site, as applicable.
- g. Time extensions shall not be granted to perform the FAT/ SAT / SIT / Additional tests due to any failures. Failures during any test shall be resolved by the Contractor at no additional cost to the NHAI.
- h. The SAT shall be conducted for each and every piece of VIDS equipment and ancillary components.
- i. If any VIDS equipment or ancillary component fails to pass its test more than twice, it shall be replaced with new VIDS equipment or ancillary component of same make and model and the entire test shall be repeated until proven successful.
- j. The VIDS equipment provider shall ensure that the required testing equipment, including a portable computer and test software is provided for the SAT.
- k. Equipment installation shall be inspected to confirm compliance to equipment manufacturer's installation good practice recommendations.
- l. The quality of equipment and its installation shall be judged and verified to ensure compliance to relevant standards outlining operational safety, Ingress protection, Surge/ lightning protection and Radio interference.
- m. The FAT / SAT test shall exercise all standalone (non-network) functional operations of the VIDS equipment and ancillary components installed and shall demonstrate conformance with the requirements described in the detailed project design specifications, relevant standards and manufacturer specifications.

### 9.5 Defects Liability Period (DLP)

1. Any minor defects in the system identified by the NHAI (or its representatives) and provided to the Contractor in the form of a written notice during the Final Acceptance above shall be rectified during the Defects Liability Period. The above defects list shall also include any defects that surface during the DLP which shall also be rectified by the Service Provider during the defined DLP itself
2. Suitable tests for confirming the rectification of defects shall be performed by the Contractor to the satisfaction of the NHAI (or its representatives).
3. The DLP shall be in force for a period of 5(Five) years succeeding the notice of Final Acceptance and Handover Certificate or the extended contract period whichever is more.



## 10. Power Supply

### 10.1 No Power/Electricity Supply Obligation of Authority:

There shall be NO obligation of NHAI with regard to providing power/ electricity supply/connections for testing commission, operation & maintenance of any component of the VIDS. Further, the following points are to also be observed by the contractor:

- a. The Contractor shall perform all the necessary application procedures to the Power Company required for the power to be supplied to the Traffic Management Centre, Sub-Centre and the field equipment in their own name. All the expenses charged by Power Companies regarding such applications and execution of work shall be borne by the Contractor as part of the scope of this contract. Any damage to the highway during such execution of work shall have to be repaired by the VIDS Contractor to the pre-existing condition without any cost implications to NHAI.
- b. The Contractor shall make all necessary arrangements for the electricity needed for the execution of the Works and O&M period for the entire period of the Contract. In case electricity is not made available through electricity companies, alternate electricity arrangement such as through solar energy should be made by the Contractor. Under no circumstances NHAI shall grant an extension of time for achieving the milestones if the contractor is unable to make the electricity arrangement either for the execution of the work or for the O&M activities.
- c. The fixed charges, installation charges, recurring charges, electricity bill, DG set fuel, maintenance etc. for each field equipment, TMC, Control Centre, Sub-centre, Contractor's site office, or any other facility being used by the Contractor under the scope of this Contract shall be in the scope of the Contractor only for the entire Contract period i.e. Design phase, procurement, installation, testing, trial-run, commissioning, operations and maintenance period. The Authority shall not responsible for any provision for power supply during implementation as well as operations and maintenance period.
- d. Authority shall in no way be responsible for providing electricity connection to the Contractor.

### 10.2 Responsibility Boundary

- a. The property and responsibility boundary with respect to the power supply facilities of Power Companies and the power receiving facilities of the NHAI shall be the primary side of the switch installed adjacent to the lead-in pole to be erected by the Contractor for the NHAI.
- b. The Contractor shall submit to the NHAI for finalisation planned drawings for the power supply construction work and their methods between the property and responsibility boundary with Power Companies or the distribution facilities and the point where the power is required.

## 11. Work Area Safety and Traffic Control

### 11.1 General

- a. Obstructions and excavations in the work areas shall be adequately fenced and guarded at all times and proper traffic control devices shall be installed to protect the workers and the public. Particular attention shall be paid to the positioning of traffic barriers and traffic cones. Unnecessary blocking of traffic lanes shall not be permitted. Roads and sidewalks shall not be used for the unnecessary storage of materials.
- b. Adequate traffic control devices shall be in place before work begins and all such devices shall be removed immediately when the work is completed. As work progresses, warning devices which were appropriate at one time but are no longer applicable shall be removed immediately.
- c. Signs, lights, barriers and other traffic control devices shall be maintained in good order and in the correct position day and night. Signs shall be neat, clear and legible at all times.
- d. Compensation for meeting the requirements of this section shall be included in the various bid items and no separate payments will be made, therefore.
- e. Penalties shall applicable as prescribed in the Penalty clause above, in case of any non-compliance or safety violation.

### 11.2 Highway Lane Closure

No lane closure shall be permitted on any road during peak hours except with prior approval of the NHAI. During non-peak hours, one or several traffic lanes may be closed provided that at





least one lane in each direction is open for traffic at all times. On two-way, two-lane roads, any lane closure shall be first approved by the NHAI. Notwithstanding the provisions above, the NHAI and the police shall have the power to order the lane closure removed or to require better traffic control measures.

### 11.3 Warning Signs

- a. All work area warning signs shall conform to the requirements in the relevant regulations in India.
- b. A "LANE CLOSED AHEAD" and a "LANE CLOSED" sign shall be placed upstream of the lane closure site at a distance of approximately 100 meters and 50 meters respectively when one lane of the roadway is closed. These signs shall be placed further upstream of the work area if more than one lane of the roadway is closed.
- c. All work area warning signs shall be made of reflective sheet or material if the signs are to remain in place during hours of darkness.
- d. The design, specifications, quantity, location, placement of the Signages shall fully comply with IRC 67 2012, IRC SP 99:2013 and/ or applicable international code.

### 11.4 Temporary Warning Flashers

Temporary warning flashers of Amber/red colour LED and minimum 500mm dia shall be used during the hours of darkness if traffic cones, barricades or other barriers are to remain in position at night. Lamps shall be kept alight at all times during the hours of darkness. The flashers shall clearly mark the site of obstructions and delineate the transition zone. Minimum 4 nos. warning flashers shall be kept alight at each such location.

### 11.5 Traffic Cones

Traffic cones and water filled barriers shall be placed on the roadway in advance of the work site to form a transition taper. The length of the transition taper shall be at least 30 meters so as to guide traffic smoothly from the full width section to the narrowed down section. Spacing between the cones shall be no more than 10 meters.

### 11.6 Plant and Equipment

- a. In all cases where traffic is permitted to use the whole or a portion of the existing road before the work is completed, all plant items and similar obstructions shall be removed from the road at night, if at all possible. Otherwise, they shall be delineated at night if they stay within 2 meters of the edge of the roadway by two red lights suspended vertically from the point of obstruction nearest to the roadway. The lights may be omitted in cases where there is permanent obstruction, such as trees less than 2 meters from the edge of roadway and the plant or equipment are not closer to the road than the permanent obstruction.
- b. During the day, a red flag shall project beyond the extremity of all plant items (other than vehicles) adjacent to the traffic lane.

### 11.7 Vehicles

Vehicles which are used to carry out operations on the roadway and which are required to travel slowly or to stop frequently shall be made as conspicuous as possible. This shall be achieved by painting them in a distinctive colour or painting the rear portion with diagonal stripes of a contrasting colour or providing flashing lights on the top of the vehicle. They shall also have a plate of sufficient size on the rear side with the words "**Slow Moving**" and shall be visible from 100 meters.

## 12. Documentation

### 12.1 General

- a. The documentation shall contain complete details of how the System was actually built, and how it works, together with complete operating and maintenance information. The documentation shall consist of the following manuals and drawings:
  - 1) System design manual
  - 2) Software manual





- 3) Hardware manual
  - 4) Installation manual
  - 5) Operator's manual
  - 6) Maintenance manual
  - 7) Product 'End of Life' Plan
  - 8) As built drawing
- b. The documentation shall be supported by a detailed presentation with text and illustrations. All documentation shall be in English and shall be subject to scrutiny by the NHAI (or its representatives).
  - c. The documentation process shall include the preparation, editing, submittal for scrutiny, publication, delivery and acceptance of the documentation in accordance with the requirements of the Contract.
  - d. Documentation shall use SI units in accordance with ISO 80000-1
  - e. Detailed design drawings and structural calculations for each type of pole, gantry or structure (including foundations) used to mount VIDS equipment shall be submitted to the NHAI (or its representatives) for scrutiny after due certification by a Licensed Structural Engineer. The design calculations shall be carried out in accordance with relevant MoRTH/IRC standards where applicable.
  - f. The drawings shall show materials specification and finishes for each item of equipment proposed for use. All weld types and sizes shall be identified on the design and construction drawings.
  - g. Power schematic diagrams for all ATMS installations shall be submitted to the NHAI (or its representatives) for scrutiny.
  - h. Telecommunications schematic diagram shall be submitted to the NHAI (or its representatives) for scrutiny. The telecommunications diagram shall include all systems, subsystems and components, including connections to modems, devices and the telecommunications access and backbone network.
  - i. As-built record drawings shall include longitude and latitude data accurate to within two (2) metres for each of the VIDS equipment and infrastructure installed.
  - j. Documentation should be organized so that unnecessary repetition is avoided. Topics likely to be frequently referenced by the Contractor (e.g. operating and maintenance instructions) should be given prominence. As it is recognized that the volume of the documentation and drawings to be provided will vary considerably with the complexity of the equipment being supplied (ranging from one ring binder to several volumes), the NHAI (or its representatives) should be consulted for its agreement on the presentation and layout of the documents to be provided.
  - k. Installation instructions to be included in the package of any item of equipment likely to be installed separately or in conjunction with the VIDS equipment, shall be in the form of a leaflet or similar. It shall have sufficient information (with diagrams) for the item concerned to be correctly installed in position and connected and describe any necessary set-up procedure.
  - l. Maintenance information cards or booklets, one set of which is to be secured within each equipment enclosure or cabinet shall be encapsulated in a durable weatherproof format. They shall show the general layout of equipment and component modules and references in schematic form, and set-up addresses for on-site replacement of component modules.
  - m. The format and extent of electronic media and/or hardcopy presentation of technical shall be agreed NHAI (or its representatives) before final versions are produced.

## 12.2 Submittals

- a. All VIDS equipment shall, as a minimum, meet all the requirements listed in the national/international specifications as applicable for that particular equipment proposed as the technological solution. Future technological advances may allow for VIDS equipment to be provided that exceed the minimum requirements in these Specifications.
- b. Systems and subsystems that minimize the possibility that failure of any single component or module will cause total system failure shall be provided by the Contractor in Technical Proposal and later in Design Document. Failure of one component or module shall not cause the failure of any other component or module.



- c. Product data, design and construction drawings for all of the components shall be submitted to the NHAI (or its representatives) for finalisation.
- d. Heat-load calculation sheets accompanied by related manufacturer's data sheets to support justification of proposed cooling systems shall be submitted to the NHAI (or its representatives) for scrutiny. Power consumption calculations to support proposed power distribution type and size shall also be submitted.

### 12.3 Presentation of Documentation

- a. All documentation shall be prepared in a clear, concise manner with appropriate illustrations. Except otherwise specified by the NHAI (or its representatives) / NHAI, all documentation except drawings shall be **double side printed** on A4 size sheets. All documentation shall carry an issue number, revision number and date. A uniform style and format shall be followed as much as possible.
- b. Three (3) printed copies and three (3) sets of electronic files on **CD-ROM or DVD** of all documentation, manuals and drawings of as built conditions shall be submitted. Electronic file shall be in the latest version of portable document format. In addition, as-built drawing in the latest version of AutoCAD at the time of bidding must be included on **CD-ROM or DVD**.
- c. In order to maintain liaison between parts of the Contractor and the NHAI, documentation concerning each part of the Contract shall be produced as part of each component job and not left until the preparation of the final manuals. Effort may be saved, and familiarity with the presentation of information will be maintained by writing the documentation during the Contract in a form suitable for inclusion in the relevant final manuals.
- d. All system manuals shall be available at the beginning of classroom training. Re-issues shall be provided if site commissioning and testing makes this necessary.
- e. If changes or modifications are required in any of the documents previously submitted, the Contractor shall fully describe the changes or modifications, and immediately submit them to the NHAI (or its representatives) for finalisation.

### 12.4 Standard Documentation

Standard documentation shall be provided for the computer and peripherals (hardware and software), programming manuals including the languages to be used, transmission equipment, air conditioner, power supplies, and other standard products to be supplied under the Contract.

### 12.5 System Design Manual

- a. The intent of the system design manual is to give an overall description of the ATMS including the digital transmission system and associated systems supplied under the Contract. The manual may be divided into sections to cover all and every aspect of the systems. The description shall be plain, and the detail of operation shall be left to other manuals with adequate reference to them. The manual should provide cross references to the appropriate manuals of the system when necessary to do so.
- b. The system design manual shall completely define all functions, inputs, and outputs including methods of entering inputs, methods of obtaining outputs, data structure and content, format, sequence, and timing. The system structure and organization shall be described including all the data flow paths through the system and all the data files in the system. This description shall clearly present the functional relationship of the computer program modules with one another and with all peripheral, monitor display, control desks, central controllers, transmission equipment, detector, variable message sign, toll centre equipment, toll office equipment, toll lane equipment or other equipment. An overall system flow diagram shall be provided.

### 12.6 Software Manual

The software manual shall be project oriented. The software manual shall therefore include the application programs and database details.



### 12.6.1 Structure

The manual shall describe the overall software structure with particular attention to the points at which further user programs can be interfaced. It is essential that the relationship of program modules, their priority, and their calling sequences are explained in such a manner that it may be clearly understood, especially by any competent programmer who wishes to specify or interface a new program into the system.

### 12.6.2 Program Logic/Function

Operational objectives for each program shall be described. All logic and transformations on the input data in order to generate output data and accomplish system functions shall be described, together with their interaction, sequencing and time requirements. Derivations of any mathematical equations shall be stated if appropriate.

### 12.6.3 Flowcharts

Each major section of the programming logic as described above shall be presented in greater detail. The detail shall be developed into a format of flowcharts or other graphical methods using statement and decision blocks to show the flow of information. Within each statement and decision block sufficient information shall be presented to describe what is being accomplished. Mathematical or engineering terminology and equations shall be incorporated when necessary to fully describe the operations to be performed.

### 12.6.4 Output Formats

Sample output formats both printout and monitor display shall be provided from actual printer output and monitor display with explanation for each item on the output format.

### 12.6.5 Data File in Database

The format of all data in the database shall be given together with the structure, type, format, length, default value, and range of allowable value, if any. For constant file that contains system parameters and constant, their value shall also be shown.

## 12.7 Hardware Manual

- a. This manual shall provide a complete description of the hardware of all the system equipment and components to be supplied under the Contract. Documents regarding component systems shall be bound in separate volume for convenience of use.
- b. The following information shall be provided for each applicable equipment or component:

### 12.7.1 Functional Descriptions

All information necessary to fully explain the basic function or use of the equipment shall be provided. It shall include a block diagram presentation of the equipment.

### 12.7.2 Operating Procedure

- a. The operating procedure shall be fully described in a simple and clear language. Appropriate illustrations shall be provided. Explanation and use shall be given to the all keys and switches. Meaning of all meters and indicators shall also be explained.
- b. A list of applicable test instruments and tools required to perform necessary measurements shall be included. Setup tests and calibration procedures shall also be described if applicable.

## 12.8 Installation Manual

- a. This manual shall provide a complete description of the installation procedures of all the system equipment and components to be supplied under the Contract. Documents regarding component systems shall be bound in separate volume for convenience of use.
- b. The following information shall be provided for each applicable equipment or component:





### **12.8.1 Installation instructions**

Comprehensive instructions (including drawings for site assembly) for correct installation and connection of all parts of the Equipment, to be retained for reference purposes.

Instructions relating to each item of equipment likely to be installed separately.

### **12.8.2 Commissioning instructions**

Set-up details of addresses, operating parameters, control ranges and limits, etc.

Commissioning procedures and tests.

## **12.9 Operator's Manual**

- a. This manual shall comprise a concise set of procedures the system operator may require operating the system with a minimum of detailed technical description of the internal working of the various parts of the system. Cross references to the appropriate manuals for detailed technical descriptions however shall be provided.
- b. The manual shall list specific procedures to be followed for both hardware and software operations, which may have to be followed either by programmers or hardware engineers. Instructions shall therefore be basic and detailed. A step by step procedure shall be given for switching on and off power, controlling the equipment and for starting up and shutting down the system. This shall include loading of the operating programs, checking that they are running correctly, operation of variable message signs, TMCS camera, monitor display, graphic display, and use of utility programs through keyboard and monitor display.
- c. In addition to the routine operation, procedures shall be given for fault diagnosis. Typical symptoms shall be listed, with corresponding corrective or emergency action to be taken.

## **12.10 Maintenance Manual**

This manual shall describe both preventive and corrective maintenance procedures in such detail that maintenance personnel can perform the proper maintenance work by reading this manual.

### **12.10.1 Preventive Maintenance**

The manufacturer's recommended procedures for proper preventive maintenance shall be indicated to ensure reliable equipment operation. Specifications including defined tolerances for all electrical, mechanical and other applicable measurements and adjustments shall be listed. Periodical repainting servicing shall also be described. List of parts that require periodic replacement shall be included.

### **12.10.2 Corrective Maintenance**

- a. This section shall provide the information necessary for isolation and repair of failure and malfunctions. Accuracies, limitations and tolerances for all electrical, physical and other applicable measurements shall be described. Instructions for disassembly, overhaul and reassembly, including workshop performance requirements shall be provided.
- b. Fully detailed step by step instructions shall be given where a failure to follow special procedures would result in danger to operating or maintenance personnel, damage to the equipment, improper operation, etc. Instructions and specifications shall be included for such maintenance work that may be accomplished by specialized technicians and engineers in a modern electro-mechanical workshop. Instructions concerning special test set up, component fabrication, use of special tools, jigs and test equipment shall be included.
- c. Maintenance procedures shall cover the diagnosis of faults, testing and setting up adjustments, replacements of units and operation of test equipment.

## **12.11 Product 'End of Life' Plan**

- a. Instructions for dismantling the equipment without causing damage
- b. Details of re-usable/recyclable components and materials and the coding system used to identify them,
- c. Details of any precious metals
- d. Details of any hazardous substances, heavy metals or other pollutants with instructions on their safe handling and disposal.





## 12.12 As-Built Drawings for Whole Works

- a. The Contractor shall submit three (3) copies of as-built plans and drawings to the NHAI within reasonable time after the Tests on Completion for the Whole Works but not later than one (1) month prior to the Completion. As-built plans and drawings to be submitted by the Contractor shall include but not be limited to:
  - 1) Detail drawings of all equipment,
  - 2) Variable message sign support, TMCS camera pole, detector pole (if any), etc. with fittings (civil structure plans and drawings),
  - 3) Equipment layout,
  - 4) Communication cable network diagram, fibre assignment diagram and final BOQ for the cable work
  - 5) Conduit route diagram, handhole, manhole layout and final BOQ for the conduit work
  - 6) PIU level operator room and machine room layout,
  - 7) Data cable connection diagram at RCC and other centres ,
  - 8) Power distribution diagram,
  - 9) All buildings to be used for O&M activities
- b. These plans and drawings shall incorporate changes made during the installation and training. A uniform legend shall be used throughout the documentation.

