

**RURAL WORKS DEPARTMENT  
GOVERNMENT OF BIHAR**

**REQUEST FOR PROPOSAL**

**FOR**

**SELECTION OF SYSTEM INTEGRATOR (SI) CUM  
MASTER SERVICE PROVIDER (MSP) FOR  
DEVELOPMENT, MAINTENANCE & OPERATION  
OF DIGITAL PROJECT AND ASSET  
MANAGEMENT INFORMATION SYSTEM  
(DPAMIS) -CUM -INTELLIGENT RURAL ROAD  
MAINTENANCE MONITORING SYSTEM  
(IRRMMS) FOR RURAL WORKS DEPARTMENT,  
BIHAR.**

OCTOBER 2023

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### DISCLAIMER

1. The information contained in this Request for Proposal document ("RFP") or subsequently provided to Bidders, whether verbally or in documentary or any other form by or on behalf of the Client or any of its employees or advisers, is provided to Bidders on the terms and conditions set out in this RFP and such other terms and conditions subject to which such information is provided.
2. This RFP document is neither an agreement nor an offer by the Rural Works Department (RWD) to the prospective Bidders or any other person. The purpose of this RFP is to provide information to the interested parties that may be useful to them in the formulation of their proposal pursuant to this RFP.
3. RWD does not make any representation or warranty as to the accuracy, reliability or completeness of the information in this RFP document and it is not possible for RWD to consider particular needs of each party who reads or uses this RFP document. This RFP includes statements which reflect various assumptions and assessments arrived at by RWD in relation to the consultancy. Such assumptions, assessments and statements do not purport to contain all the information that each Bidder may require. Each prospective Bidder should conduct its own investigations and analyses and check the accuracy, reliability and completeness of the information provided in this RFP document and obtains independent advice from appropriate sources.
4. RWD will not have any liability to any prospective Company/ Firm/ Consortium or any other person under any laws (including without limitation the law of contract, tort), the principles of equity, restitution or unjust enrichment or otherwise for any loss, expense or damage which may arise from or be incurred or suffered in connection with anything contained in this RFP document, any matter deemed to form part of this RFP document, the award of the Assignment, the information and any other information supplied by or on behalf of RWD or their employees, any Bidders or otherwise arising in any way from the selection process for the Assignment. RWD will also not be liable in any manner whether resulting from negligence or otherwise however caused arising from reliance of any Bidder upon any statements contained in this RFP.
5. The Bidder shall bear all its costs associated with or relating to the preparation and submission of its Proposal including but not limited to preparation, copying, postage, delivery fees, expenses associated with any demonstrations or presentations which may be required by the Client or any other costs incurred in connection with or relating to its Proposal. All such costs and expenses will remain with the Bidder and the Client 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 Proposal, regardless of the conduct or outcome of the Selection Process.
6. RWD may in its absolute discretion, but without being under any obligation to do so, update, amend or supplement the information, assessment or assumption contained in this RFP
7. RWD will not be responsible for any delay in receiving the proposals. The issue of this RFP does not imply that RWD is bound to select a Bidder or to appoint the Successful Bidder, as the case may be, for the consultancy and RWD reserves the right to accept / reject any or all of proposals submitted in response to this RFP document at any stage without assigning any reasons whatsoever. RWD also reserves the right to withhold or withdraw the process at any stage with intimation to all who submitted the RFP Application.
8. The information given is not an exhaustive account of statutory requirements and should not be regarded as a complete or authoritative statement of law. RWD accepts no responsibility for the accuracy or otherwise for any interpretation or opinion on the law expressed herein.
9. RWD reserves the right to change / modify / amend any or all provisions of this RFP document. Such revisions to the RFP amended will be made available on the website of RWD.
10. The product, property and assets created/ developed by the agency will belong to RWD only. Data sharing without permission from RWD will not be permitted to the agency.

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Govt. of Bihar

Rural Works Department

Request for Proposal (RFP)

For

Selection of System Integrator (SI) Cum Master Service Provider (MSP) For Development, Maintenance & Operation Of Digital Project And Asset Management Information System (DPAMIS) -Cum -Intelligent Rural Road Maintenance Monitoring System (IRRMMS) For Rural Works Department, Bihar.