## 12.13 Programs on CD Disk

As part of the documentation, The Contractor shall provide a copy of all source programs which have been coded for this system on a **CD-ROM or DVD** ready for compilation. The source programs shall be written in English and compatible with the flowcharts and program listings. In addition, a copy of the operating system, utility programs and other programs used in the CPU shall be provided on a **CD-ROM or DVD** which can be readily loaded.

## 13. Quality Assurance

- a. The VIDS equipment provider shall have in place a quality system complying with ISO 9001, for the activities of design, development and production of the VIDS equipment to be supplied unless otherwise agreed by the NHAI (or its representatives) . The quality system shall cover each and every location where such activities are undertaken.
- b. The NHAI (or its representatives) shall audit the potential supplier's quality system and test facilities before approving use of the proposed supplier. NHAI reserves the right for the same.
- c. The following requirements must also be considered:
  - i. The design and installation of Electrical Installations shall comply with the requirements of the Bureau of Indian Standards or equivalent international standards.
  - ii. The Contractor shall be required to provide, at their own expense, samples of the proposed equipment and all associated approvals, test reports and schedules to verify that the equipment meets all of the NHAI's requirements.

## 14. On-line Access Facility during the Operations & Maintenance phase

- a. The systems commissioned by the Contractor shall provide, during the entire period of the Contract, adequate remote access (via-internet) to the NHAI (or its representatives) and NHAI for on-line evaluation of the functioning of each equipment / sub-system, including all field equipment. The Contractor shall also provide the NHAI (or its representatives) and NHAI a suitable tool for the same. In the case of Cameras, this tool shall also support the facility of observing real-time images from each camera by remote operation of the Zoom facility. NHAI reserves the right to include the results of any such examination by NHAI and / or NHAI (or its representatives) in the achieved service levels for the period under evaluation.
- b. The tool shall also provide the real-time access of the Dashboard, GIS Map, NMS, FMS, Report module for entire stretch as well as each sub-centre/IMS, etc.
- c. For the purpose of enabling the above on-line access facility, each of the equipment / sub-systems shall be Internet Protocol (IP) based supporting the Simple Network Management Protocol (SNMP).



- d. The above tool shall also include a feature by which the NHAI (or its representatives) can generate detailed performance, violation, event, incident, operation and maintenance reports without the need for any support / intervention from the Contractor's personnel.
- e. The tool shall also provide the feature to playback any video without affecting the Control Room operations.
- f. The limited access shall also be provided in the Police Control Rooms, Dial 112, and City ICC. The access shall be provided to other enforcement agency also only upon approval of NHAI. The agencies shall be able to view dashboard, GIS Map, live and recorded feed from all the cameras, reports relevant to the department. The reports to be provided shall be finalised in consultant with NHAI (or its representatives) and concerned agency and shall be approved by NHAI. The Police and enforcement department shall have the option to search any vehicle details by entering the vehicle number, along with date time location filters, as applicable. The authorised users shall also have the option to download / save any video recording, image, relevant report (as per the permission), etc.
- g. The central processing system shall keep the logs of each and every activity of the users on the On-line Access Facility, included IP address, username, data access, downloaded video / clip logs, etc.

## 15. Integration

- a. Integration activities of the project shall be coordinated and undertaken such that all systems, subsystems, VIDS equipment and ancillary components are integrated with the Control Centre hardware and in accordance with the detailed project design specifications.
- b. All integration activities shall be coordinated with the NHAI (or its representatives) prior to commencement of any integration activities and shall be agreed in accordance with the project program.
- c. Integration activities shall include the telecommunication nodes (i.e. Managed Ethernet Switches) with the existing and/or proposed fibre optic Ethernet telecommunications network for the design and connectivity of the Project.
- d. All VIDS equipment shall be managed and operated by the Control Centre. The VIDS equipment shall be integrated as identified in the design drawings and/or specifications, into the Control Centre.

## 16. Training

### 16.1 General

- a. A training program as specified herein shall be provided for the management, operation, and maintenance of the expressway management system, digital transmission system and associated systems. All training shall be conducted either in Delhi City or at site.
- b. The objectives of the training are for the NHAI (or its representatives) and NHAI officials to understand the functions and the operation of the various systems, and to make them familiar with the proper use of the equipment, software supplied, traffic management operation under the contract.
- c. The Contractor shall develop all materials required for training in English and furnish three (03) copies of each manual, class note, visual aid, and other instructional materials to the NHAI (or its representatives) and NHAI for distribution to the attendants. The manuals, instructions, and training notes shall be in loose-leaf binder form.
- d. The outline of the lectures or demonstrations and a sample or description of all training aids shall be submitted to the Engineer for review at least thirty (30) days prior to their proposed presentation or use. Written intimation to NHAI (or its representatives) of these materials shall be required prior to the scheduling of training sessions and/or the production in quantity of any training materials.
- e. The minimum content and duration (contact hours) of classroom training sessions shall be as specified herein, plus such other topics as are necessary, to ensure effective training. Notwithstanding the contact hours specified herein, all training shall be effective and shall be completed by the Contractor to the satisfaction of the NHAI (or its representatives) and the NHAI.



## **16.2 Management and Operations Training**

- a. The management and operations training shall include classroom instructions, on site demonstrations, and follow-up reviews. The training shall be designed for the Engineers and control centre operators and shall cover all operating procedures and database management of all equipment comprising the VIDS System.
- b. The initial classroom instructions and on-site demonstrations shall be completed during trial operation for whole works and the follow-up reviews shall be completed during the first two (2) months of the each subsequent O&M year. The contents of this training shall include as a minimum the following:

### **16.2.1 Training program - System Management**

- 1) System operation
- 2) Operations overview
- 3) Data requests and data displays
- 4) Functions and duties of control centre personnel

### **16.2.2 Training program - Control Procedures**

- 1) Server, operator console and peripheral equipment operations
- 2) Orderly start-up and shut-down
- 3) Use of diagnostic programs and procedures
- 4) Response to alarms, errors and faults
- 5) Interpretation of alarms and fault messages
- 6) Operation of the VIDS equipment
- 7) Operation of the Dashboard
- 8) Operation of the Online application
- 9) Operation of Graphic Display and monitor display
- 10) Incident management and reporting

### **16.2.3 Training Program - Analyst Procedures**

- 1) Data requests and data displays of operator console
- 2) Data base management
- 3) Coding input
- 4) Edit checks
- 5) Insertion, deletion and alteration of data
- 6) Modifications
- 7) Addition, deletion or alteration of default values and parameters
- 8) Interpretation of displays and reports

### **16.2.4 Training program - Maintenance Training**

- a. The maintenance training shall cover trouble shooting and maintenance procedures for all newly installed equipment and the use of maintenance tools, equipment, and test instruments. It shall be completed within six (6) months of the issuance of the Certificate of Completion for the Whole Works.
- b. The training shall include at least 80 contact hours of classroom instructions and hands-on workshop sessions, and on-the-job training:
- c. The classroom lectures shall cover at least the following:

### **16.2.5 Training program - RCC**

- 1) Central Processing System Server and operator console
- 2) Peripherals
- 3) Graphic Display
- 4) Data gathering processor
- 5) RCC server
- 6) ITS Software
- 7) VIDS Software
- 8) Communications and Ethernet





- 9) Layer switch, router, and hub if applicable
- 10) Wireless communication system
- 11) Facility monitoring central controller
- 12) Metallic and optical fibre cable
- 13) Power supply and distribution

#### **16.2.6 Field equipment**

- 1) VIDS equipment
- 2) Motion Detection Camera equipment
- 3) Facility monitoring equipment

#### **16.2.7 Workshop**

A workshop shall be conducted on

- 1) Test equipment
- 2) Test procedures
- 3) Repair procedures

Further,

- a. Hands-on training shall focus on the diagnosis of the fault and malfunction and include but not be limited to the following:

- 1) Diagnosis of VIDS
- 2) Diagnosis of Motion Detection Camera
- 3) Diagnosis of RCC application
- 4) Diagnosis of IMS
- 5) Diagnosis of Ethernet
- 6) Diagnosis of data transmission system
- 7) Diagnosis of facility monitoring system

- b. On-the-job operation and maintenance training shall be provided for NHAI operation and maintenance staff or staff of concessionaire (up to 15 persons) and shall commence on the conclusion of the classroom and workshop training sessions and continue until Taking Over Certificate of the Works. Indian counterpart staff will be designated for this purpose. Salaries overtime pay and cost of allowances of these staff will not be the responsibility of the Contractor, but the Contractor shall fully responsibility for providing all necessary instructions, manuals and tools, and for all other non-salary related cost. The Contractor shall specify the equipment, tools, and other items to be provided in the Technical Proposal.

#### **16.2.8 Training program – Operations**

- 1) Introduction to the Operations and Maintenance procedures for the highway (based on the O&M manual)
- 2) Routine monitoring of the Highway
- 3) Incident Management procedures
- 4) Incident detection and validation
- 5) Incident logging
- 6) The use of checklists for fail-safe incident management
- 7) Communication with other stakeholders of incident management
- 8) Active monitoring of Incident management
- 9) System performance monitoring
- 10) Routine monitoring
- 11) Logging failures / events
- 12) Communication with maintenance engineers

### **17. System Operation and Maintenance**

- a. The Contractor shall perform System Operation and Maintenance (O&M) for a period of 5 years (after Final Acceptance/ SIT of the system) or as per extended contract period meeting the requirements provided in the RFP.





- b. The Contractor shall deploy adequate number of trained personnel at site and at their back office to ensure that the above requirements are met. The Contractor shall submit, to the NHAI (or its representatives) and NHAI, weekly reports on their Operation and Maintenance.

## 18. Information Security

- a. The Contractor is required to ensure that the system being provided operates in a secure manner. The solutions offered shall be in accordance with Information Technology (Reasonable security practices and procedures and sensitive personal data or information) Rules, 2011 published vide Government of India Notification No. G.S.R. 313(E) dated 11th April 2011.
- b. The Contractor is required to ensure that the system being provided shall adhere to the model framework of cyber security requirements set for Smart City (K-15016/61/2016-SC-1, Government of India, Ministry of Urban Development)
- c. The Contractor shall have familiarity with ISO 27001 or procure the necessary expertise in developing and delivering solutions in line with information system security best practice. **At least one of the System Maintenance Engineer/ Manager deployed at site shall have relevant information security certification from any renowned institute.**

## 19. Spares, Consumables and Maintenance Equipment

### 19.1 General

The Contractor shall furnish the specific spare parts, consumables and maintenance equipment as indicated in the Tender Schedule.

### 19.2 Recommended Spare Parts and Maintenance Equipment

- a. The Bidder shall provide in his Technical Proposal detailed information on spare parts and consumables necessary for the continuous operation and maintenance of the equipment to be installed under this Contract through the guarantee period and five (05) additional years following the system acceptance. The information shall include identification, source of supply, and availability for the next 10 years. Recommended quantities for five years of maintenance, proposed rates and total prices for these spare parts and consumables shall be listed in the Rates and Prices of Recommended Spare Parts and Maintenance Equipment.
- b. The Bidder shall also identify maintenance equipment, tools, testers, and measuring apparatus which will be required to effectively maintain the expressway management system and provide all necessary details in his Technical Proposal. The costs of furnishing the equipment shall be quoted in the "Proposed Rates and prices of Recommended Spare Parts and Maintenance Equipment."
- c. Operation, simulation and diagnosis software developed specifically to the equipment to be supplied under the CONTRACT shall be supplied in CD-ROM or DVD. They shall be also installed in the maintenance computer.
- d. The NHAI reserves the option to require the Contractor to furnish any or all of the recommended spare parts, consumables, and maintenance equipment.

### 19.3 Parts Supply Guarantee

- a. **The Contractor (Bidder), his legitimate successor or his designate, shall guarantee for a period of ten (10) years after the Taking-over of the Works that he will supply promptly upon the written request from the NHAI any parts, components or equipment incorporated in the System.** This Clause shall not necessarily be construed to read that the Contractor be required to maintain the inventory to cover the entire items for anticipated requirement for such purpose through the 10 years' period. Because of discontinuation of production of such particular items or because of any reasons beyond his control, if the Contractor fails to supply the requested parts, components or equipment, he shall satisfy the need of the NHAI by whatever appropriate substitutes available with intimation to NHAI, but always in such a manner and outcome that the substitutes can maintain or improve the Works' performance or capabilities as a whole.



- b. The Contractor shall be paid for such supply duly made at such costs as he shall charge to his domestic customers on similar occasions at the time plus freight, insurance, import custom and duties, handling charge and other related expense actually paid





## Section 02 Design Requirements

### 1. General

- a. The Contractor shall undertake the detailed design of Video Incident Detection System (VIDS), Digital Transmission System and associated facilities and works, hereinafter collectively referred to as VIDS. The VIDS shall meet all the design criteria required for fulfilment of the TOR for both the hardware and Software components. The component systems comprising VIDS to be constructed under the Contract shall include but not be limited to the component systems:
- b. All systems to be installed under this Contract shall be capable of continuous, unattended, 24 hours a day, 7 days a week operation under the environmental conditions prevailing on the Project Highways. Should the design require periodic replacement of any equipment or component, the replacement schedules of such equipment or component shall be described in the Technical Proposal and in the maintenance manual.

### 2. Detailed Design

#### 2.1 Design Briefing

Within 15 days of commencement date of the Works i.e. issuance of the LOA, the Contractor shall conduct a design briefing session in the development centre of the Contractor. The design briefing shall cover all the system components and civil works included in the Contract. The main objective of the briefing is to acquaint the NHAI (or its representatives) and NHAI with the design concept and outlines of the proposed systems, and to allow them to examine whether or not the Contractor's design complies with the Contract.

#### 2.2 Design Review and Finalisation

- a. Within 45 days of commencement date of the Works, the Contractor shall finalise the Final System Detailed Design with intimation to NHAI (or its representatives). The System Detailed Design shall provide detailed information of the proposed system, including system configuration, block diagrams, input and output, flow charts, interface, inter-connections, design calculation and manufacturer's specification sheets for all systems and shall cover all necessary hardware, software, database and operating procedures, and shall contain the final list of VIDS locations in the Zone.
- b. The Contractor shall submit System Detailed Design for each component system as it is completed. The Contractor shall further focus on completing the design of all components to expedite the project implementation. If design change is necessary for the portion of the detailed design that has been submitted and approved due to the design of other portions, revised detailed design shall be submitted with the modification noted for finalisation.
- c. The Contractor shall not, without specific intimation in writing to the NHAI, place any material, part or component on order, nor commence manufacturing of any equipment or software coding until the System Detailed Design has been approved by the NHAI (or its representatives). The Contractor shall not implement any changes on the finalised system design without prior consent of the NHAI (or its representatives).
- d. The comments of NHAI (or its representatives), on the System Detailed Design however, does not relieve the Contractor from delivering a fully operational and reliable system.

### 3. Space for VIDS Facility

Suitable space for the Control Centre /RCC and Sub-Centres/IMS, will have to be procured by the contractor for setting up of the Control Centre and Sub-Centres, and the Contractor shall be responsible to rent/ construct a suitable building approved by NHAI for setting up RCC/IMS sub centres for the entire duration of the Contract.

Civil works, Electrical, HVAC, Access Control, Surveillance System, Fire Fighting System, Building Management System, Power backup, DG set, Control console, Technical Furniture including all necessary racks and housings for system for RCC & IMS shall be completely in the scope of the Contractor.

#### 3.1 Regional Control Centre

A Regional Control Centre shall be constructed/rented near the RO offices within the zone. The number of RCC may be increased as per the actual requirement after signing of the contract. All



central equipment including server network, multi-screen wall map/ graphic display, data communication system, voice communication system and associated equipment will be accommodated in the office. System operator will station at the office, monitor the traffic and coordinate incident management activities at VIDS locations on the highway.

#### 4. Design Life

All components and materials used in this Contract, excluding consumable items such as lamps, shall be of a design life of 10 years or longer, used for VIDS, and unless specifically stated otherwise in the System Specifications. The NHAI may approve components with a shorter design life if they are easily replaceable and a 10-year design life is generally considered infeasible or uneconomical. The replacement of such equipment should be possible without displacing other component.

#### 5. Environmental Conditions

All equipment shall be designed to operate properly under the environmental conditions normally encountered at the site of the equipment across India and should be able to achieve the SLR as specified in the RFP. shall conform to the minimum requirements specified herein. However, any signs of rust or corrosion occurring within the O&M period shall be deemed a defect and the Contractor shall be responsible for correcting, at his own expense, the defect to the satisfaction of the NHAI. Adequate protection from moisture condensation, fungus, rust, insects, rodents, and dust shall be provided. The Contractor shall also obtain the certificate from the concerned Metrological Department regarding the maximum recorded wind velocity, maximum recorded humidity and maximum/minimum recorded temperature, visibility levels on the expressway stretch and ensure that all the equipment is able to achieve its designated SLR as per the RFP.

6. Adequate standards & specifications have to be followed for ensuring the quality and safety of Cabling and Wiring, Grounding, Protection against Lightning Cabinets, Tilt Pole, Fixed Pole, Mounting Arrangements, and Ground Mounted Equipment Enclosures and Poles, Heating, Ventilation and Air Conditioning (HVAC) Subsystem, UPS etc. and all other components of the VIDS as per good industry practices.

#### 7. Installation

- a. The ground mounted enclosure shall be installed according to appropriate good engineering practices. All internal components and UPS (if required) shall be securely mounted.
- b. For ground mounted enclosure installation, UV-resistant caulking material shall be applied along the joints of the enclosure. For mounting under a camera lowering system, the enclosure shall be positioned away from the space directly below related camera.
- c. Provisions shall be made for all ducts (i.e. power, telecommunications, etc.), in accordance with the design drawings and/or specifications, that will facilitate the connection between the enclosure and the VIDS equipment.
- d. Where cables enter the ground mounted enclosure, they shall be fixed and secured against movement and to relieve stress on the cable termination. All penetrations to the enclosure shall be sealed with silicone sealant to impede entry of gas, dust and water.
- e. All wires/cables within the enclosure shall be secured and labelled. Earth wires from all electrical devices, including surge suppressors, shall be terminated directly to the dedicated earth terminal in the enclosure. Earth conductors shall not be daisy-chained from device to device.
- f. All conductors carrying electricity at 60Vac or higher shall be segregated from all telecommunications, signal conductors and conductor carrying electricity lower than 60Vac. A minimum of 75mm shall be provided between these two conductor groups. Where conductors belonging to these two groups need to cross each other at distances closer than 75mm, the installer must ensure the conductors are at a 90-degree angle (perpendicular) to each other.
- g. Each wire shall be identified on both ends of the wire with heat shrink, thermal transfer tube type wire markers in English. Adhesive labels are not acceptable. The wire markers shall be white with black lettering. Hand marking of the label is not acceptable.





## 8. Radio Interference

All data processing and transmission equipment shall be designed to prevent radio interference with the satisfactory operation of other equipment regardless of whether the interference be due to radiation, induction or conduction.

## 9. Metering

All electrical and electronic equipment shall be provided with waveforms and voltage test points or voltage meters as necessary for indicating circuit conditions.