Ref no.-

Patna/Dated-

Request for Proposal (RFP) is invited for Selection Of System Integrator (SI) Cum Master Service Provider (MSP) For Development, Maintenance & Operation Of Digital Project And Asset Management Information System (DPAMIS) -Cum -Intelligent Rural Road Maintenance Monitoring System (IRRMMS) For Rural Works Department, Bihar. The Bidding comprising of qualifying information, eligibility criteria and terms of reference, RFP and other details can be downloaded from <https://rwdbihar.gov.in/> as per schedule of dates given.

**Schedule of Dates**

Sl. No.	Description	Date
1	Date of issue of RFP	18-10-2023
2	Period of sale/downloading of RFP Document	From 27.10.2023, 11:00 AM IST to 16.11.2023, 3.00 PM IST
3	Pre-Bid Meeting Date/Time	03.11.2023 at 03:00 PM IST in the Conference Hall of Rural Works Department, Government of Bihar, 5th Floor, Vishwesariya Bhawan, Bailey Road, Patna - 800015.
4	Last Date and Time for Receipt of Proposal	16.11.2023 upto 3:00 PM
5	Date and Time of opening of Pre-Qualification Proposal	16.11.2023 at 3:30 PM
6	Date and Time of opening of Technical Proposal	To be intimated
7	Date and Time of opening of Financial Proposal	Will be informed later on

8	Cost of RFP (Non-refundable) in the form of Demand Draft in favour of "Deputy Secretary, RWD" payable at Patna.	Rs 10,000/-
9	Earnest Money Deposit (EMD) in the shape of Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque or Bank Guarantee from any Scheduled Bank in Bihar drawn/pledged in favour of "Deputy Secretary, RWD" payable at Patna. If the Bank Guarantee is issued from any schedule bank outside Bihar then it will have to be converted to a branch within the state of Bihar.	INR 4,00,00,000/- only (Rupees Four Crores only)

2. The selection of firms would involve three stage bid system (Pre-qualification, Technical and Financial). In the first pre-qualifying stage, the firms will be selected based on the past credentials (Experience of similar project, financial capacity) and who, in the second stage will be evaluated for technical proposal and financial proposal on QCBS Basis with 80:20 weightage for technical and financial scores respectively.
3. The proposal shall be submitted in English language and all correspondences would be in same language.
4. As per the Terms and Conditions of the RFP, the consultant shall perform all the duties as per the Condition TOR given in RFP along with any amendment thereof. The selection of consultant shall follow the laid down procedures given in the RFP document.
5. Cost of RFP will be Rs. 10,000/- (**Non-Refundable**) have to be deposited by bidder in the form of bank demand draft issued from nationalized/ commercial scheduled bank in favour of **Deputy Secretary, RWD, Bihar** payable at **Patna**.
6. Earnest Money Deposit (EMD) of INR 4 Crore in the shape of Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque or Bank Guarantee from any Scheduled Bank in Bihar drawn/pledged in favour of "Deputy Secretary, RWD" payable at Patna. If the Bank Guarantee is issued from any schedule bank outside Bihar then it will have to be converted to a branch within the state of Bihar.
7. Original Demand Draft of Cost of RFP in the form of DD and Earnest Money Deposit (EMD) in the shape of Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque or Bank Guarantee from any Scheduled Bank in Bihar shall be placed in an envelope and must be submitted at the office of Chief Engineer-4, Rural Works Department, Government of Bihar, 5th Floor, Vishweshwaraiya Bhawan, Bailey Road Patna -800015 either by registered post or by hand on and before date and time specified above in Schedule of dates, failing which the proposal will be rejected. Applicants **WILL NOT WRITE THEIR NAMES OR THEIR FIRM'S NAME** on this envelope.
8. When the applicant submits his bid on-line, he will get an acknowledgement of submitted bid. The number mentioned on this acknowledgement only will be mentioned on the envelope containing original affidavit, DD for Bid processing cost and Bid Security. This is essential to maintain the confidentiality of bidder. A copy of acknowledgement slip will be put inside this envelope to ensure proper identification of the bidder.

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9. All the submitted documents shall have the signature of the consultancy firm or their authorized signatories.
10. RWD reserves the right to extend/cancel the tender (RFP) at any stage without assigning any reason thereof.
11. Corrigendum/Addendum/Corrections, if any, will be published on the website: <https://rwdbihar.gov.in/>
12. For any queries regarding e-tendering process kindly contact office of Chief Engineer-4, Rural Works Department, Government of Bihar, 5th Floor, Vishweshwaraiya Bhawan, Bailey Road Patna -800015.

Chief Engineer-4

Rural Works Department

5<sup>th</sup> Floor, Vishweshwaraiya Bhawan

Bailey Road, Patna.

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## Section 1. Letter of Invitation

No. RWD - \_\_\_\_\_

Dated.

Rural Works Department,  
Government of Bihar,  
5<sup>th</sup> Floor, Vishweshwaraiya Bhawan,  
Bailey Road, Patna

Dear Mr./Ms.:

1. Rural Works Department (hereinafter referred as RWD unless the context otherwise requires), Patna invites RFP from registered firms/agencies for selection of System Integrator (SI) Cum Master Service Provider (MSP) For development, maintenance & Operation Of Digital Project And Asset Management Information System (DPAMIS) -Cum -Intelligent Rural Road Maintenance Monitoring System (IRRMMS) For Rural Works Department, Bihar.
2. Interested firms/ Companies/Consortiums may participate in the bidding process by submitting their Tender/Proposals in three envelopes one "Pre-Qualification" second " Technical Bid" and Third for "Financial Bid", contained in a single big size envelope, duly sealed and super scribed as **"SELECTION OF SYSTEM INTEGRATOR (SI) CUM MASTER SERVICE PROVIDER (MSP) FOR DEVELOPMENT, MAINTENANCE & OPERATION OF DIGITAL PROJECT AND ASSET MANAGEMENT INFORMATION SYSTEM (DPAMIS) -CUM -INTELLIGENT RURAL ROAD MAINTENANCE MONITORING SYSTEM (IRRMMS) FOR RURAL WORKS DEPARTMENT, BIHAR."** addressed to The Chief Engineer-4, Rural Works Department, 5<sup>th</sup> Floor, Vishweshwaraiya Bhawan, Bailey Road, Patna-800015.
3. The details and conditions for qualification of bidders, for bid submission and selection of agency (i.es), and roles & responsibilities of the agency (i.es) are indicated in the Bidding Documents. The Bid Document can be downloaded free of cost and no tender fee is charged for this purpose from [www.rwdbihar.gov.in](http://www.rwdbihar.gov.in) between 27/10/2023 TO 16/11/2023 by 3:00 P.M.
4. The sealed Tender(s)/ Proposal(s) should reach the office of undersigned on or before 16/11/2023 by 3:00 P.M. through Courier/Registered Post/Speed post/by Hand Delivery only.
5. Conditional tender/incomplete tender or tenders received after the due time and date shall not be entertained in any circumstances.
6. RWD reserves right to cancel or postpone or to modify any of term and condition of the tender at any stage without assigning any reason at its own discretion.
7. RWD will not be responsible for any delay or transit loss or late delivery of bids. Bids sent through Email or submitted in unsealed cover(s) will not be accepted and such bids will be treated as non-responsive bids.

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8. A Successful Bidder will be selected under Quality and Cost Based Selection (QCBS) selection, and procedures described in this RFP.
9. The RFP includes the following documents:
- Section 1 - Letter of Invitation
  - Section 2 - Instructions to Bidder (including Data Sheet)
  - Section 3 - Technical Proposal - Standard Forms
  - Section 4 - Financial Proposal - Standard Forms
  - Section 5 - Terms of Reference
  - Section 6 - Standard Forms of Contract

**Yours sincerely,**

Chief Engineer-4  
Rural Works Department  
5<sup>th</sup> Floor, Vishweshwaraiya Bhawan  
Bailey Road, Patna.