## 10. Other general requirements:

- a. The VIDS System for the Project is composed of many components systems. These systems are expected to perform their functions to achieve overall objective for the efficient, safe and smooth traffic on the Highway/Expressway.
- b. The Contractor shall provide and construct a central server system that manages various systems comprising the Highway/expressway-traffic surveillance, video based incident detection and control system in an efficient manner, provides user-friendly human machine interface for the operator and records all events and incidents related to the NH.
- c. System shall be expandable to account for increase in field installed devices. Minimum 100% spare capacity (rounded off to the nearest higher whole number) should already be part of the quoted system.
- d. Power for all the equipment at control centres and sub-centres will be conditioned using on-line UPS with minimum 4 hours or more back up. If any equipment operates on any voltage other than the supply voltage and supply frequency, necessary conversion/correction device for supply shall be supplied along with the equipment.
- e. All the control equipment e.g. file servers, database servers, video recording server, SAN/NAS/Raid backup device, decoders, networking equipment etc. shall be provided in standard Racks.
- f. System shall have WAN connectivity for remote monitoring.
- g. Online backup should be maintained to protect against storage failure.
- h. Contractor shall provide all technical details regarding data formats, communication protocols, packet formats, etc. to enable NHAI (or its representatives) and NHAI to formulate national standards on successful implementation of the highway stretch.
- i. Though the scope of this Contract is limited to VIDS, the hardware and software shall be capable of being integrated with the existing and future ATMS of NHAI. It shall collect data and reports that are safety-centric (fatal collisions in a given stretch, violation of regulation etc.), enforcement-centric (comparison of violations on monthly basis etc.) as well as equipment-centric (failed packets, number of repairs carried out on field devices, down time on account of major faults etc.)
- j. The system shall provide detailed reports related to the System Operations (including the actions of various stakeholders during Incident Management) and Maintenance. The format for the same shall be finalized by the service provider in consultation with NHAI (or its representatives). Maintenance reports, at the minimum, shall include the current operational status of each equipment, actual events of Down-times of each equipment, actual events of Mean time to Repair of each equipment and actual events of Meantime between failure of each equipment and the preventive & repair maintenance log.
- k. The system shall also provide a method to log and report road highway incidents. Data used for logging and reporting shall be 'picked-up' automatically from the road-side and other sensors to the maximum extent possible.
- l. Further the system shall provide a facility of generating user-formatted reports that can, for example, bring together the occurrence of highway incidents, values of various sensors and the operational status of various equipment on a common timeline / scale.



## 11. Equipment Location

- a. The Contractor shall design the layout of the Operations Room and Server Room in the RCC and IMS. The Operations Room is the room where Graphic Display, monitor display, and console will be placed, and the operation of the Project will be monitored. The Server Room will be the place where the server, network equipment and other devices will be installed.
- b. The layout shall be designed taking into consideration the function of the server and workstations to be placed in the room, the role of the staff and operators stationed in the room, position of Graphic Display and monitor screen, cable routes, viewing by visitors and other factors to establish a functional Operations Room and Server Room. The layout shall be approved by the NHAI (or its representatives) .
- c. The Bidder shall submit the layout plan of the Operation Room in the Technical Proposal for reference.

### 11.1 Information Exchange with Another agencies

Traffic information must be created including road traffic condition of other agencies. For that purpose, Contractor must introduce dedicated device to make information exchange with other organizations. Moreover, the system must include conversion/integration functions of data formats in order to recognize exchanged data as of continuous roads for the integrated traffic information provision.

## 12. Software

### 12.1 General

- a. The software integrates the field equipment with the RCC/IMS Sub-centre console to ensure the availability of an effective system for Traffic monitoring & incident / accident management. In addition, it shall also have the capability to integrate and exchange data (using standard protocols) with multiple IoT (Internet of Things) devices that have been temporarily / permanently located on the project highway for Traffic study / Traffic management / Road safety purposes.
- b. The software shall be based on a modern architecture and shall optimally execute on the ITM workstation and the server to ensure that
  - i. The system response times are instantaneous to support effective Traffic Management (i.e. Traffic monitoring and incident / accident management) actions on the RCC/IMS Sub-centre console workstation.
  - ii. No information (data, video stream & audio stream) from any source is lost. Further all such information is made available on the Integrated Traffic Terminal, with no delay, precisely at the time they are required.
  - iii. Effective integration with the CCTV system, VIDS system, VMS system (as applicable) and other relevant ITS equipment is carried out in a seamless manner with no disruption of / disturbance to the Traffic management function (i.e. Traffic monitoring and incident / accident management). For such integration, standard interfaces (e.g. NTCIP) shall be used wherever available.
  - iv. All information (Data, video and audio streams) collected from various sources shall be archived in the server for quick retrieval by authorized personnel. However, the performance of the software in terms of response times shall not be affected during such a retrieval process.
- c. The Contractor shall provide a set of software to operate on the servers, workstations, terminal equipment, and other components and devices to be provided under the Contract. The software shall function as a system to provide end results required in the Contract.
- d. The software will be either the software that the Contractor has, modification of the existing software, or the new software to be developed for the Project. The copyright of the software specifically developed for the project shall remain with the Contractor.
- e. The set of the software to be provided shall consist of those provided by third party and those specifically developed for the project. All third-party software shall be legally licensed and there shall be no restriction on the use in the VIDS/ ITS/ ATMS/ Traffic Management System.



- They shall be registered under the name of NHAI and any supports and services provided by the software developer including update and revision shall be available to the NHAI.
- f. The software to be specifically developed for the Project shall be fully tested and shall be free from bugs. The Bidder shall include in the Technical Proposal of the Tender the software quality assurance program that he intends to adopt in developing the software.
  - g. The programming of the applications shall be arranged in such a way that maximum flexibility is afforded by the design to allow the NHAI to implement modifications or additional equipment which may become available or desirable during the working life of the system. Such future modifications or changes shall not be the part of the current scope of the contract and shall be estimated and paid time to time by the NHAI if required but comprehensive documentation of the software and source codes shall be provided under the Contract to allow such changes to be implemented by the NHAI without recourse to the Contractor.
  - h. The NHAI may wish to implement additional software packages to run concurrently with the software provided under the Contract. These packages may include but will not be limited to the following:
    - 1) Programs allowing the RCC system to operate with other systems such as Toll Management System / ETC/ HES interfaced to the data network and involving bi-directional transfer of files.
    - 2) Analytical and statistical program to process the data collected by the system.
    - 3) Software that offers new service to the road users through Internet.
  - i. The Bidder shall propose in the Technical Proposal of the Tender the feasibility and ease with which such applications might be implemented using the Advance Traffic Management System proposed by him and shall advise the spare memory capacity and processing power which could be available, but not necessarily provided, within the proposed computer to allow such applications to be implemented.
  - j. The Contractor shall be responsible for Integration of software supplied under this contract with the ATMS system and sub-systems, NHAI Mobile App for the road users as per the requirement raised from time to time by the NHAI or its authorized agency.
  - k. The Contractor shall be responsible for Integration of VIDS system and sub-systems with the NHAI Command Centre in NHAI HQ as per the requirement raised from time to time by the NHAI or its authorized agency.
  - l. The video stream captured and displayed at any location under this project shall be authenticated through Digital Watermarking containing NHAI logo. The purpose of Digital Watermarking is to ensure following:
    - 1) Copyright protection
    - 2) Source tracking
    - 3) Broadcast monitoring
    - 4) Video authentication

## 12.2 Image recording and retrieval

All images shall be automatically recorded in the VRS at RCC with camera ID and time stamp. IMS shall have the option to locally store any incident video in the workstation as well as export in external media post authentication, as per the requirement. Frame rate of the video signal can be configured to one frame to atleast 60 frames per second to optimise the storage capacity as per the site requirements. Images and videos of all cameras shall be stored for minimum 7/15 days as specified in the scope of work. The images and videos of all incidents shall be stored for the entire duration of this Contract.







### 12.3 Operation of Variable Message Sign (VMS) System

The VMS supply and installation are not part of the scope of this Contract. The Contractor shall only be required to operate the VMS provided under the scope of different contract and integrated with the VIDS of RCC/ IMS Sub-centre.

#### 12.3.1 Type of information provided

Different types of message will be displayed on the VMS. These types are summarized below. With regard to the message format, the sample messages presented in “IRC:SP: 85-2010, Guidelines for Variable Message Signs, Annex-B” can be referred.

Social messages shall not be displayed on the VMS at any time. Only the messages useful for the user to provide them the information / alert / warning for any incident, road closure, traffic jam, over-speeding alerts etc. or travel time shall be displayed on the VMS. Travel advisory or travel time shall be displayed when there is no alert / warning is required to be disseminated to the commuters.

##### 12.3.1.1 Advance warning message

Advance warning message gives the road users running at upstream section an advance notice of the incident at downstream section. The incident includes traffic congestion, slow traffic, accident, stalled vehicle, lane closure, fallen object, work zone and weather conditions. The message is effective in reducing possibility of secondary incidents.

##### 12.3.1.2 Advisory message

Advisory message provides the road users with useful information about a specific problem along their route. This information allows the road users to change their speed or lane in advance of the problem area, or the road users may elect to voluntarily take an alternative route to their destination.

##### 12.3.1.3 Early notice

Early notice informs the road users of a planned event such as road work on the Project or the closure of an interchange. This type of message has lower priority than other types of message and will be displayed only when there is no real-time message to be shown.

#### 12.3.2 Language used

Three languages, English, Hindi, and another one local language will be used for VMS. Thus, the VMS operator shall be fluent in these languages. Except short message, messages will be displayed in one of the three languages. Message shall carry the same meaning regardless of the language used. For short message that can be expressed in one line, the same message may be displayed simultaneously in three lines.

#### 12.3.3 Message Layout

Standard layout shall be followed consistently to express information for easier understanding by the road users.

#### 12.3.4 Message Composition Method

RCC operator can choose message creation from three (3) methods as indicated below.

1) Combination of pre-defined message

The word which are frequently used such as “accident”, “congestion”, “construction work”, “slow down” and so on are used to compose a message combination by selection at VMS console. They contain words indicating location, event and instruction.

2) Ready-made message

VMS operator may select one of the ready-made messages stored in VMS console.

3) Manual composition

Any message which VMS operator cannot select from VMS console; operator can create any message through keyboard.



4) Graphic symbols

VMS operator may provide a graphic symbol that graphically represent an incident and help Project road users to understand instantly without reading messages.

### 12.3.5 Message display

Upon reception of incident information from other operators or directly from other agencies, the VMS operator shall display proper message on the VMSs at adequate locations and direction without undue delay.

If the VMS on which new message is to be displayed is already showing a message, the operator shall evaluate the priority of the current and new incidents and decide whether the message being displayed is replaced with the new message or not.

The incident that exists at immediate downstream section shall have higher priority than the incident that is located more than one section away in general. If there are two incidents in a same section between two interchanges, incident of higher severity will take precedence over the incident with lower severity. If there are two incidents of same severity, incident nearer to the VMS shall be selected.

### 12.3.6 Message removal

Upon reception of the notice that an incident for which a message is displayed has been resolved, the operator shall remove the message or replace with another message immediately. The message of the incident that has been resolved shall not be displayed unnecessarily.

The operator shall check the effectiveness of all the messages being displayed at every 15 minutes and confirm the message needs to be continued or removed. The operator shall remove the message or replace with another message if the message being displayed is no longer applicable.

### 12.3.7 Message Providing Area

For an incident occurred, not all VMSs are required to display the message related to the incident. The message of an incident shall be displayed on one or more VMSs starting from the VMS located immediately upstream of the incident location. The higher severity of incident, the more VMSs will display the message about the incident. In other words, the number of VMSs on which message about an incident is displayed depends on the severity of incident and distance from the incident location to VMS location.

### 12.3.8 Welfare of Contractor's Employee

The Contractor shall be solely responsible and liable for complying with statutory liability for welfare of the employees such as ESI, EPF, workmen's compensation, wages, bonus medical leave, etc.

However, if considered necessary, the NHAI shall have every right to enquire and seek documentary evidence from the Contractor to confirm, whether all the statutory dues like ESI, EPF, minimum wages, weekly offs, bonus, medical leave, workman compensation and any other entitlements, in accordance with the statutory dues applicable in the area are being paid.

### 12.3.9 Uniform and Name-plate

The Contractor shall provide uniforms to the persons engaged in Operation and Maintenance Services at RCC, IMS, and site as approved by NHAI. All staff personnel of the Contractor shall wear the uniform and nameplate when on duty without exception. The nameplate shall bear the name and designation.

## 12.4 Training

The Contractor shall conduct training of the staff as required for efficient execution of all the work as stipulated in the TOR at the time of new recruitment and also from time to time to ensure high quality Operation Services. The training shall consist of classroom lecture using manual and hands-on training using the Advanced Traffic Management System equipment.



## **12.5 Safety, Security and Protection of Environment**

### **12.5.1 Safety of Staff Deployed**

Throughout the period of Contract, the Contractor shall have full regard for safety of all persons entitled to be upon the Traffic Control Centre area and for the avoidance of danger to such persons specially from moving traffic.

All staff employed by the Contractor shall receive the training on the work area safety before assigned to the position. The Contractor shall provide all necessary safety equipment such as reflective vests, hardhats to the persons.

## **12.6 Inspection and Evaluation**

### **12.6.1 Inspection**

The NHAI / NHAI (or its representatives) reserves the right to conduct inspection of the Contractor's work at any time without prior notice, to check, observe, and witness the activities of the Contractor at RCC.

The Contractor shall permit the NHAI's Representative at any time or times during the execution of the Contract to enter upon any place where the Contractor is allowed to access within the NHAI's premises for the purpose of inspection or for any other legitimate purpose. The Contractor shall give all required information and inspection of records to the Engineer regarding the operation of the Advanced Traffic Management System, if asked for.

The purpose of the inspection is to monitor the Contractor's activities and to ensure that all the activities required under the Contract are being carried out properly by the personnel deployed by the Contractor.

The NHAI may exercise any check control to ensure discharge of various obligations by the Contractor under the Contract including but not limited to following:

- a) Adherence to operation procedure stipulated in the operation manuals;
- b) Promptness and responsiveness to Emergency call;
- c) Promptness and adequateness to communicate with other organizations;
- d) Handling of the system and equipment;
- e) Adequateness and promptness of VMS message;
- f) Adequateness of record keeping;
- g) Cleanness and tidiness of the RCC and the rooms that are used by the Contractor's staff;
- h) Manner and politeness of Contractor's operator toward Emergency callers and Project users;
- i) Traffic safety awareness; and
- j) Any other check or control as considered appropriate by the NHAI.

### **12.6.2 Evaluation by NHAI**

The NHAI will conduct from time to time the evaluation of the Operation Service provided by the Contractor under the Contract based on the performance of service level parameters specified in the RFP.

## **12.7 Corrective Maintenance and Accident Repair**

The Contractor shall provide corrective maintenance and accident repair on a 24-hour a day, 7-day a week basis. Upon reception of a failure notice by the contact person, the Contractor shall log the notice and determine the nature and severity of the failure, prepare the repair plan and dispatch the maintenance crew to the site. Immediate action shall be taken to safeguard the public at any time if the failure is of nature that causes hazardous condition.

If the fault cannot be permanently repaired immediately, a temporary repair or remedial measure sufficient to safeguard the operation of the System shall be affected by the Contractor and the NHAI shall be so notified.





The cost of corrective maintenance of the failure that is not attributable to the Contractor will be determined by mutual negotiation. The Contractor shall assess the extent of the damage, prepare the remedial plan and estimate the cost.

## 12.8 Response Time and Resolution Time

For all cases, the failure shall be classified into three severity levels, critical, major and minor. The Contractor shall satisfy the response time and resolution time specified for each type of failure as presented hereunder.

Severity	Response time	Resolution time
Critical failure	30 minutes	2 hours
Major failure	60 minutes	6 hours
Minor failure	2 hours	48 hours

Critical failure is defined as follows:

- 1) Halt of both active and backup server systems at RCC or sub-Centre.
- 2) Failure of Internet server.
- 3) Interruption of active or backup route of communication link to RCC system.
- 4) Failure of two or more console at RCC.
- 5) System failure of a server system of each sub-system
- 6) Failure of uninterruptible power supply.

Major problem is defined as follows:

- 1) Failure of a console at RCC.
- 2) Failure of large display at RCC.
- 3) Failure of two or more units of camera display monitor.
- 4) Loss of control of roadside equipment.

Minor failure is defined as those failures other than critical and major failures listed above.

## 12.9 Inspection of Faulty Parts

The Contractor shall inspect the faulty part retrieved from the equipment repaired and prepare and submit a report describing the nature of the failure to the Engineer together with his opinion whether the failure is caused by defect, inadequate operation, act by the third party, normal wear and tear or other reasons.

## 12.10 Fault Report and Work Order

Each and every corrective maintenance and accident repair work shall be documented on the fault report form and work order form by the Contractor. The Contractor shall prepare and submit the form together with the list of inspection items for the Finalisation to NHAI. A copy of completed work order forms shall be submitted with the monthly invoice. No payment shall be made without submitting the completed work order forms. The Fault Reports shall be kept in a logbook and shall be made available to the Engineer upon request at any time.

## 12.11 Maintenance and repair records

The Contractor shall maintain a comprehensive record of all maintenance and repair activities and spare parts consumptions and inventory. The records shall include as a minimum maintenance check lists, fault reports, spare parts receiving and consumption records, and work orders. These records shall be kept in a database and various operations including but not limited to search and retrieval of fault record by specified key, statistical processing of records into performance index, and calculation of MTBF, MTTR and other parameters shall be possible.

## 12.12 Reporting

The Contractor shall prepare and submit a monthly report in the form and contents as specified herein and as agreed with the NHAI (or its representatives)



### 13. Service Level Requirements (SLR) and Associated Penal Provisions

- a. The Contractor shall undertake to perform the services with the highest standards of professional and ethical competence and integrity.
- b. Keeping in view the sensitivity involved, the personnel deployed should maintain confidentiality / integrity at all times and work in a professional manner to protect the interest of NHAI. The firm shall promptly replace any personnel assigned under this project that NHAI/ NHAI (or its representatives) considers unsatisfactory.
- c. The service level requirement (SLR) during the O&M period are defined as under:
  - I. Accuracy of all the incidents during any time of the day or night will have a weightage of 70 points. The accuracy of VIDS will be assessed by a committee to be constituted by NHAI at PIU level by analysing a continuous video of any duration as deemed necessary by the committee from any week of the month and comparing results with the reports generated irrespective of the time of day/night or weather conditions
    - Accuracy more than or equal to 95% - 70 points
    - Accuracy more than or equal to 90% but less than 95% - 60 points
    - Accuracy more than 85% but less than 90% - 50 points
    - Accuracy less than 85% - 0 points with one letter of warning
  - II. IT System and Network uptime- will have a weightage of 30 points: It will be defined as "one minus the fraction of unscheduled down time as per relevant period" expressed as a percentage. This is equivalent to the number of actual service hours or fractions thereof delivered compared to the number of agreed scheduled service hours for each calendar month. System will be considered unavailable if any Network Outage happens. The following is the SLR for this item:
    - System uptime- more than equal to 99% - 30 points
    - System uptime- more than equal to 98 but less than 99% - 20 points
    - System uptime- less than 98% - 0 points with one letter of warning
  - III. Payment eligibility as per SLR compliance: The payments will be made as per the SLR compliance on an average for all the VIDS locations under the Zone as per the following criteria:
    - 90 to 100 points-100% of payable will be paid
    - 85 to 89 points- 95% of payable will be paid
    - 80 to 84 points- 90% of payable will be paid
    - Less than 80 points- 80% of payable will be paid along with issuance of a warning letter
    - On attaining warning letter for three consecutive months for either of the above criteria the Authority can proceed for termination of the contract and forfeit the performance security (and APS) of the contractor

### 14. Spare Parts and Consumables

The Contractor shall maintain required spare parts to maintain required service levels. An undertaking to be submitted along with technical bid that the bidder has the sufficient infrastructure and capability to keep/store spares required for maintenances and will at all times during the contract period maintain sufficient inventory of spares and consumables for operating and maintaining the VIDS and to meet the Service Level requirements.