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# SECTION-2

## Instructions to Bidder including Bid Data Sheet

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## Section-2

### Instructions to Bidders and Data Sheet

#### A. General Provisions

Definition:

- (a) "Affiliate(s)" means an individual or an entity that directly or indirectly controls, is controlled by, or is under common control with the Bidder.
- (b) "Applicable Guidelines" means the policies of the Client governing the selection and Contract award process as set forth in this RFP.
- (c) "Applicable Law" means the laws and any other instruments having the force of law in the Client's country as may be specified in the **Data Sheet**, as they may be issued and in force from time to time.
- (d) "Client" means the implementing agency that signs the Contract for the Services with the selected Bidder.
- (e) "Bidder" means a legally established professional firm or an entity that may provide or provides the Services to the Client under the Contract.
- (f) "Contract" means a legally binding written agreement signed between the Client and the Bidder and includes all the attached documents listed in its Clause 1 (the General Conditions of Contract (GCC), the Special Conditions of Contract (SCC), and the Appendices).
- (g) "Data Sheet" means an integral part of the Instructions to Bidders (ITB) Section 2 that is used to reflect specific country and assignment conditions to supplement, but not to over-write, the provisions of the ITB.
- (h) "Day" means a calendar day.
- (i) "Government" means the government of the Client's country.
- (j) "Consortium" means a group of two or more organisations or companies that come together to jointly submit bid or proposal for the project as one Bidder. One of these Organisation will be designated as Lead Bidder. Each of these Organisations will be referred to as consortium members, where the members of the consortium are jointly and severally liable to the client for the performance of the Contract.
- (k) "ITB" (this Section 2 of the RFP) means the Instructions to Bidders that provides the shortlisted Bidders with all information needed to prepare

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their Proposals.

- (l) "LOI" (this Section 1 of the RFP) means the Letter of Invitation being sent by the Client to the shortlisted Bidders.
- (m) "Proposal" means the Prequalification, Technical and the Financial Proposal of the Bidder.
- (n) "RFP" means the Expression of Interest cum Request for Proposals to be prepared by the Client for the selection of Bidders, based on the RFP.
- (o) "Services" means the work to be performed by the Bidder pursuant to the Contract.
- (p) "TORs" (this Section 5 of the RFP) means the Terms of Reference that explain the objectives, scope of work, activities, and tasks to be performed, respective responsibilities of the Client and the Bidder, and expected results and deliverables of the assignment.

## 1. Introduction

- 1.1 The Client named in the **Data Sheet** intends to select a Bidder in accordance with the method of selection as Quality and Cost Based Selection as specified in the **Data Sheet**.
- 1.2 The interested Bidders are invited to submit a Prequalification, Technical and a Financial Proposal, as specified in the **Data Sheet**, for services required for the assignment named in the **Data Sheet**. The Proposal will be the basis for negotiating and ultimately signing the Contract with the selected Bidder.
- 1.3 The Bidders should familiarize themselves with the local conditions and take them into account in preparing their Proposals; including attending a pre-proposal conference if one is specified in the **Data Sheet**. Attending any such pre-proposal conference is optional and is at the Bidders' expense.
- 1.4 The Client will timely provide, at no cost to the Bidders, the inputs, relevant project data required for the preparation of the Bidder's Proposal as specified in the **Data Sheet**.

## 2. Conflict of Interest

- 2.1 The Bidder is required to provide professional, objective, and impartial advice, at all times holding the Client's interest's paramount, strictly avoiding conflicts with other assignments or its own corporate interests and acting without any consideration for future work.
- 2.2 The Bidder has an obligation to disclose to the Client any situation of actual or potential conflict that impacts its capacity to serve the best interest of its Client. Failure to disclose such situations may lead to the disqualification of the Bidder or the termination of its Contract

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and/or sanctions by the Client.