## **PART-III** FORMAT FOR BID SUBMISSION





**Form T-1: Technical Bid Covering Letter**

*(To be prepared on letterhead of the Bidder, scanned & uploaded on E-tender portal)*

To,  
General Manager (Tech.)  
National Highways Authority of India  
G 5&6, Sector-10, Dwarka,  
New Delhi - 110075

**Sub.: RFP for Video Incident Detection System (VIDS) for National Highway**

**Ref:** RFP No. NHAI/VIDS Z1/001/03-2021 dated 03/03/2021 **on above subject.**

Dear Sir,

1. I/We, the undersigned, have carefully examined the contents of the above referred RFP document including amendments/ addendums (if any) thereof and we undertake to fully comply and abide by the terms and conditions specified therein and hereby submit our Bid for the aforesaid service. Our bid for the subject RFP is unconditional and unqualified.
2. I/We offer to execute the work in accordance with the Scope of work and the Conditions of Contract of this RFP both explicit and implied.
3. I/We undertake that, in competing for (and, if the award is made to us), for executing the above contract, we will strictly observe the laws against fraud and corruption in force in India namely "Prevention of Corruption Act 1988".
4. I/We understand that:
  - (a) This bid, if found incomplete in any respect and/ or if found with conditional compliance or not accompanied with the requisite Bid Securing Declaration, shall be summarily rejected.
  - (b) If at any time, any averments made or information furnished as part of this bid is found incorrect, then the bid will be rejected and the contract if awarded on the basis of such information shall be cancelled.
  - (c) NHAI is not bound to accept any/ all Bid(s) it will receive.
  - (d) Until a contract is executed, this bid together with RFP Document as well as notification of Letter of Award issued by NHAI shall constitute a binding Contract between us.
5. I/We declare that:
  - (a) I/We have not been blacklisted/ *declared ineligible* by NHAI or Ministry of Road Transport & Highways, Government of India or any other agency. I/We also confirm that I/We have not been *declared as non-performing or debarred* by NHAI or Ministry of Road Transport & Highways, Government of India.
  - (b) I/We *haven't been blacklisted* by a Central/ State Government Institution/ Public Sector Undertaking/ Autonomous body and there has been *no litigation* with any Government Department/ PSU/ Autonomous body on account of similar services.
  - (c) I/We have *not* directly or indirectly or through an agent *engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice*, as defined in the Contract Agreement, in respect of any tender or request for proposal issued by or any Contract entered into with NHAI or any other public sector enterprise or any government, Central or State; and I/We hereby certify that we have taken steps to ensure that in conformity with the provisions 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.

6. In the event of my / our bid being declared as successful bid, I/we agree to enter into a Contract Agreement in accordance with the format of the Contract Agreement. I/We agree not to seek any change in the aforesaid format of the Contract Agreement and agree to abide by the same.

7. I/We certify that:

- (i) I/We have not been convicted by a Court of Law or indicted or adverse orders passed by a regulatory authority which could cast a doubt on our ability to undertake the subject work or which relates to a grave offence that outrages the moral sense of the community.
- (ii) Neither the bidder nor any of its Directors are the subject of criminal or civil proceedings that could be expected to adversely affect its business or its ability to bid in the present tender.
- (iii) No investigation by a regulatory authority is pending either against us or against our CEO or any of our directors/ managers/ employees.
- (iv) I / We don't have any conflict of interest in terms of Clause 2.2 of eligibility criteria defined in this RFP document.**
- (v) The information provided in this technical bid (including the attachments) as well as the financial bid is true, accurate and complete to the best of my knowledge and belief. Nothing has been omitted which renders such information misleading; and all documents accompanying my/our bid are true copies of their respective originals. I/We shall be liable for disqualification or termination of contract at any stage, if any information/ declaration is found to be incorrect or false. I/We will intimate NHAI promptly in case of any change in the information submitted as part of this technical bid.
- (vi) I/We offer the cost of the RFP document and bid securing declaration in accordance with the RFP document as per the details furnished below:

	Reference No.	Date	Amount (Rs.)	Issuing Bank/ Branch
1.Tender Fee				

- (vii) The documents in original accompanying the bid document have been submitted in a separate envelope as envisaged in the RFP document and marked appropriately.
- (viii) I am the Director / Authorized Signatory of the aforesaid company / firm and I am authorized to sign this bid on behalf of the firm / company. I am submitting this bid after carefully reading all the terms and conditions contained in the RFP document and its addendum/ amendment, if any, and undertake to abide by the same. It is also certified that the bid is being submitted in the prescribed formats without any addition / deviation / alteration and our bid is unconditional.

We remain,

Yours sincerely,

Name .....

Designation/ Title of the Authorized Signatory.....





**Form T-2: Brief Information about the Bidder(s)**

*(To be prepared on letterhead of the Bidder, scanned & uploaded on E-tender portal)*

**Sub.: RFP for Video Incident Detection System (VIDS) for National Highway**

**Ref:** RFP No. NHAI/VIDS Z1/001/03-2021 dated 03/03/2021 **on above subject.**

1. (a) Name of Bidder:

(b) Year of establishment

(c) Constitution of the bidder entity e.g. Government enterprise, private limited company, limited company, proprietorship / partnership firm etc.

(d) In case of a Government enterprise, please indicate as to whether legally and financially autonomous and operate under commercial law.

**Yes/ No/ Not applicable**

(e) Name(s) of Directors/ Proprietors/ Partners

.....  
.....  
.....

2. Address for correspondence with Telephone/ Fax numbers/ e-mail address:

(a) Complete postal address:

(b) Fixed telephone number

(c) Mobile telephone number

(d) E-mail address<sup>3</sup>. Name & Address of the principal banker<sup>3</sup>:

(a) Bank A/c Number

(b) Branch Address

(c) IFSC /MICR Code:

4. Name of the Statutory Auditor/ Company Secretary/ Chartered Accountant certifying the documents along with his/ her Membership number, if applicable:

Name .....

Designation/ Title of the Authorized Signatory.....

**Note:** In case of JV/ Consortium, the aforesaid information shall be required for each member of the JV/ Consortium separately.

**Form T-3: Power of Attorney**

Know all men by these presents, we, ..... (name of Company and address of the registered office) do hereby constitute, nominate, appoint and authorize Mr / Ms..... son/daughter/wife of..... and presently residing at ....., who is presently employed with us and holding the position of ..... as our true and lawful attorney (hereinafter referred to as the “Authorized Signatory or Attorney”) to do in our name and on our behalf, all such acts, deeds and things as are necessary or required in connection with or incidental to submission of our Bid for selection as the Contractor for “Design, Supply Installation, Testing, Commissioning, Configuration, System Integration, Operations and Maintenance of Comprehensive System for Video Incident Detection System (VIDS) for National Highway” proposed by National Highways Authority of India, including but not limited to signing and submission of all applications, bid(s) and other documents and writings, and providing information/ responses to NHAI, representing us in all matters before NHAI, signing and execution of all contracts and undertakings consequent to acceptance of our bid and generally dealing with NHAI in all matters in connection with or relating to or arising out of our Bid for the said Tender and/or upon award thereof to us.

AND, we do hereby agree to ratify and confirm all acts, deeds and things lawfully done or caused to be done by our said Authorised Signatory or Attorney pursuant to and in exercise of the powers conferred by this Power of Attorney and that all acts, deeds and things done by our said Authorised Representative/ Attorney in exercise of the powers hereby conferred shall and shall always be deemed to have been done by us.

IN WITNESS WHEREOF WE, .....THE ABOVE NAMED PRINCIPAL HAVE EXECUTED THIS POWER OF ATTORNEY ON THIS ..... DAY OF ....., 2021

For .....  
(Signature, name, designation and address)

Witnesses:

1.

2.

Notarised

Accepted

.....  
(Signature, name, designation and address of the Attorney)



**Notes:**

*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 executants(s) and when it is so required the same should be under common seal affixed in accordance with the required procedure. **The Power of Attorney should be executed on a non-judicial stamp paper of appropriate denomination and should be duly notarised by a notary public.***

*Wherever required, the Bidder should submit for verification the extract of the charter documents and other documents such as a resolution/power of attorney in favour of the person executing this Power of Attorney for the delegation of power hereunder on behalf of the Bidder.*



**Form T-4: Power of Attorney for Lead Member of JV/ Consortium**

Whereas the National Highways Authority of India (“Authority”) has invited bids from interested parties for the *selection as the Contractor for “Design, Supply Installation, Testing, Commissioning, Configuration, System Integration, Operations and Maintenance of Comprehensive System for Video Incident Detection System (VIDS) for National Highway”* (“the Project”).

Whereas, ....., ..... and ..... (collectively the “JV/ Consortium”) being Members of the JV/ Consortium are interested in bidding for the Project in accordance with the terms and conditions of the Request for Proposal and other connected documents in respect of the Project, and

Whereas, it is necessary for the Members of the JV/ Consortium to designate one of them as the Lead Member with all necessary power and authority to do for and on behalf of the JV/ Consortium, all acts, deeds and things as may be necessary in connection with the JV/ Consortium’s bid for the Project and its execution.

**NOW THEREFORE KNOW ALL MEN BY THESE PRESENTS**

We, M/s. .... having our registered office at ....., M/s. .... having our registered office at ....., and M/s. .... having our registered office at ....., (hereinafter collectively referred to as the “Principals”) do hereby irrevocably designate, nominate, constitute, appoint and authorise M/s....., having its registered office at ....., being one of the Members of the JV/ Consortium, as the Lead Member and true and lawful attorney of the JV/ Consortium (hereinafter referred to as the “Attorney”) and hereby irrevocably authorise the Attorney (with power to sub-delegate) to conduct all business for and on behalf of the JV/ Consortium and any one of us during the bidding process and, in the event the JV/ Consortium is awarded the Contract, during the execution of the Project, and in this regard, to do on our behalf and on behalf of the JV/Consortium, all or any of such acts, deeds or things as are necessary or required or incidental to the submission of its bid for the Project, including but not limited to signing and submission of all applications, bids and other documents and writings, accept the Letter of Award, participate in bidders’ and other conferences, respond to queries, submit information/ documents, sign and execute contracts and undertakings consequent to acceptance of the bid of the JV/Consortium and generally to represent the JV/Consortium in all its dealings with the Authority, and/ or any other Government Agency or any person, in all matters in connection with or relating to or arising out of the JV’s/ Consortium’s bid for the Project and/ or upon award thereof till the Contract is entered into with the Authority and Completed.

AND hereby agree to ratify and confirm and do hereby ratify and confirm all acts, deeds and things done or caused to be done by our said Attorney pursuant to and in exercise of the powers conferred by this Power of Attorney and that all acts, deeds and things done by our said Attorney in exercise of the powers hereby conferred shall and shall always be deemed to have been done by us/ JV/Consortium.

IN WITNESS WHEREOF WE THE PRINCIPALS ABOVE NAMED HAVE EXECUTED THIS POWER OF ATTORNEY ON THIS ..... DAY OF ..... 20.....

For .....

(Signature, Name & Title)





For .....

(Signature, Name & Title)

For .....

(Signature, Name & Title)

Witnesses:

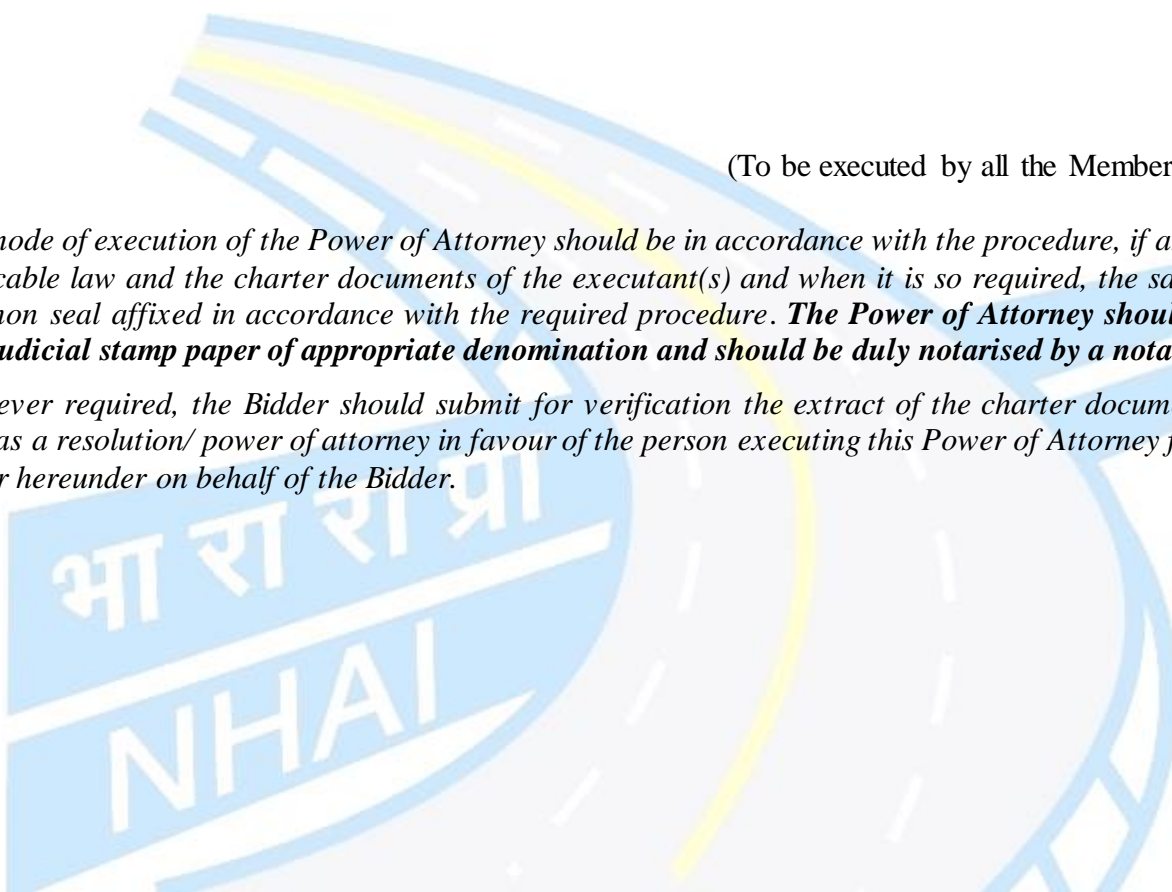
- 1.
- 2.

(Executants)

(To be executed by all the Members of the Consortium)

Notes:

- *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. **The Power of Attorney should be executed on a non-judicial stamp paper of appropriate denomination and should be duly notarised by a notary public.***
- *Wherever required, the Bidder should submit for verification the extract of the charter documents and documents such as a resolution/ power of attorney in favour of the person executing this Power of Attorney for the delegation of power hereunder on behalf of the Bidder.*



**Form T-5: Joint Bidding Agreement for JV/ Consortium***(To be executed on Stamp paper of appropriate value)*

THIS JOINT BIDDING AGREEMENT is entered into on this the ..... day of ..... 20...

**AMONGST**

1. {..... Limited, and having its registered office at ..... } (hereinafter referred to as the “**First Part**” which expression shall, unless repugnant to the context include its successors and permitted assigns)

**AND**

2. {..... Limited, having its registered office at ..... } and (hereinafter referred to as the “**Second Part**” which expression shall, unless repugnant to the context include its successors and permitted assigns)

**AND**

3. {..... Limited, and having its registered office at .....} (hereinafter referred to as the “**Third Part**” which expression shall, unless repugnant to the context include its successors and permitted assigns)

The above mentioned parties of the FIRST, {SECOND and THIRD} PART are collectively referred to as the “**Parties**” and each is individually referred to as a “**Party**”

**WHEREAS,**

- (A) THE NATIONAL HIGHWAYS AUTHORITY OF INDIA, established under the National Highways Authority of India Act 1988, represented by its Chairman and having its principal offices at G-5 & 6, Sector 10, Dwarka, New Delhi-110075 (hereinafter referred to as the “**Authority**” which expression shall, unless repugnant to the context or meaning thereof, include its administrators, successors and assigns) has invited bids (the “**Bids**”) by its Request for Proposal No NHAI/ ..... dated ..... (the “**RFP**”) for award of contract for “*Design, Supply Installation, Testing, Commissioning, Configuration, System Integration, Operations and Maintenance of Comprehensive System for Video Incident Detection System (VIDS) for National Highway*” (the “**Project**”).
- (B) The Parties are interested in jointly bidding for the Project as members of a JV/ Consortium and in accordance with the terms and conditions of the RFP document and other bid documents in respect of the Project, and
- (C) It is a necessary condition under the RFP document that the members of the JV/ Consortium shall enter into a Joint Bidding Agreement and furnish a copy thereof with the Bid.

**NOW IT IS HEREBY AGREED as follows****1. Definitions and Interpretations**

In this Agreement, the capitalized terms shall, unless the context otherwise requires, have the meaning ascribed thereto under the RFP.

**2. Consortium**



- 2.1 The Parties do hereby irrevocably constitute a JV/ consortium (the “**JV/ Consortium**”) for the purposes of jointly participating in the Bidding Process for the Project.
- 2.2 The Parties hereby undertake to participate in the Bidding Process only through this JV/ Consortium and not individually and/ or through any other JV/Consortium constituted for this Project, either directly or indirectly or through any of their Associates.

### 3. Covenants

The Parties hereby undertake that in the event the Joint Venture is declared the selected Bidder and awarded the Project, it shall enter into an Contract Agreement with the Authority for performing all its obligations as the Contractor in terms of the Contract Agreement for the Project.

### 4. Role of the Parties

The Parties hereby undertake to perform the roles and responsibilities as described below:

- (a) Party of the First Part shall be the Lead member of the Consortium and shall have the power of attorney from all Parties for conducting all business for and on behalf of the Consortium during the Bidding Process and till the completion of Project as per Contract Agreement;
- (b) Party of the Second Part shall be {the \_\_\_\_\_Member of the Consortium;}
- {(c) Party of the Third Part shall be the \_\_\_\_\_Member of the Consortium; and}

### 5. Joint and Several Liability

The Parties do hereby undertake to be jointly and severally responsible for all obligations and liabilities relating to the Project and in accordance with the terms of the RFP and the Contract Agreement, till such time as the completion of the Project is achieved under and in accordance with the Contract Agreement.

### 6. Stakes in the JV/ Consortium

The Parties agree that the proportion of stakes among the Parties in the JV/ Consortium shall be as follows:

First Party:  
Second Party:  
{Third Party:}

### 7. Representation of the Parties

Each Party represents to the other Parties as of the date of this Agreement that:

- (a) Such Party is duly organised, validly existing and in good standing under the laws of its incorporation and has all requisite power and authority to enter into this Agreement;



- (b) The execution, delivery and performance by such Party of this Agreement has been authorised by all necessary and appropriate corporate or governmental action and a copy of the extract of the charter documents and board resolution/ power of attorney in favour of the person executing this Agreement for the delegation of power and authority to execute this Agreement on behalf of the JV/ Consortium Member is annexed to this Agreement, and will not, to the best of its knowledge:
- (i) require any consent or approval not already obtained;
  - (ii) violate any Applicable Law presently in effect and having applicability to it;
  - (iii) violate the memorandum and articles of association, by-laws or other applicable organisational documents thereof;
  - (iv) violate any clearance, permit, concession, grant, license or other governmental authorisation, approval, judgement, order or decree or any mortgage agreement, indenture or any other instrument to which such Party is a party or by which such Party or any of its properties or assets are bound or that is otherwise applicable to such Party; or
  - (v) create or impose any liens, mortgages, pledges, claims, security interests, charges or Encumbrances or obligations to create a lien, charge, pledge, security interest, encumbrances or mortgage in or on the property of such Party, except for encumbrances that would not, individually or in the aggregate, have a material adverse effect on the financial condition or prospects or business of such Party so as to prevent such Party from fulfilling its obligations under this Agreement;
- (c) this Agreement is the legal and binding obligation of such Party, enforceable in accordance with its terms against it; and
- (d) there is no litigation pending or, to the best of such Party's knowledge, threatened to which it or any of its Affiliates is a party that presently affects, or which would have a material adverse effect on the financial condition or prospects or business of such Party in the fulfillment of its obligations under this Agreement.

## 8. Termination

This Agreement shall be effective from the date hereof and shall continue in full force and effect until completion of the Project is achieved under and in accordance with the Contract Agreement, in case the Project is awarded to the JV/ Consortium. However, in case during the execution of the contract it substantiated that the JV/ Consortium is not actually qualified for the Project and submitted false information, the Agreement will stand terminated and damages as deemed fit by the Authority shall be levied on the contactors.

## 9. Miscellaneous

- 9.1 This Joint Bidding Agreement shall be governed by laws of India.
- 9.2 The Parties acknowledge and accept that this Agreement shall not be amended by the Parties without the prior written consent of the Authority.

IN WITNESS WHEREOF THE PARTIES ABOVE NAMED HAVE EXECUTED AND DELIVERED THIS AGREEMENT AS OF THE DATE FIRST ABOVE WRITTEN.

SIGNED, SEALED AND DELIVERED

SIGNED, SEALED AND DELIVERED

For and on behalf of





LEAD MEMBER by:

SECOND PART

(Signature)

(Name)

(Designation)

(Address)

(Signature)

(Name)

(Designation)

(Address)

SIGNED, SEALED AND DELIVERED

For and on behalf of

THIRD PART

(Signature)

(Name)

(Designation)

(Address)

In the presence of:

1.

2.

**Notes:**

1. The mode of the execution of the Joint Bidding Agreement 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. ***The Power of Attorney should be executed on a non-judicial stamp paper of appropriate denomination and should be duly notarised by a notary public.***
2. Each Joint Bidding Agreement should attach a copy of the extract of the charter documents and documents such as resolution / power of attorney in favour of the person executing this Agreement for the delegation of power and authority to execute this Agreement on behalf of the Consortium Member.

**Form T-6: Format of submission of Work Experience / Technical Strength of Bidder****Sub.: RFP for Video Incident Detection System (VIDS) for National Highways****Ref:** RFP No. NHAI/VIDS Z1/001/03-2021 dated 03/03/2021 **on above subject.**

Client Details Client Name: ..... Address: ..... ..... Name of Contact Person: ..... Contact No. .... Contact E-mail ID. .... <b>(official e-mail ID)</b>		Name of Work / Project <sup>4</sup>
		Location:
		Approximate Value of Work / Project (INR)
Start Date		Present Status of Project (as per the Bidders mandate)
Completion Date		
Present Status		
Application Users		
Name of Persons Deployed (Key Persons only)		
Detailed features of Project Executed:		

Name .....

Designation/ Title of the Authorized Signatory.....

Dated: ..... /...../2021

*Note: Bidder should submit relevant details of each projects in this format and should enclose:*

- i) Go-live / acceptance / completion Certificate issued by the customer; and
- ii) Work Order / Purchase order / Copy of contract / Letter of Award highlighting detailed scope of project implemented within the last 10 financial years prior to the Bid due date as proof for the same.

<sup>4</sup> Please furnish duly filled Form T-4 in support of each relevant project experience claimed  
Video Incident Detection System (VIDS) for National Highways

**Form T-7: Affidavit on Litigation / Arbitration History****(on Non-judicial Stamp Paper of Value Rs.100/-)****Name of Bidder: .....**

The Bidder should provide information on any history of litigation or arbitration resulting from the contracts executed for NHAI / MoRT&H in the last five years or currently under execution.

Year	Award for or against Bidders	Name of Client, Cause of Litigation and Matter in Dispute	Disputed Amount (Current Value in India Rs.)	Actual Awarded Amount in India Rs.

**INFORMATION REGARDING CURRENT LITIGATION, DEBARRING / EXPELLING OF BIDDER OR ABANDONMENT OF WORK BY BIDDER**

1. (a) Has the Bidder or its constituent partners history of litigation awarded against him?

Yes	No
-----	----

- (b) If yes, give details

.....  
 .....

2. (a) Has the Bidder or any of its Constituent Partners or Directors been debarred / expelled, during the last 5 years as on the date of bid, on the basis of their performance in any assignment or for any other reason including fraudulent and corrupt practices, etc?

Yes	No
-----	----

- (b) If yes, give details including period of debarment:

.....  
 .....

3. (a) Has the Bidder or any of its Constituent Partners or Directors failed to perform on any contract, during the last 5 years as on the date of bid, as evidenced by imposition of a penalty or a judicial pronouncement or arbitration award or has been expelled from any work or contract or have had any contract terminated for breach on their part or abandoned any contract work or has been declared bankrupt?

Yes	No
-----	----

- (b) If yes, give details

.....  
 .....

**Note:** If any information in this affidavit is found to be incorrect or concealed, prequalification / bid will be summarily rejected. Based on information in this affidavit, NHAI, in its sole discretion shall take a decision to prequalify the Bidder.



**Form T-8 Format of Certificate in respect of Bidder's Average Annual Turnover and Net Worth**  
**CERTIFICATE (To be given by a Statutory Auditor)**

**Sub.: RFP for Video Incident Detection System (VIDS) for National Highways**

**Ref:** RFP No. NHAI/VIDS Z1/001/03-2021 dated 03/03/2021 **on above subject.**

Dated: ..... /...../2021

**Certificate of Annual Turnover and Net Worth**

It is certified that we have examined the audited books of accounts of M/s. \_\_\_\_\_ (name and address of the bidder) \_\_\_\_\_ and the details of the annual turnover during the last three financial years and net worth as on 31.03.2020 are as under:

- a) **Annual Turnover** from Information Technology / Communication Technology / System Integration Business

*Amount in Rs.*

Financial Year	Amount in figures	Amount in words
<b>FY 2017-18</b>		
<b>FY 2018-19</b>		
<b>FY 2019-20</b>		
<b>Average of 3 years</b>		

- b) **Net Worth**

*Amount in Rs.*

As on	Amount in figures	Amount in words
<b>31.03.2020</b>		

The break-up of above mentioned Net worth is mentioned below:

S. No.	Particulars	Amount as on 31.03.2020 (Rs. in Crore)
1.	Aggregate value of the paid-up share capital	XXX
2.	Add: all reserves created out of the profits	XXX
3.	Add: securities premium account	XXX
4.	Less: aggregate value of the accumulated losses	XXX
5.	Less: deferred expenditure	XXX
6.	Less: miscellaneous expenditure not written off	XXX
	<b>NET WORTH (1+2+3-4-5-6-7)</b>	<b>XXX</b>

Note: The reserves created out of revaluation of assets, write back of depreciation and amalgamation have been excluded in the aforesaid calculation.





(Signature of *Statutory Auditor*)

Name:

Seal:

Place: .....

\_\_\_\_\_  
For (Name of Accounting Firm)

\_\_\_\_\_  
Name of Partner/Proprietor

\_\_\_\_\_  
Membership Number

Rubber Stamp





**Form T-9 Format for Submission of Detailed methodology and technical work plan  
Supported with broad system architecture and design.**

**Sub.: RFP for Video Incident Detection System (VIDS) for National Highways**

**Ref:** RFP No. NHAI/VIDS Z1/001/03-2021 dated 03/03/2021 **on above subject.**

**NOTE:**

- i. Submission under this item is subject to evaluation under technical bid, while giving information, the bidders are advised to strictly focus and address the topic/sub-topic as asked for in a structured manner. Any superfluous submission shall be at bidders' risk*
- ii. Bidder shall provide comprehensive list of proposed spares for each section.*

Dated: ..... /...../2021

**(i) Detailed Methodology:**

.....  
.....  
.....  
.....  
.....  
.....

**(ii) Technical Work Plan:**

.....  
.....  
.....  
.....  
.....  
.....

**(iii) Broad system architecture and design proposed:**

.....  
.....  
.....  
.....  
.....  
.....

**(iv) Equipment Delivery Schedule and Time schedule to complete the entire work under ToR, supported with Bar Chart, including the civil works for RCC/IMS:**

.....  
.....  
.....  
.....  
.....  
.....



**(v) Limitations on part of bidder to address requirements under ToR and SLA:**

.....

.....

.....

.....

.....

**(vi) Design Concept of Central Processing System**

(Design Concept including approach of concept and methodology for Central Processing System.)

.....

.....

.....

**(vii) Event Generation Method and Event List**

(The Event Generation Method and Event list for design of Central Processing System.)

.....

.....

.....

**(viii) Event Management Method**

(The event flow, event priority management method, event associate method, completion of missing data method, tuning of setting, supporting function for event management for Design of Central Processing System.)

.....

.....

.....

**(ix) Exchange Information Method with linked Different Highway Operator**

(The method and technology for exchange information and expandable method for exchange information with linking different operator for design of Central Processing System.)

.....

.....

.....

**(x) Layout of Operation Room in RCC and sub-centres**

(Layout of Operation room in effective technology and suitable for operation.)

.....

.....

.....

**(xi) Contents Image of Graphic Display and Dashboard**

(Showing Contents Image of important items and Dashboard with feasible technology for effective operation.)

.....

.....

.....

**(xii) GIS Map layout, process, and features**

(Showing GIS Map Image of important items meeting ToR features with feasible technology for effective operation.)

.....

.....

.....

**(xiii) Operation and Maintenance Service Plan**



(Method and outline of Operation and Maintenance Service Plan, mentioned in the Operation & Maintenance Specification.)

.....  
.....  
.....

**(xiv) On-line Access during the Operations & Maintenance phase**

.....  
.....  
.....

**(xv) Mobilization Schedule**

.....  
.....  
.....

**(xvi) Safety Plan**

.....  
.....  
.....

**(xvii) Schedule of Guarantee**

.....  
.....  
.....

**(xviii) Contractor's Equipment**

.....  
.....  
.....

**(xix) Spare Parts**

.....  
.....  
.....

**(xx) Proposed Subcontractors for Major Items of Plant Design, Supply and Installation Services**

*The Details of proposed Manpower for implementation and O&M phase shall be submitted in the format provided below (Form SUB and Form MAN)*

.....  
.....  
.....

**(xxi) Arrangements by bidder to address O&M Requirements, including complete manpower details proposed during implementation and O&M period.**

*NOTE: 1) The Manpower proposed here shall be dedicated for this project and shall not be proposed for any other project or assigned any other similar project of NHAI. The resource cannot be change for at least two years without prior intimation to NHAI.*





2) The Details of proposed Manpower for implementation and O&M phase shall be submitted in the format provided below (Form PER-1 and Form PER-2)

3) The substitute proposed by the Contractor must have more experience than the proposed candidate in all respect (no. of years of relevant experience, no. of similar projects executed, qualification of the replacement candidate, etc.):

.....

.....

.....

.....

.....

**(xxii) Comments on Accuracy of information/data expected in RFP with justification:**

.....

.....

.....

.....

.....

**(xxiii) Any other aspects the Bidder may wish to add:**

.....

.....

.....

.....

.....

**(xxiv) Catalogue, brochure, or other supporting document**

(Catalogue, brochure, or other supporting document for each equipment proposing for this project.)

.....

.....

.....

.....

**(xxv) Applied standards**

(Applied standards for each works and equipment s are clearly identified and those satisfy India standards or international defect standards)

.....

.....

.....

.....

**Note:** Following documents shall be enclosed along with this form

(a) In case of any Non-Compliance in the ToR, Matrix thereof shall be submitted in the following format:

S. No.	RFP Clause & Page no.	RFP Provision	Non-compliance (details)	Remarks with alternate solution details



- (b) Technical details of each component, clearly mentioning the make, model, country of origin, and end of life of each component/ equipment as per the format given below, brief technical datasheet shall also be enclosed along with the material approval certificate\*.
- (c) Please include all items mentioned under list of key components (Ref. Annexure to Form F-1).
- (d) Quality Certificate and Undertaking for Country of Origin: The Bidder shall submit Quality Certificate from each OEM confirming that everything to be supplied by the OEM shall be brand new, free from all encumbrances, defects and faults in material. Workmanship and manufacturing shall be of highest grade and quality and consistent with the established and generally accepted standards. Materials of the type ordered shall be in full conformity with the specifications, drawings or samples, if any, and shall operate properly. The Bidder shall ensure that none of the key component or its sub-component such as PTZ Cameras, VIDS system, Control Centre / Command Centre / RCC equipment including servers, storage, network devices, security devices are procured / sourced from any of the region and / or company barred / banned / blacklisted / restricted by any of the Government Department / Authority / PSU / Ministries / Defense etc. in India. The Bid may be considered as non-compliance / non-responsive in case this requirement is not fully met by the Bidder(s). The Bidder shall submit the certificate from each OEM in the format given below, fully complying to this requirement.

**\*Material Approval Certificate (MAC) – To be filled for every key component and all its sub-component proposed. The technical datasheet of the OEM relevant and specific to the proposed make & model must only be enclosed along with the MAC.**





Project		Service Provider:		Client:				
				National Highways Authority of India				
Location:								
<b>Material Approval Certificate</b>				Discipline (ITS/ARC/CV/MEP/EE)	(to be filled in by NHA)			
Document No.		(to be filled in by Service Provider)		Date Close Out	(to be filled in by NHA)			
<b>Service Provider</b>				Contract No.				
We request the approval to the following for use on the above contract				Date				
Document Title								
Works / Building								
Sub-Location								
Contractor / Sub-Contractor / OEM								
Contract Specifications Clause								
Technical Details (Make, model, country of origin, MTTR, MTBF, OEM warranty, end of life and other tech. details as applicable for each)								
Construction Drawing No. / Reference								
Estimated Date Required On Site								
Enclosures (samples, data, data sheet, test results, technical documentation, etc.)								
Meets / Doesn't Meets Requirement		<input type="checkbox"/> Yes	<input type="checkbox"/> No	In case of non-compliance please submit comparison statement				
We certify that the above submitted item has been reviewed in detail and is correct and in strict conformance with the contract, drawings and specifications except as otherwise stated above.								
Date								
Name		Authorized Representative of Service Provider						
<b>Client</b>		Date received						
Routing:	Project Manager	Architectural	Civil	IT	Electronics	Electrical	MEP	Contact/Billing Dept
For action								
For info								
<input type="checkbox"/>	Approved	<input type="checkbox"/>	Approved with comments	<input type="checkbox"/>	Rejected			
Comments:								
Date Approved/Rejected				Date Authorized				
Name				Name				
Authorized Representative of NHA								







**Form PER - 1: Proposed Personnel**

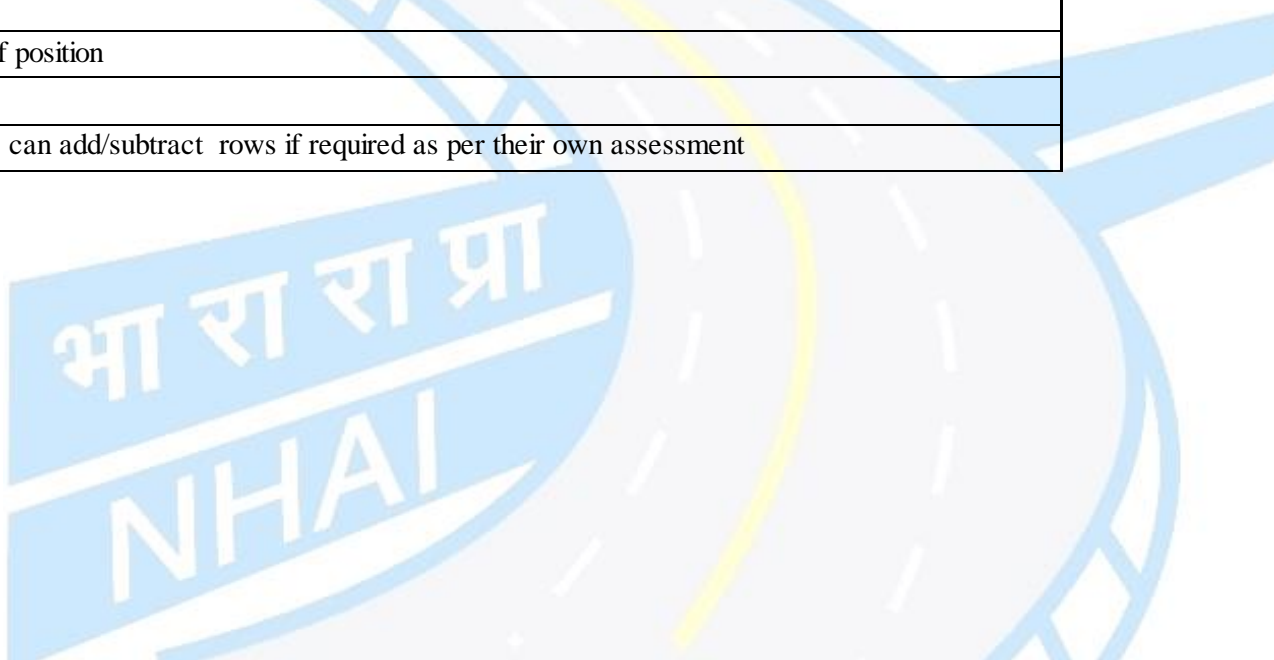
**Sub.: RFP for Video Incident Detection System (VIDS) for National Highways**

**Ref:** RFP No. NHAI/VIDS Z1/001/03-2021 dated 03/03/2021 **on above subject.**

Dated: ..... /...../2021

*[The Bidder shall provide the names of suitably qualified personnel to meet the specified requirements stated in ToR.]*

1.	Title of position
	Name
2.	Title of position
	Name
3.	Title of position
	Name
4.	Title of position
	Name
	Bidder can add/subtract rows if required as per their own assessment



**Form PER - 2: Resume of Proposed Personnel****Sub.: RFP for Video Incident Detection System (VIDS) for National Highways****Ref:** RFP No. NHAI/VIDS Z1/001/03-2021 dated 03/03/2021 on above subject.

Dated: ..... /...../2021

*[The Bidder shall provide the data on the experience of the personnel indicated in Form PER-1, in the form below.]*

Name of Bidder

Passport size  
recent color  
photograph of the  
candidate

**1. Proposed Position** : .....**2. Name of the Candidate** (in Block letters) : .....**3. Father's/Husband's Name** : .....

**4. (a) Date of Birth** in Christian era : .....  
(in dd/mm/yyyy format)  
(Please furnish proof of age)

**(b) Age as on bid due date** :..... Yrs, ... Months &, .... Days**5. Permanent Address** : .....**6. Address for Correspondence** : .....**7. E-mail address, Phone Numbers** : Email: .....

Mobile: .....

**8. Details of Educational Qualifications from Matriculation onwards***(Please furnish proof of qualifications)*

Sl. No.	(1)	(2)	(3)	(4)	(5)
Examination passed	Year of passing	Name of College / Institute	University / Board	Main subjects	Percentage of marks obtained



Sl. No.	(1)	(2)	(3)	(4)	(5)
Examination passed	Year of passing	Name of College / Institute	University / Board	Main subjects	Percentage of marks obtained

**9. Experience**

Total Experience : ..... Yrs, ..... Months &, ..... Days  
 Relevant Experience : ..... Yrs, ..... Months &, ..... Days

**10. Details of experience of each employment (in chronological order):**

In case of change in posting held within the same employer, please fill in details separately.