- 2.2.1 Without limitation on the generality of the foregoing, the Bidder shall not be hired under the circumstances set forth below:
- a) Conflicting Activities
- 2.2.2 (i) Conflict between consulting activities and procurement of goods, works or non-consulting services: a firm that has been engaged by the Client to provide goods, works, or non-consulting services for a project, or any of its Affiliates, shall be disqualified from providing consulting services resulting from or directly related to those goods, works, or non-consulting services. Conversely, a firm hired to provide consulting services for the preparation or implementation of a project, or any of its Affiliates, shall be disqualified from subsequently providing goods or works or non-consulting services resulting from or directly related to the consulting services for such preparation or implementation.
- b) Conflicting Assignment
- 2.2.3 (ii) Conflict among consulting assignments: a Bidder (including its Experts and Sub-Bidders) or any of its Affiliates shall not be hired for any assignment that, by its nature, may be in conflict with another assignment of the Bidder for the same or for another Client.
- c) Conflicting Relationship
- 2.2.4 (iii) Relationship with the Client's staff: a Bidder (including its Experts and Sub-Bidders) that has a close business or family relationship with a professional staff of the client who are directly or indirectly involved in any part of (i) the preparation of the Terms of Reference for the assignment, (ii) the selection process for the Contract, or (iii) the supervision of the Contract, may not be awarded a Contract, unless the conflict stemming from this relationship has been resolved in a manner acceptable to the client throughout the selection process and the execution of the Contract.
3. Unfair Competitive advantage
- 3.1 Fairness and transparency in the selection process require that the Bidders or their Affiliates competing for a specific assignment do not derive a competitive advantage from having provided consulting services related to the assignment in question. To that end, the Client shall indicate in the **Bid Data Sheet** and make available to all shortlisted Bidders together with this RFP all information that would in that respect give such Bidder any unfair competitive advantage over competing Bidders.
4. Corrupt and Fraudulent
- 4.1 The client requires compliance with its policy in regard to corrupt and fraudulent practices.

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4.2 Further pursuance of this policy, Bidders shall permit and shall cause their agents, Experts, Sub-Bidders, sub-contractors, services providers, or suppliers to permit the Client to inspect all accounts, records, and other documents relating to the submission of the Proposal and contract performance (in case of an award), and to have them audited by auditors appointed by the Client.

5. Eligibility

5.1 The Client permits Bidders (individuals and firms, including Joint Ventures and their individual members) to offer services for projects being undertaken by Client.

5.2 Furthermore, it is the Bidder's responsibility to ensure that its Experts, joint venture members, agents (declared or not), sub-contractors, service providers, suppliers and/or their employees meet the eligibility requirements as established by the Client in the Applicable Guidelines.

5.3 As an exception to the foregoing Clauses 5.1 and 5.2 above:

a) Conflicting Activities

5.3.1 A firm or an individual sanctioned by the client in accordance with the above Clause 4.1 or in accordance with "Anti-Corruption Guidelines" shall be ineligible to be awarded a contract, or to benefit from a contract, financially or otherwise, during such period of time as the client shall determine.

**B. Preparation of Proposals**

6. General Consideration

6.1 In preparing the Proposal, the Bidder is expected to examine the RFP in detail. Material deficiencies in providing the information requested in the RFP may result in rejection of the Proposal.

7. Cost of preparation of Proposal

7.1 The Bidder shall bear all costs associated with the preparation and submission of its Proposal, and the Client shall not be responsible or liable for those costs, regardless of the conduct or outcome of the selection process. The Client is not bound to accept any proposal, and reserves the right to annul the selection process at any time prior to Contract award, without thereby incurring any liability to the Bidder.

8. Language

8.1 The Proposal, as well as all correspondence and documents relating to the Proposal exchanged between the Bidder and the Client, shall be written in the language(s) specified in the **Data Sheet**.

9. Documents comprising the

9.1 The Proposal shall comprise the documents and forms listed in the **Data Sheet**.

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proposal

10. Only one Proposal 10.1 The Bidder shall submit only one Proposal. If a Bidder submits or participates in more than one proposal, all such proposals shall be disqualified and rejected.
11. Proposal Validity 11.1 **The Data Sheet** indicates the period during which the Bidder's Proposal must remain valid after the Proposal submission deadline.  
11.2 During this period, the Bidder shall maintain its original Proposal without any change, including the availability of the Experts, the proposed rates and the total price.
- a) Extension of validity period 11.3 The Client will make its best effort to complete the negotiations within the proposal's validity period. However, should the need arise, the Client may request, in writing, all Bidders who submitted Proposals prior to the submission deadline to extend the Proposals' validity  
11.4 If the Bidder agrees to extend the validity of its Proposal, it shall be done without any change in the original Proposal.  
11.5 The Bidder has the right to refuse to extend the validity of its Proposal in which case such Proposal will not be further evaluated.
- b) Substitution of Personnel 11.6 If the Bidder fails to provide a replacement Expert with equal or better qualifications, or if the provided reasons for the replacement or justification are unacceptable to the Client, such Proposal will be rejected with the prior Client's no objection.
- c) Subcontracting 11.7 Subcontracting will not be allowed in case of Consortium/LLP.
12. Consortium 12.1 Consortium is allowed with entities which are in IT/ITES field. Lead Bidder of the Consortium should be an Indian Company while other members of the Consortium can be from any country globally. Bidders have to give details of roles & responsibilities of each member in the consortium for this particular project. If selected, bidder cannot change the composition of consortium without prior approval of client.  
12.2 The following are the requirements for a consortium:  
(a) The Lead Bidder should be company incorporate/ registered in India.  
(b) The bid should contain details of all the members of the consortium including their legal status and specify their roles and responsibilities in the project.  
(c) The members of the consortium shall enter into a Memorandum of Understanding (MoU) for the purpose of submitting the proposal and the same shall be submitted to the client along with the proposal.  
(d) Each member of the Consortium shall be responsible for the scope assigned to them as per the Memorandum of Understanding (MoU) submitted in the response to the RFP.

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(e) Lead member of the consortium shall be a signatory to the bidding documents and contract.

13. Clarification and amendment of RFP

13.1 The Bidder may request a clarification of any part of the RFP during the period indicated in the **Data Sheet** before the Proposals' submission deadline. Any request for clarification must be sent in writing, or by standard electronic means, to the Client's address indicated in the **Data Sheet**. The Client will respond in writing, or by standard electronic means, and will send written copies of the response (including an explanation of the query but without identifying its source) to all shortlisted Bidders. Should the Client deem it necessary to amend the RFP as a result of a clarification, it shall do so following the procedure described below:

13.1.1 At any time before the proposal submission deadline, the Client may amend the RFP by issuing an amendment in writing or by standard electronic means. The amendment shall be sent to all shortlisted Bidders and will be binding on them. The shortlisted Bidders shall acknowledge receipt of all amendments in writing.

13.1.2 If the amendment is substantial, the Client may extend the proposal submission deadline to give the shortlisted Bidders reasonable time to take an amendment into account in their Proposals.

13.2 The Bidder may submit a modified Proposal or a modification to any part of it at any time prior to the proposal submission deadline. No modifications to the Technical or Financial Proposal shall be accepted after the deadline.

14. Preparation of proposal

14.1 While preparing the Proposal, the Bidder must give particular attention to the following:

14.1.1 If a Bidder considers that it may enhance its expertise for the assignment by associating with other Bidders in the form of a Joint Venture, it may do so if permitted in the **Data Sheet**.

14.1.2 The Client may indicate in the **Data Sheet** the estimated Experts' time input (expressed in person-month) or the Client's estimated total cost of the assignment, but not both. This estimate is indicative and the Proposal shall be based on the Bidder's own estimates for the same.

14.1.3 If stated in the **Data Sheet**, the Bidder shall include in its Proposal at least the same time input (in the same unit as indicated in the **Data Sheet**) of Experts, failing which the Financial Proposal will be adjusted for the purpose of comparison of proposals and decision for award in

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accordance with the procedure in the **Data Sheet**.

15. Technical Proposal Format and content
- 15.1 The Technical Proposal shall not include any financial information. A Technical Proposal containing material financial information shall be declared non-responsive
- 15.2 Depending on the nature of the assignment, the Bidder is required to submit a Full Technical Proposal (FTP) as indicated in the **Data Sheet** and using the Standard Forms provided in Section 3 of the RFP
16. Financial Proposal
- 16.1 The Financial Proposal shall be prepared using the Standard Forms provided in Section 4 of the RFP. It shall list all costs associated with the assignment as per the Forms given in the Section 4 of this RFP.
- (a) Price Adjustment
- 16.2 For assignments with a duration exceeding 18 months, a price adjustment provision for foreign and/or local inflation for remuneration rates applies if so, stated in the **Data Sheet**.
- b) Taxes
- 16.3 The Bidder is responsible for meeting all tax liabilities arising out of the Contract unless stated otherwise in the **Data Sheet**. Information on taxes in the Client's country is provided in the **Data Sheet**.
- c) Currency of Proposal
- 16.4 