1	Name and Address of the organization	Position held	Period of tenure		Responsibilities / Job Profile 1 2 3 4
			From DD/MM/YYYY	To DD/MM/YYYY	
	Technical details of project experience				

2	Name and Address of the organization	Position held	Period of tenure		Responsibilities / Job Profile 1 2 3 4
			From DD/MM/YYYY	To DD/MM/YYYY	
	Detailed description of project experience				

3	Name and Address of the organization	Position held	Period of tenure		Responsibilities / Job Profile 1 2 3 4
			From DD/MM/YYYY	To DD/MM/YYYY	
	Detailed description of project experience				



4	Name and Address of the organization	Position held	Period of tenure		Responsibilities / Job Profile
			From	To	
			DD/MM/YYYY	DD/MM/YYYY	
	Detailed description of project experience				

*Note: In case of more than 4 employments, the relevant details in prescribed format be added.*

#### Certification by Candidate :

- I am willing to work on the project and I will be available for entire duration of the project assignment and I will not engage myself in any other assignment during the currency of this assignment on the project
- I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualification and experience. In case NHAI discovers anything contrary to above, NHAI would be at liberty to remove the personnel from the present assignment and debar him for an appropriate period to be decided by NHAI.
- I, have not left any assignment with the consultants/ agencies/ contractors engaged by NHAI/ contracting firm for any continuing works of NHAI without completing my assignment. I will be available for the entire duration of the current project. If I leave this assignment in the middle of the work, I may be debarred for an appropriate period to be decided by NHAI. I have also no objection if my services are extended by NHAI for this work in future.

Signature of the Candidate

Place:

Date:

#### Undertaking from Contractor

The undersigned on behalf of ..... (name of Contractor) certify that Shri.....(name of the proposed personnel and address) to the best of our knowledge has not left his assignment with any other firm engaged by NHAI / contracting firm for the ongoing projects and he is currently not engaged with any other firm engaged by NHAI / contracting firm for the ongoing projects. We understand that if the information about leaving the past assignment with MORT&H/NHAI without completing his assignment is known to NHAI, NHAI would be at liberty to remove the personnel from the present assignment and debar him for an appropriate period to be decided by NHAI.

Signature of the Authorized Representative

Place:

Date:

#### Note:

Each page of the CV shall be signed in ink by both the staff member and the Authorized Representative of the firm. Photocopies will not be considered.



**Form SUB: Proposed Subcontractors for Major Items of Equipment and Installation Services****Sub.: RFP for Video Incident Detection System (VIDS) for National Highways****Ref:** RFP No. NHAI/VIDS Z1/001/03-2021 dated 03/03/2021 **on above subject.**

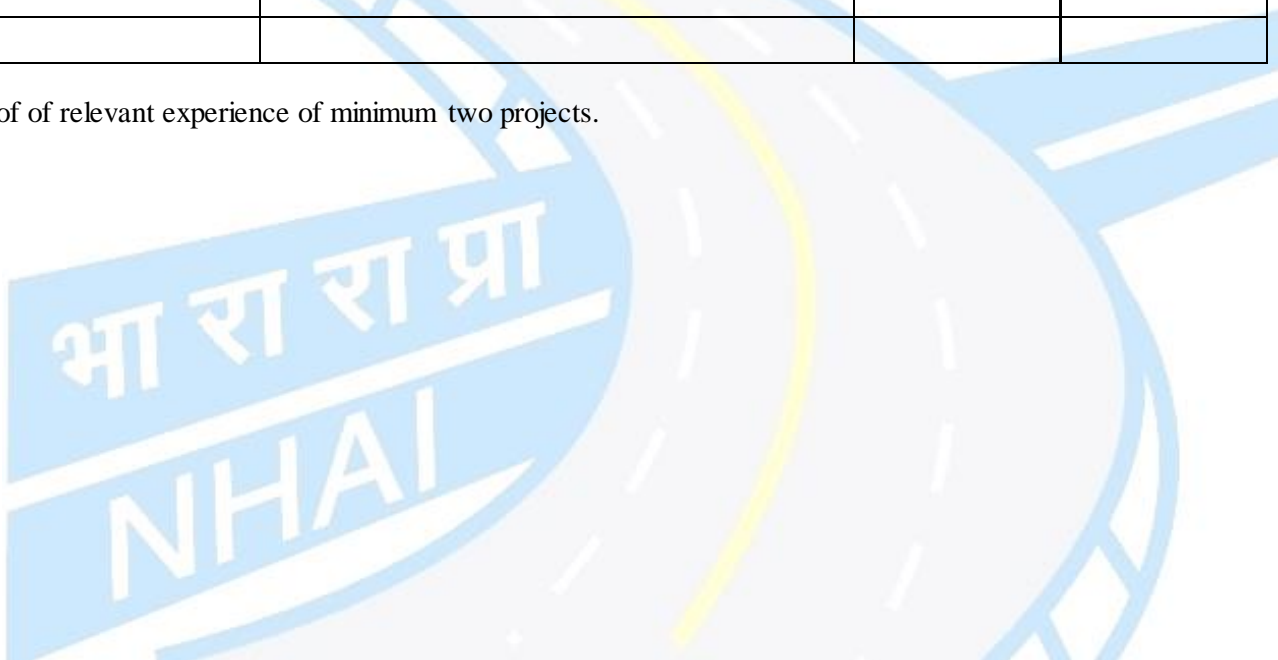
Dated: ..... /...../2021

A list of major items of Plant and Installation Services is provided below.

The following Subcontractors and/or manufacturers are proposed for carrying out the item of the facilities indicated. Bidders shall propose only one subcontractor and / or manufacturer for each item.

Major Items of Plant and Installation Services	Proposed Subcontractors/Manufacturers	Nationality	Reference Project*

\*Attach proof of relevant experience of minimum two projects.





**Form MAN: Manufacturer's Authorization**

[The Bidder shall require the Manufacturer to fill in this Form in accordance with the instructions indicated. This letter of authorization should be signed by a person with the proper authority to sign documents that are binding on the Manufacturer.]

**Sub.: RFP for Video Incident Detection System (VIDS) for National Highways**

**Ref:** RFP No. NHAI/VIDS Z1/001/03-2021 dated 03/03/2021 **on above subject.**

To:

General Manager (Tech)  
National Highways Authority of India  
G 5&6, Sector-10, Dwarka  
New Delhi – 110075

**WHEREAS**

We [insert complete name of Manufacturer or Manufacturer's authorized agent], who are official manufacturers of [insert type of goods manufactured], having factories at [insert full address of Manufacturer's factories], do hereby authorize [insert complete name of Bidder] to submit a Bid the purpose of which is to provide the following goods, manufactured by us [insert name and/or brief description of the goods], and to subsequently negotiate and sign the Contract.

We hereby extend our full guarantee and warranty in accordance with RFP requirement, Defect Liability, of the Contract, with respect to the goods offered by the above firm.

Name: [insert complete name of person signing the Bid]

In the capacity of [insert legal capacity of person signing the bid]

Signed: [insert signature of person whose name and capacity are shown above]

Duly authorized to sign the bid for and on behalf of: [insert complete name of Bidder]

Dated on \_\_\_\_\_ day of \_\_\_\_\_, 2021 [insert date of signing]



Quality Certificate from OEM

(To be enclosed with MAC of each Component / Sub-Component)

**Sub.: RFP for Video Incident Detection System (VIDS) for National Highways**

**Ref:** RFP No. NHAI/VIDS Z1/001/03-2021 dated 03/03/2021 on above subject.

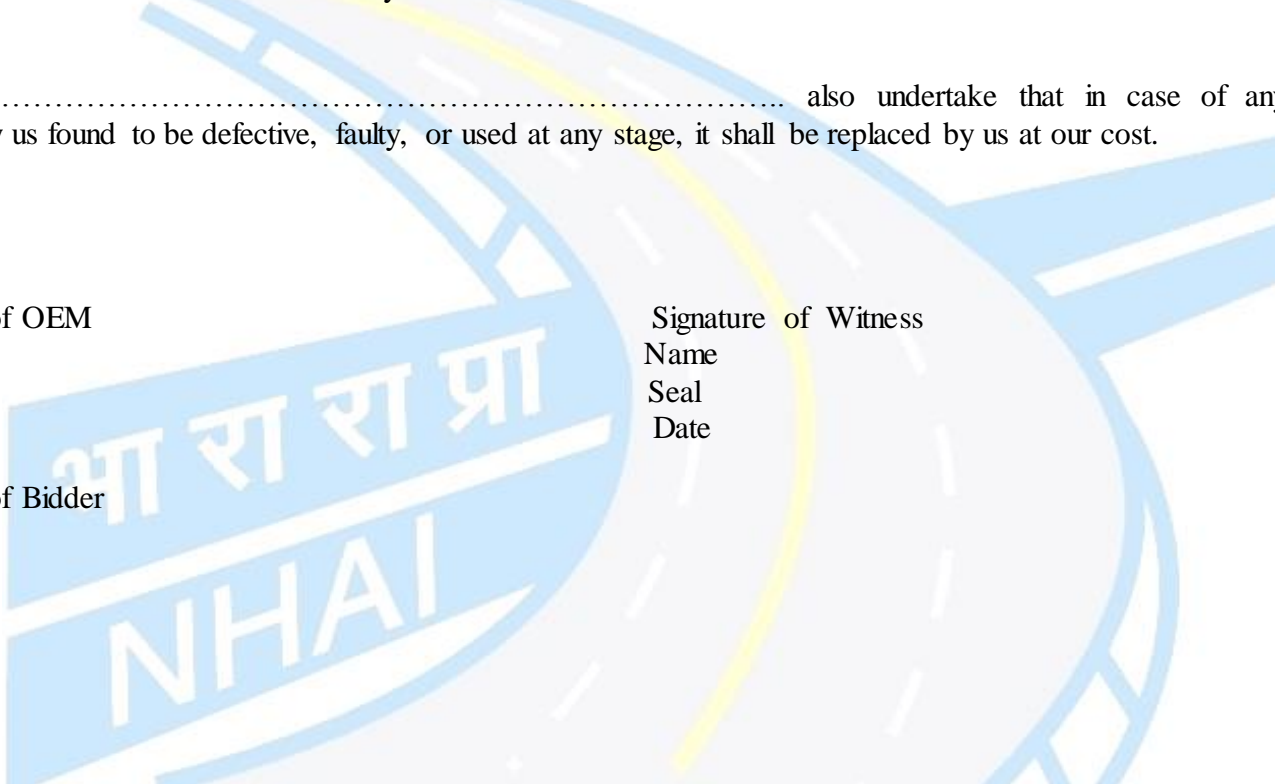
We \_\_\_\_\_ (Name and address of OEM) certify that everything to be supplied by us hereunder shall be brand new, free from all encumbrances, defects and faults in material. Workmanship and manufacturing shall be of highest grade and quality and consistent with the established and generally accepted standards. Materials of the type ordered shall be in full conformity with the specifications, drawings or samples, if any, and shall operate properly. It is also certified that the supplied items / equipment's have not been sourced from OEM backlisted by Government of India or firms of anti-national antecedents.

We, M/s ..... also undertake that in case of any item supplied by us found to be defective, faulty, or used at any stage, it shall be replaced by us at our cost.

Signature of OEM  
Name  
Seal  
Date

Signature of Witness  
Name  
Seal  
Date

Signature of Bidder  
Name  
Seal  
Date





**Form T-10 Details of Certification(s), Affiliation(s),  
Authorised Partner(s) of OEM/Other leading technology providers/  
System Integrators, supported with certified copies.**

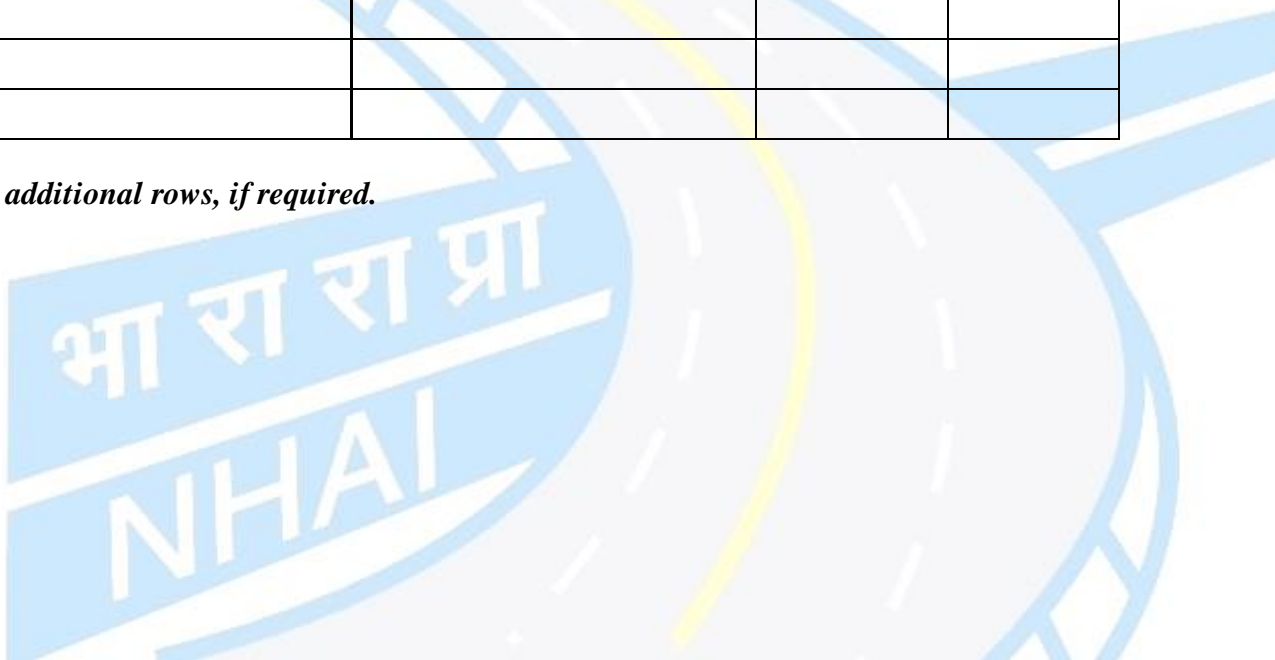
**Sub.: RFP for Video Incident Detection System (VIDS) for National Highways**

**Ref:** RFP No. NHAI/VIDS Z1/001/03-2021 dated 03/03/2021 on above subject.

Dated: ..... /...../2021

Sr. No.	Particulars of Certification(s), Affiliation(s), International rating(s), Authorised Partner(s)	Details of Technology Partner or Agency granting certification, affiliation, etc.	Year of Achievement	Validity (if any)
1				
2				
3				
4				
5				
6				

*Please add additional rows, if required.*







**Form T-11**

**Bid Securing Declaration**

I hereby submit a declaration that the bid submitted by the undersigned, on behalf of the bidder, **[Name of the bidder]**, either sole or in JV, shall not be withdrawn or modified during the period of validity i.e. not less than 180 (one hundred eighty) days from the bid due date.

I, on behalf of the bidder, **[Name of the bidder]**, also accept the fact that in case the bid is withdrawn or modified during the period of its validity or if we fail to sign the contract in case the work is awarded to us or we fail to submit a performance security before the deadline defined in clause 1.3 of the Request for Proposal (RFP), then [Name of the bidder] will be suspended for participation in the tendering process for the work of MoRTH/NHA I/NHIDCL and work under other Centrally Sponsored Schemes, for a period of 1 (One) Year from the bid due date of this work.

For\_\_\_\_[Name of the bidder].

(Signature, name and designation of the Authorised Signatory) (Official Seal)

Date:

Place:

**Form T-12: PROFORMA FOR SUBMITTING WRITTEN QUERIES**

*(To be submitted in doc/editable format only at the given email address<sup>5</sup>)*

**Sub.: RFP for Video Incident Detection System (VIDS) for National Highways**

**Ref:** RFP No. NHAI/VIDS Z1/001/03-2021 dated 03/03/2021 **on above subject.**

Dated: ..... /...../2021

Name of Company: \_\_\_\_\_,

Name of Person \_\_\_\_\_

Contact No. \_\_\_\_\_,

Email Id: \_\_\_\_\_

S.	Page no. of RFP	Clause	RFP Statement	Query	Remarks

\_\_\_\_\_

**Form T-13: Data Sheet for Technical Score**

**Data Sheet for Technical Score:** The bidder shall submit the self-appraised score along with supporting document substantiating the score claimed in each parameter duly signed by the authorised signatory.

S. N.	Criteria	Score
(a)	<b>No. of Years of experience of the bidder</b> (maximum score 10)	
(a.1)	Experience is 3 years or more but less than 5 years	7.5
(a.2)	Experience is 5 years or more but less than 7 years	8.5
(a.3)	Experience is 7 years or more	10.0
(b)	<b>Technical strength as per eligibility criteria</b> (maximum score 10)	
(b.1)	Parameter	Score / unit
(b.2)	Each work of INR. 12 Crores or above	7.5
(b.3)	Each work of INR. 7.5 Crores or above	3.75
	Each work of INR. 6 Crores or above	2.5
	<b>Evaluated score =</b>	$7.5*x + 3.75*y + 2.5*z$ Subject to max 10
(c)	<b>Turnover of the Bidder in last three financial years</b> (maximum score 20)	
(c.1)	Average turnover equal to 9 Crore	15.0
(c.2)	Average turnover more than 9 Crore or more but less 60 Crore	To be linearly interpolated to nearest 0.5
(c.3)	Average turnover equal to 60 Crore or more	20.0
(d)	<b>Specific Experience in Key Activities (on the project(s) considered in (b) above</b> (maximum score 40)	
(d.1)	<b>Traffic Monitoring/Peripheral Surveillance Camera System (maximum score 10)</b>	
	50 Cameras or less	0
	51 to 150 Cameras	7.5
	151 and above cameras	10.0
(d.2)	<b>Video Incident Detection System/ Violation Detection / RLVD (maximum score 20)</b>	
	100 or less	0
	101 to 300	15
	301 and above	20.0
(d.3)	<b>Traffic Management Centre/ Control Centre with all above components (d.1 to d.2) integrated with central application (maximum score 10)</b>	
	No Experience	0
	Control Centre with up to 100 camera system	7.5
	Control Centre with 101 to 200 camera system	8.5
	Control Centre with above 201 camera system	10.0
(e)	<b>Manufacturing of Cameras proposed for VIDS</b> (as per DPIIT Order no. P-45021/2/2017-PP (BE-II) dated 04.06.2020 (revised "Public Procurement (Preference to Make in India) Order 2017") (maximum score 20)	
	Non-Local supplier	0
	Class-II Local supplier	15.0
	Class-I Local supplier	20.0
<b>Total</b>		<b>100.0</b>



**Important:** Minimum technical score to qualify for evaluation of technical proposal is 75% marks out of total 100 marks.





**Form F-1: Format for Financial Bid Submission***(For sample only, actual Format to be downloaded from e-tender portal for on-line submission)***Sub.: RFP for Video Incident Detection System (VIDS) for National Highways****Ref: RFP No. NHAI/VIDS Z1/001/03-2021 dated 03/03/2021 on above subject.**

Dear Sir,

I/We, the undersigned having examined the above referred RFP including addendums thereof and, hereby offer to submit our bid to undertake the subject assignment with total bid value as per milestone and break-up furnished below.

**Form F-1: Format for Financial Bid Submission**
**Part-I- Supply, installation, operation & maintenance charges inclusive of RCC and IMS sub-centers**

<b>RFP for Video Incident Detection System (VIDS) for National Highways</b>						
<b>No.</b>	<b>ATMS Component</b>	<b>No. of Locations</b>	<b>Months</b>	<b>Per unit per month cost per locations (INR) including all statutory taxes, levies, royalties etc. but excluding GST</b>	<b>Total (INR) including all statutory taxes, levies, royalties etc. but excluding GST</b>	<b>GST (INR)</b>
<b>1</b>	Amount for installation, operation & maintenance of VIDS at one junction per month	100	60			

**Part-II – Equipment Relocation Charges**

<b>Sr. No.</b>	<b>Description</b>	<b>Duration* in days</b>	<b>Rate per location# including all statutory taxes, levies, royalties etc. but excluding GST (INR)</b>	<b>GST (INR)</b>
<b>1</b>	<b>Relocation charges for VIDS equipment</b>			
1.a.	Within radius 50 kms of existing location	<b>3 days</b>		
1.b.	Within radius of 50 to 200 kms from existing location	<b>5 days</b>		
1.c.	Relocation to any other location within the Zone beyond 200 km radius	<b>7 days</b>		
<b>2</b>	<b>Relocation charges for Regional Command Centre equipment</b>	<b>7 days</b>		
<b>3</b>	<b>Relocation charges for Incident Monitoring Sub-</b>	<b>7 days</b>		



	<b>Centres equipment</b>			
--	--------------------------	--	--	--

\*The agency shall relocate the equipment of VIDS upon receiving writing instructions from NHAI within the time frame indicated above failing which the rates as above will be reduced on pro-rata basis and if the delay persists the same shall be levied in the form of penalty per day of delay also on pro-rata basis.

# Bidder shall submit the breakup of the rate quoted for each type of relocation job, clearly highlighting the items to be re-used, items that cannot be reused / relocated, transportation charges, re-installation charges, etc. Financial Bid submitted without this breakup shall be considered non-responsive. These rates are only indicative and NHAI reserves the right to reduce these rates if found unreasonable and decision of NHAI in this regard shall be final and binding on the bidder.

#### Notes:

1. The VIDS location per zone is indicative and may be increased by 100% or reduced by 50% at any time during the contract period. The actual monthly service fee payable per VIDS location shall be determined after finalisation of total locations during the Design Phase as per the number of locations actually finalised for implementation. The monthly payment shall be calculated each month on pro-rata basis for the total locations operational in that month.
2. Relocation charges shall be paid along with the monthly payment for the locations successfully relocated i.e. completion of SAT and SIT at relocated site.
3. Indicative list of key components is annexed to this financial bid format (Form F-1), Contractor shall provide item-wise rates for each component proposed as well as any additional item deemed necessary by the Contractor to ensure completeness.
4. Contractor shall also provide comprehensive list of proposed spares for each section.
5. All values must be verified before Submission, in case of any errors/ incompleteness, Contractor shall be responsible, and no additional items/ claims for the payments shall be entertained.
6. Above breakup of rates is only for determining the total bid value. The successful bidder for work award shall be shortlisted based on the Total (INR) including all statutory taxes, levies, royalties etc. but excluding GST. However actual monthly payment payable for each VIDS location shall be regulated based on the actual number of equipment / sub-systems installed at the stretch where services as per ToR were delivered during the billing period.
7. The number of key components for each sub-system mentioned in the list of key components are indicative only and NHAI reserves the right to increase or decrease the number of actual components / locations intended to be covered under the Contract.
8. Relocation Charges shall be negotiated with the Successful Bidder before signing of the Contract and NHAI may consider the bid non-responsive in case the relocation charges are not justified or substantially higher than other responsive bidders.
9. I/We do hereby confirm that my/ our bid price includes all statutory taxes/ levies but excluding service tax/ GST (as applicable on the services). I/ We also declare that any tax, surcharge on tax and / or any other levies, if altered in future and payable under the law, the same shall be borne by me/ us.
10. The quoted rates for all items shall remain unchanged for entire term of the Contract Agreement. In case there is increase or decrease in any item(s) to be installed on any CC unit requisitioned by NHAI, then the payments to the Contractor shall get increased or decreased, as the case may be, in reference to the quoted price in the financial bid and/or as assessed by the NHAI (or its representatives) in case item is not mentioned in the financial bid.
11. This bid is **valid** for a period of **120 calendar days** from the bid due date. However, NHAI reserves the right to increase the validity period before the expiry of the validity period of 120 days.



12. I/ We, understand that the

- (a) applicable service tax/ GST (as applicable on services) shall be reimbursed by NHAI separately on production of proof of payment and CA certificate; and
- (b) TDS will be deducted against payments as per Applicable Law.
- (c) In case of any difference in figures and words, the amount mentioned in words will prevail.

Yours sincerely,

Name .....

Designation/ Title of the Authorized Signatory.....



Annexure to Form F-1 -Deleted





## FORMAT FOR SUBMISSION OF PBG

### Performance Bank Guarantee (PBG)

To,  
The Chairman,  
National Highways Authority of India  
Plot Nos. G-5 & 6, Sector-10  
Dwarka, New Delhi – 110075  
India

WHEREAS M/s \_\_\_\_\_ [Name and address of Agency] (hereinafter called "the Contractor") has applied in pursuance to NHAI's Notice Inviting Tender (NIT) against RFP No. NHAI/VIDS Z1/001/03-2021 dated 03/03/2021 for "Design, Supply Installation, Testing, Commissioning, Configuration, System Integration, Operations and Maintenance of Comprehensive System for Video Incident Detection System (VIDS) for National Highways" and has been adjudged successful bidder vide Letter of Award (LoA) No. .... dated ..... and has been asked to sign a Contract Agreement in terms of the said RFP.

AND WHEREAS it has been stipulated by NHAI in the said letter that the Contractor shall furnish a Bank Guarantee for the sum specified therein as security for compliance with his obligations in accordance with the terms & conditions of contract.

AND WHEREAS we have agreed to give the Contractor such a Bank Guarantee:

NOW THEREOF we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Contractor up to a total of ` ...../- (Rupees ..... ) only, such sum being payable in the types and proportions of currencies in which the Contract Price is payable, and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of ` ...../- as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

1. We hereby waive the necessity of your demanding the said debt from the Contractor before presenting us with the demand.
2. We further agree that no change or addition to or other modification of the terms of the Contractor or of the works to be performed thereunder or of any of the Contract documents which may be made between you and the Contractor shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.
3. We undertake to pay to the NHAI any money so demanded notwithstanding any dispute or disputes raised by the Contractor(s) in any suit or proceedings pending before any Court or Tribunal relating thereto our liability under this present being absolute and unequivocal. The payment so made by us under this bond shall be a valid discharge of our liability for payment thereunder and the Contractor(s) shall have no claim against us for making such payment.
4. The liability of the Bank under this Guarantee shall not be affected by any change in the constitution of the Contractor or of the Bank.
5. This guarantee shall also be operatable at our \_\_\_\_\_ branch at New Delhi, from whom, confirmation regarding the issue of this guarantee or extension/ renewal thereof shall be made available on demand. In the contingency of this guarantee being invoked and



payment thereunder claimed, the said branch shall accept such invocation letter and make payment of amounts so demanded under the said invocation.

6. This bank guarantee shall be valid from .....

7. Notwithstanding anything contained herein:

- (i) Our liability under this Bank Guarantee shall not exceed ...../-
- (ii) The Bank Guarantee shall be valid up to.....
- (iii) We are liable to pay the Guarantee amount or any part thereof under this Guarantee only and only if you serve upon us a written claim or demand on or before .....

Date :

Name:

Designation:

Employee Code Number:

Telephone Number:

Name of issuing bank branch \_\_\_\_\_

Address \_\_\_\_\_

Telephone number \_\_\_\_\_

E-mail: \_\_\_\_\_

Name of controlling bank branch \_\_\_\_\_

Address \_\_\_\_\_

Telephone number \_\_\_\_\_

E-mail: \_\_\_\_\_

Name of bank branch at New Delhi \_\_\_\_\_

Address \_\_\_\_\_

Telephone number \_\_\_\_\_

E-mail: \_\_\_\_\_



## **PART-IV DRAFT FORM OF CONTRACT AGREEMENT**





## DRAFT CONTRACT AGREEMENT

No. ....

This Contract Agreement (hereinafter called the “Contract”) is made on this \_\_\_\_ day of the month of \_\_\_\_\_, 2021.

### BETWEEN

National Highways Authority of India (NHAI), constituted by an Act of Parliament, The National Highways Authority of India Act, 1988, and having its head office at G 5 & 6, Sector 10, Dwarka, New Delhi-110075 (hereinafter referred to as the “NHAI”, which expression shall, unless repugnant to or inconsistent with the context, mean and include its successors and assigns) of the first part.

### AND

M/s \_\_\_\_\_, a company incorporated under the provisions of the Companies Act, 1956 and having its registered office at \_\_\_\_\_ (for and on behalf of Consortium comprising.....and (collectively the “Consortium”) with.....as its lead member (the “Lead Member”)) (hereinafter referred to as the “Contractor” which expression shall unless repugnant to or inconsistent with the context, mean and include its successors and assigns) of the OTHER PART.

### WHEREAS

- (a) the Contractor, in the ordinary course of its business, is engaged in providing similar services to their clients, and have represented to NHAI through their bids, against RFP for Video Incident Detection System (VIDS) for National Highways, RFP No. NHAI/VIDS Z1/001/03-2021 dated 03/03/2021 on above subject. (hereinafter called the “Tender”) for “Design, Supply Installation, Testing, Commissioning, Configuration, System Integration, Operations and Maintenance of Comprehensive System for Video Incident Detection System (VIDS) for National Highways” that they have the required professional skills, personnel and technical resources to provide the required Services;
- (b) on the basis of the said Tender, NHAI has adjudged the Contractor as a Successful Bidder and issued Letter of Award (LoA) No. .... dated \_\_.\_\_.2021 for the same;
- (c) the Contractor has agreed through their letter of acceptance No ..... dated ..... to provide the said Services on the terms and conditions set forth in this Contract Agreement and has also submitted performance bank guarantee equivalent to ..... (Rs. ....) such that it remains valid until one year beyond completion of the contract.

NOW THEREFORE, in consideration of the foregoing and the respective covenants and agreements set forth in this Contract Agreement, the receipt and sufficiency of which is hereby acknowledged, and intending to be legally bound hereby, the Parties hereby agree as follows:

1. The mutual rights and obligations of the Contractor and NHAI shall be as set forth in this Contract Agreement, in particular:
  - (a) The Contractor shall carry out the Services in accordance with the provisions of the Contract; and





- (b) NHAI shall make payments to the Contractor in accordance with the provisions of the Contract.
2. The following schedules/ appendices shall be deemed to form and be read and construed as part of this Contract Agreement viz.

- (a) Schedule A: Conditions of Contract
- (b) Schedule B: Terms of Reference
- (c) Appendices:
- Appendix A Copy of Financial Bid of the Contractor
- Appendix B Letter of Award issued by NHAI.
- Appendix C Letter of Acceptance submitted by the Contractor
- Appendix D Copy of the Performance Security submitted by the Contractor including copies of confirmation provided by the respective bank.
- Appendix E Copy of the Technical Bid and/or any subsequent correspondence of the Contractor/ NHAI
- Appendix F Copy of RFP Document and subsequent amendment / addendum including Minutes of Pre-bid Meeting, if any

IN WITNESS WHEREOF, the parties hereto have caused this Contract Agreement to be executed by their respective authorized representatives on the day and year first before written.

FOR AND ON BEHALF OF  
(National Highways Authority of India)  
(Authorized Representative)  
Name : \_\_\_\_\_  
Designation \_\_\_\_\_  
National Highways Authority of India  
G-5&6, Sector – 10, Dwarka  
New Delhi – 110075

In the presence of following witnesses:

Name : \_\_\_\_\_  
Designation \_\_\_\_\_  
National Highways Authority of India  
G-5&6, Sector – 10, Dwarka  
New Delhi – 110075

Name : \_\_\_\_\_  
Designation \_\_\_\_\_  
National Highways Authority of India  
G-5&6, Sector – 10, Dwarka  
New Delhi – 110075

FOR AND ON BEHALF OF  
(M/s \_\_\_\_\_)  
(Authorized Representative)  
Name : \_\_\_\_\_  
Designation : \_\_\_\_\_  
M/s \_\_\_\_\_  
Address : \_\_\_\_\_

Name : \_\_\_\_\_  
Designation : \_\_\_\_\_  
M/s \_\_\_\_\_  
Address : \_\_\_\_\_

Name : \_\_\_\_\_  
Designation : \_\_\_\_\_  
M/s \_\_\_\_\_  
Address : \_\_\_\_\_



## DEFINITIONS AND INTERPRETATIONS

### 1.1 Definition

The words and expressions beginning with capital letters and defined in this Contract Agreement shall, unless the context otherwise requires, have the meaning ascribed thereto herein and the words and expressions defined in the Schedules and used therein shall have the meaning ascribed thereto in the Schedules annexed hereto. Words used in capitals and not defined herein but defined in the RFP shall have the meaning as ascribed thereto in the RFP.

### 1.2 Interpretation

1.2.1 In this Contract Agreement, unless the context otherwise requires,

- a) references to any legislation or any provision thereof shall include amendment or re-enactment or consolidation of such legislation or any provision thereof so far as such amendment or re-enactment or consolidation applies or is capable of applying to any transaction entered into hereunder;
- b) references to laws of India or Indian law or regulation having the force of law shall include the laws, acts, ordinances, rules, regulations, bye laws or notifications which have the force of law in the territory of India and as from time to time may be amended, modified, supplemented, extended or re-enacted;
- c) references to a “**person**” and words denoting a natural person shall be construed as a reference to any individual, firm, company, corporation, society, trust, government, state or agency of a state or any association or partnership (whether or not having separate legal personality) of two or more of the above and shall include successors and assigns;
- d) the table of contents, headings or sub-headings in this Contract Agreement are for convenience of reference only and shall not be used in, and shall not affect, the construction or interpretation of this Contract Agreement;
- e) the words “**include**” and “**including**” are to be construed, without limitation and shall be deemed to be followed by “**without limitation**” or “**but not limited to**” whether or not they are followed by such phrases;
- f) any reference to any period of time shall mean a reference to that according to Indian Standard Time;
- g) any reference to day shall mean a reference to a calendar day;
- h) references to a “**business day**” shall be construed as a reference to a day (other than a Sunday and holidays) on which banks in their respective States are generally open for business;
- i) any reference to month shall mean a reference to a calendar month as per the Gregorian calendar;
- j) references to any date, period or time shall mean and include such date, period or time as may be extended pursuant to this Contract Agreement;



- k) any reference to any period commencing “**from**” a specified day or date and “**till**” or “**until**” a specified day or date shall include both such days or dates; provided that if the last day of any period computed under this Contract Agreement is not a business day, then the period shall run until the end of the next business day;
- l) the words importing singular shall include plural and vice versa;
- m) “**lakh**” means a hundred thousand (100,000) and “**crore**” means ten million (10,000,000);
- n) references to the “**winding-up**”, “**dissolution**”, “**insolvency**”, or “**reorganization**” of a company or corporation shall be construed so as to include any equivalent or analogous proceedings under the law of the jurisdiction in which such company or corporation is incorporated or any jurisdiction in which such company or corporation carries on business including the seeking of liquidation, winding-up, reorganization, dissolution, arrangement, protection or relief of debtors;
- o) save and except as otherwise provided in this Contract Agreement, any reference at any time to any agreement, deed, instrument, license or document of any description shall be construed as reference to that agreement, deed, instrument, license or other document as amended, varied, supplemented, modified or suspended at the time of such reference; provided that this Sub-clause shall not operate so as to increase liabilities or obligations of NHAI hereunder or pursuant hereto in any manner whatsoever;
- p) any agreement, consent, approval, authorization, notice, communication, information or report required under or pursuant to this Contract Agreement from or by any Party shall be valid and effective only if it is in writing under the hand of a duly authorized representative of such Party, as the case may be, in this behalf and not otherwise;
- q) the Schedules and Recitals to this Contract Agreement form an integral part of this Contract Agreement and will be in full force and effect as though they were expressly set out in the body of this Contract Agreement;
- r) references to Recitals, Articles, Clauses, Sub-clauses or Schedules in this Contract Agreement shall, except where the context otherwise requires, mean references to Recitals, Articles, Clauses, Sub-clauses and Schedules of or to this Contract Agreement and references to a Paragraph shall, subject to any contrary indication, be construed as a reference to a Paragraph of this Contract Agreement or of the Schedule in which such reference appears; and
- s) the damages payable as set forth in this Contract Agreement, whether on per diem basis or otherwise, are mutually agreed genuine pre-estimated loss and damage likely to be suffered and incurred by the Party entitled to receive the same and are not by way of penalty (the “**Damages**”);
- t) “**Arbitration Act**” means the Arbitration and Conciliation Act, 1996 and shall include modifications to or any re-enactment thereof as in force from time to time;
- u) “**SYSTEM**” means “**VIDS System**”



v) “Effective Date” shall mean date of this Contract Agreement;

1.2.2 Any word or expression used in this Contract Agreement shall, unless otherwise defined or construed in this Contract Agreement, bear its ordinary English meaning and, for these purposes, the General Clauses Act 1897 shall not apply.

### **1.3 Arithmetic conventions**

All calculations shall be done to 2 (two) decimal places, with the third digit of 5 (five) or above being rounded up and below 5 (five) being rounded down.

### **1.4 Priority of Agreements, Clauses and Schedules**

1.4.1 In case of inconsistency between the provisions of this Contract Agreement and the RFP, the terms of this Contract Agreement shall prevail to the extent of such inconsistency.

1.4.2 In case of ambiguities or discrepancies within this Contract Agreement, the following shall apply:

- (a) between two or more Clauses of this Contract Agreement, the provisions of a specific Clause relevant to the issue under consideration shall prevail over those in other Clauses;
- (b) between any two Schedules/Articles, the Schedule / Article relevant to the issue shall prevail;
- (c) between the written description on the drawings/design documents, if any, and the Specifications and Standards, the latter shall prevail; and
- (d) between any value written in numerals and that in words, the latter shall prevail.





## SCHEDULE-A

### CONDITIONS OF CONTRACT

#### 15. Scope of Work

The Contractor shall perform the services specified in Terms of Reference at Schedule-B, of this Contract Agreement.

#### 16. Relationship between the Parties

Nothing contained herein shall be construed as establishing a relationship of master and servant or of principal and agent as between NHAI and the Contractor. The Contractor, subject to this Contract Agreement, has complete charge of Personnel performing the Services and shall be fully responsible for the Services performed by them or on their behalf hereunder. Contractor shall alone be responsible for the remuneration and statutory compliance with respect to its employees, contractors or representatives. NHAI has no liability w.r.t. the representatives/ employees of the Contractor. Contractor will keep NHAI fully indemnified in this regard.

#### 17. Governing Law and Jurisdiction

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

#### 18. Language

This Contract Agreement has been executed in English, which shall be the binding and controlling language for all matters relating to the meaning or interpretation of this Contract Agreement.

#### 19. Effectiveness of Contract

This Contract Agreement shall come into effect on the date the Contract is signed by both the Parties. The date, the Contract comes into effect is defined as the Effective Date.

#### 20. Commencement of Services

The Contractor shall commence the Services to NHAI as per the Schedule-B of this Contract Agreement.

#### 21. Expiration of Contract

- (a) The term of this Contract Agreement shall be for a period of 5 (five) years and four months with effect from Effective Date, with the initial half year as the implementation period and the balance period starting from immediately succeeding the completion of implementation and up to the end of the term of this Contract Agreement as operation and maintenance period. Any additional implementation work awarded during this five years and four months period shall be adjusted as implementation and O&M in such a manner that the said period does not exceed beyond the initial five years and four months or additional extended period thereof, if approved by NHAI, as the case may be.
- (b) The Agreement Period may be further extended for a period of another two years on the existing terms and conditions subject to satisfactory performance and continued requirement of NHAI at its sole discretion.

**22. Assignment**

This Contract Agreement shall not be assigned by the Contractor to any person / agency save and except with the prior consent in writing of NHAI and NHAI shall be entitled to decline without assigning any reason whatsoever.

Notwithstanding anything to the contrary contained in this Contract Agreement, NHAI may, after giving 30 days' notice to the Contractor, assign and/ or transfer any of its rights and benefits and/or obligations under this Contract Agreement to an assignee who is, in the reasonable opinion of NHAI, capable of fulfilling all of the NHAI's then outstanding obligations under this Contract Agreement.

**23. Severability**

If for any reason whatsoever any provision of this Contract 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 to 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 the Dispute Resolution Procedure set forth under this Contract Agreement or otherwise.

**24. Notices**

Any notice, request or consent required or permitted to be given or made pursuant to this Contract Agreement shall be in writing. Any such notice, request or consent shall be deemed to have been given or made when delivered in person to an authorized representative of the Party to whom the communication is addressed, or when sent to such Party at the address specified below. The mode of service of any notice shall be either courier or registered post or e-mail or fax or by hand.

The addresses for service of Notice shall be:

**NHAI: General Manager (Tech)**

Address: National Highways Authority of India,  
G-5&6, Sector-10, Dwarka,  
New Delhi - 110075  
E-mail: kamalarora@nhai.org

**Contractor:** .....

Attention: .....

Address: .....

E-mail:.....

## 25. Payment Milestones

Payment shall be made monthly during the Operation & maintenance period only after deduction of necessary penalties as applicable for non-compliance of the Service Level requirements. The service level requirement (SLR) during the O&M period are defined as under:

- I. Accuracy of all the incidents during any time of the day or night will have a weightage of 70 points. The accuracy of VIDS will be assessed by a committee at PIU level by analysing a continuous video of any duration as deemed necessary by the committee from any week of the month and comparing results with the reports generated irrespective of the time of day/night or weather conditions
  - Accuracy more than or equal to 95% - 70 points
  - Accuracy more than or equal to 90% but less than 95% - 60 points
  - Accuracy more than 85% but less than 90% - 50 points
  - Accuracy less than 85% - 0 points with one letter of warning
- II. IT System and Network uptime- will have a weightage of 30 points: It will be defined as "one minus the fraction of unscheduled down time as per relevant period" expressed as a percentage. This is equivalent to the number of actual service hours or fractions thereof delivered compared to the number of agreed scheduled service hours for each calendar month. System will be considered unavailable if any Network Outage happens. The following is the SLR for this item:
  - System uptime- more than equal to 99% - 30 points
  - System uptime- more than equal to 98 but less than 99% - 20 points
  - System uptime- less than 98% - 0 points with one letter of warning
- III. Payment eligibility as per SLR compliance: The payments will be made as per the SLR compliance on an average for all the VIDS locations under the Zone as per the following criteria:
  - 90 to 100 points- 100% of payable will be paid
  - 85 to 89 points- 95% of payable will be paid
  - 80 to 84 points- 90% of payable will be paid
  - Less than 80 points- 80% of payable will be paid along with issuance of a warning letter
  - On attaining warning letter for three consecutive months for either of the above criteria the Authority can proceed for termination of the contract and forfeit the performance security (and APS) of the contractor

### 25.1 Payment during Implementation Period

No payments shall be made during implementation period.

## 26. Project Administration

The NHAI designates *General Manager (Tech)*, HO at Head office of NHAI, as its coordinator, who will be responsible for the coordination of activities under this Contract





Agreement, for acceptance and finalisation of the services and of other deliverables by NHAI and for receiving and approving invoices for the payment.

## **27. Fraud and Corruption**

### **27.1 Definitions**

It is NHAI's policy that NHAI as well as Contractors observe the highest standard of ethics during the selection and execution of such contracts. In pursuance of this policy, NHAI defines, for the purpose of this provision, the terms set forth below as follows:

- (a) "corrupt practice" means the offering, receiving, or soliciting, directly or indirectly, of anything of value to influence the action of a public official in the selection process or in contract execution;
- (b) "fraudulent practice" means a misrepresentation or omission of facts in order to influence a procurement process or execution of a contract with NHAI; and includes collusive practice among bidders, prior to or after bid submission, designed to establish bid prices at artificially high or non-competitive levels and to deprive NHAI of the benefits of free and open competition;
- (c) "collusive practices" means a scheme or arrangement between two or more bidders, with or without the knowledge of NHAI, designed to establish prices at artificial, non-competitive levels;
- (d) "coercive practices" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in a procurement process, or affect the execution of a contract;
- (e) "unfair trade practices" means supply of services different from what is ordered on, or change in the Scope of Work which was not agreed to; and
- (f) "restrictive practices" means forming a cartel or arriving at any understanding or arrangement among bidder(s) with the objective of restricting or manipulating a full and fair competition in the bidding process.

### **27.2 Measures to be taken by NHAI**

- (a) NHAI may terminate the contract if it determines at any time that representatives of the Contractor were engaged in corrupt, fraudulent, collusive or coercive practices during the selection process or the execution of that contract, without the Contractor having taken timely and appropriate action satisfactory to NHAI to remedy the situation;
- (b) NHAI may also sanction against the Contractor, including blacklisting / declaring the Contractor ineligible, either indefinitely or for a stated period of time, to be awarded a contract if it at any time determines that the Contractor has, directly or through an agent, engaged in corrupt, fraudulent, collusive or coercive practices in competing for, or in executing, a contract with NHAI.

## **28. Confidentiality of the Assignment/Findings**

The Contractor shall not, during the term of this Contract Agreement and within three years after its expiration or termination, disclose or permit to be disclosed any proprietary or confidential information relating to the services, this Contract Agreement or the NHAI's business or operations without the prior written consent of NHAI to any third party other than its agents, consultants, or subcontractors who need to know in connection with the purpose for which it was disclosed and who are bound to preserve the confidentiality thereof, to any person outside its organization, any Proprietary Information.

The Contractor and its personnel shall use such Proprietary Information only for the purpose for which it was disclosed and shall not use or exploit such Proprietary Information for its own benefit or the benefit of another without the prior written consent of the NHAI. Without limitation of the foregoing, Contractor shall not cause or permit reverse engineering of any Proprietary Information or recompilation or disassembly of any information or





software programs which are part of the Proprietary Information received by it under this Contract Agreement. For the purposes of this Contract Agreement Proprietary information shall include but not be limited to terms of this Contract Agreement, strategies, official secrets, actual and anticipated research, developments or plans, services, software, source codes, inventions, processes, discoveries, formulas, architectures, concepts, ideas, designs, drawings, personnel, financial information, demonstrations, operations, records, assets, technology, data and information derived whether existing or derived / analysed out of the information made available to the Contractor in form of raw data or reports, in any form whatsoever.

The Contractor alone shall be responsible to ensure the maintenance of confidentiality as contemplated above and shall be responsible to employ sufficient measures to prevent any unauthorised access of the Proprietary information.

## **29. Ownership of Equipment & other conditions**

- (i) All the material and equipment under the project shall be owned by the Contractor throughout the duration of contract.
- (ii) Procurement of any System or its subsystems/ Equipment/ Hardware/Software etc. has not been envisaged through this tender. The Contractor shall be required to provide the services as per the scope of work prescribed herein.
- (iii) The Contractors are advised to offer and propose the latest technologies/ cost effective/ innovative/ best suitable system and equipment for Traffic Scenario on National Highways and conditions at the project sections.
- (iv) Any studies report or other material, data or information otherwise prepared by the Contractor for NHAI under the contract including all related database/ files /back up of images/ videos etc. shall belong to and remain the property of NHAI which will be handed over to NHAI in a condition that it can be made use of by it without having to procure any propriety software/ tool.

## **30. Insurance cover to be maintained**

- (a) All the material and equipment shall be owned by the Contractor throughout the duration of contract and the Contractor shall ensure to maintain proper insurance coverage of its equipment against fire, theft, vandalism or any other perceived risk(s) / natural disaster etc.
- (b) In addition to material and equipment, the Contractor shall also ensure to have adequate insurance for all its personal working/ deployed under this Contract Agreement. The insurance shall also fully cover the personnel / workers / labourers of sub-contractors. In case any worker / labourer claim is not covered by the insurance company, the Contractor shall be responsible for covering the entire expenses for medical, transportation, wages, compensation etc. of the personnel in case of any incident / accident/ mishap / death, etc. Suitable compensation shall be paid by the Contractor to the personnel deployed at the project in case of any incident / accident/ mishap / death, etc. if any happened on the site/ project or in transit, irrespective of the reason. Hence the insurance policy shall be comprehensive and shall cover all types of risks and compensation.
- (c) The Contractor shall indemnify NHAI against any damage/ loss of property or personnel of Contractor working on any site under this Contract Agreement.
- (d) The Contractor shall submit the copy of insurance policies to NHAI within 15 days of issuance of LOA renewal policy within 15 days of the expiry of the policy till the end of the Contract period. Penalty of INR 10,000 shall be levied on the Contractor for delay of each working day from the due day of submission / expiry of the insurance policy documents.



### 31. No partnership

This Contract Agreement shall not be interpreted or construed to create an association, joint venture or partnership between the Parties, or to impose any partnership obligation or liability upon either Party and neither Party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as an agent or representative of, or to otherwise bind, the other Party.

### 32. Intellectual Property Rights

All Intellectual Property of the respective Parties shall continue to vest with the respective Party and one Party may make use of the Intellectual Property only with the express consent of the other Party. However, it is agreed and acknowledged by the Contractor that intellectual property rights in the Proprietary Information as well as any other data or information/ reports generated during the performance of services contemplated herein by the Contractor shall always vest with NHAI and Contractor will not have any right in such IPR whatsoever.

### 33. Force Majeure

Neither party shall in any event be liable for any failure to perform its obligations under this Contract Agreement due to any events beyond the reasonable control of either party or any events of force majeure.

No Party shall be considered in default of performance of its obligations under the terms of this Contract Agreement, if such performance is prevented or delayed for any causes beyond the reasonable control of the Party affected by such event (hereinafter referred to as “**Affected Party**”), including, but not limited to, fire, flood, explosion, acts of God, public disorder, riots, embargoes, or strikes, acts of military authority, epidemics, strikes, lockouts or other labour disputes, insurrections, civil commotion, war, enemy actions which substantially bars the performance of obligations of the Affected Party (hereinafter referred to as “**Force Majeure Event**”)

#### 33.1 Reporting of Force Majeure

If a Force Majeure Event arises in the aforesaid manner, the Affected Party shall within maximum 24 hours notify the other Party in writing of such condition and the cause thereof. However, in case the Contractor claims to have suffered a Force Majeure Event, the Contractor shall continue to perform its obligations under this Contract Agreement as far as is reasonably practical, and shall seek all reasonable alternative means for performance, unless otherwise directed by NHAI.

#### 33.2 Mitigate the Force Majeure Event

Upon occurrence of Force Majeure Event, the Affected Party shall immediately take steps as are reasonably necessary to remove the causes resulting in Force Majeure if within its control and to mitigate the effect thereof. Any costs incurred and attributable to such event or curing of the Force Majeure Event shall be solely borne by the Affected Party.

### 34. Dispute Resolution

- (a) Any dispute or difference whatsoever arising between the parties and of or relating to the construction, interpretation, application, meaning, scope, operation or effect of this Contract Agreement or the validity or the breach thereof, shall be referred to the Society for Affordable Resolution of Disputes (SAROD) and the award made in pursuance thereof shall be final and binding on the parties subject to Provisions of The Arbitration and Conciliation Act, 1996.



- (b) This Contract Agreement shall be governed by, and construed in accordance with, the laws of India and courts at New Delhi shall have exclusive jurisdiction over all disputes arising under, pursuant to and/or in connection with this Contract Agreement.

### **35. Termination**

- (a) Either party may terminate this Contract Agreement due to breach of terms agreed to in this Contract Agreement by the other party. However, the party aggrieved by the breach shall give written notice to the other party to this Contract Agreement indicating that the contract shall be terminated not earlier than 90 days from the date of the receipt of the notice.
- (b) NHAI, in its sole discretion and for any reason whatsoever, may terminate this Contract Agreement for dereliction in performance of stipulated duties by the Contractor.
- (c) Notwithstanding anything stated in this Contract Agreement, in the event of any defaults on part of the Contractor, NHAI shall issue a notice to the Contractor (hereinafter referred to as Cure Period Notice). If the Contractor fails to cure the default within the Cure Period, as stated in the Cure Period Notice, the Contractor shall be deemed to be in default of this Contract Agreement, unless the default has occurred solely as due to Force Majeure or for reasons not attributable to the Contractor. The Cure Period under this Clause shall be calculated from the date of receipt of the notice by the Contractor or when the default comes into the knowledge of the Contractor, whichever is earlier. If the Contractor fails to remedy the default after lapse of cure period notice, NHAI may consider terminating the contract.
- (d) NHAI may also terminate this Contract Agreement if in its judgment the Contractor has engaged in corrupt and fraudulent practice in competing for or in execution / implementation of the project.

### **36. Consequences of Expiry / Termination**

- (a) Upon expiry / Termination, the Contractor shall, without delay or demur, transfer all relevant documents / information/ software application developed under the contract / sources code / back up / data/ permissions to NHAI or any other entity as directed by it;
- (b) Upon expiry / Termination of Contract for any reason whatsoever, the Contractor shall remove/ dismantle the hardware, equipment, and other items installed on the Project with an obligation to make good the premises of the Project as was originally allocated subject to normal wear and tear as per prevalent industry practice.
- (c) Upon Termination (except on account of expiry of Term of this Contract Agreement or Force Majeure), NHAI shall be entitled to appropriate the Performance Security.
- (d) In case of Termination of the Project at the discretion of NHAI due to any reasons not attributable to the Contractor, then the Contractor shall be entitled to get the compensation towards loss suffered for the remaining un-serviced period of the Contract @ 10% of the residual contract value. Contractor acknowledges that the said compensation shall be a reasonable estimation of loss suffered due to such termination. Pursuant to payment of such compensation, the Contractor shall have no further claim against the NHAI w.r.t. this Contract Agreement.

### **37. Survival of rights**

Notwithstanding anything to the contrary contained in this Contract Agreement, any Termination pursuant to the provisions of this Contract Agreement shall be without prejudice to the accrued rights of either Party including its right to claim





and recover money damages, security deposits, and other rights and remedies which it may have in law or contract.

### **38. Indemnification**

- (a) The Contractor shall indemnify, defend, save and hold harmless, NHAI and M/o Road Transport and Highways (M/o RT&H) and its Officers, Agents, Engineer, against any direct loss, damage, claims, cost and expense of whatever kind and nature (including without limitation, legal fees, claims and expenses incurred in connection with any suit, action or proceeding or any claim asserted, such as fees and expenses incurred), joint or several, that arise out of or are based upon any order passed by any statutory authority including courts, tribunals or other judicial/ quasi – judicial authorities, on account of breach of the Contractor's obligations under this Contract Agreement or any other related agreement or otherwise, any fraud or negligence attributable to the Contractor or its Agents or Sub-Contractors, under contract or tort or on any other ground whatsoever, all eventualities of theft, dacoity, robbery, etc., except to the extent that any such suits, proceedings, actions, demands and claims has arisen due to any breach or default of this Contract Agreement on the part of NHAI.
- (b) The Contractor shall indemnify NHAI and M/o RTH of all legal obligations of its professionals deployed. NHAI and M/o RTH also stand absolved of any liability on account of death or injury sustained by the Contractor's staff during the performance of their work and also for any damages or compensation due to any dispute between the Contractor and its staff.
- (c) The remedies provided under this Article are not exclusive and shall not limit any rights or remedies that may otherwise be available to NHAI Indemnified Party at law or in equity.
- (d) The provisions of this Article shall survive Termination.

### **39. Compensation for default by the Contractor**

- 39.1 In the event of the Contractor being in breach of this Contract Agreement, unless such default or delay is on account of Force Majeure or through no fault of the Contractor, the Contractor shall pay to NHAI, all direct costs suffered or incurred by NHAI as a consequence of such breach, within 30 days of receipt of the demand supported by necessary particulars thereof.
- 39.2 The Contractor shall pay to NHAI all direct costs suffered or incurred by NHAI incurred as a result of any and all losses, claims, damages and liabilities (including, without limitation, legal fees and other expenses incurred in connection with any suit, action or proceeding or any claim asserted, such as fees and expenses incurred), joint or several, that arise out of, or based upon:
- (i) any untrue statement or misrepresentation of a material fact provided by the Contractor or an omission to state a material fact required to be communicated;
  - (ii) any non-performance or breach of the roles, responsibilities, representations, warranties, undertakings and declarations contained herein by the Contractor or its directors, employees, personnel or representatives.
  - (iii) negligence, fraud or misconduct of the Contractor or any of its employees, agents, affiliates or advisors.

### **40. Cap on Liability of Parties**

Notwithstanding anything stated herein above and under any circumstances, the liability of Contractor under this Clause for each site shall not exceed the total contract amount.





#### **41. Survival**

The provisions of this Article shall survive Termination.

#### **42. Representation and warranties of the Contractor**

The Contractor declares, represents, and warrants as follows:

- 42.1 It is duly organized and validly existing under the laws of India, and has full power and authority to execute and perform its obligations under this Contract Agreement and to carry out the works and provide services contemplated hereby;
- 42.2 It has taken all necessary corporate actions under Applicable Laws to authorize the execution and delivery of this Contract Agreement and to validly exercise its rights and perform its obligations under this Contract Agreement;
- 42.3 It has obtained all necessary internal/external approvals, registrations and certifications required from relevant authorities and other entities for fulfilling its obligations as set out in this Contract Agreement;
- 42.4 It has not violated any of the conditions subject to which such approvals, registrations and certifications have been granted or any other applicable regulations and / or guidelines or directives or statutes;
- 42.5 It shall ensure that such approvals, registrations and certifications will remain in force, including, by taking prompt steps for timely renewal of the same;
- 42.6 It undertakes to continue to comply with all Applicable Laws with respect to its roles / obligations under this Contract Agreement;
- 42.7 There are no actions, suits, proceedings, or investigations pending before any court or before any other judicial, quasi-judicial or other authority, the outcome of which may result in the breach of this Contract Agreement or which individually or in the aggregate may result in any material impairment of its ability to perform any of its obligations under this Contract Agreement;
- 42.8 It shall at no time sub-contract any of its obligations under this Contract Agreement without the prior permission from NHAI. NHAI. Provided that in case in case the Contractor proposes to sub-contract any of its obligations under this Contract Agreement, it shall seek written permission along with the details of the activities that it proposes to sub-contract to third parties;
- 42.9 No representation or warranty by the Contractor contained herein or in any other document furnished by it to NHAI in relation to Applicable Laws contains or will contain any untrue or misleading statement of material fact or omits or will omit to state a material fact necessary to make such representation or warranty not misleading;
- 42.10 No sums, in cash or kind, have been paid or will be paid, by or on behalf of the Contractor, to any person by way of fees, commission or otherwise for securing the award of this Contract Agreement or for entering into this Contract Agreement or for influencing or attempting to influence any officer or employee of NHAI in connection therewith.



**Schedule B**

**TERMS OF REFERENCE (ToR)**

(To insert contents of Part II i.e. ToR prescribed under RFP Document)





Regional Offices of NHAI covered in Zone-1

S No.	Name of NHAI RO
1	Chandigarh
2	Dehradun
3	UP East
4	UP west
5	Jammu
6	Shimla
7	Delhi

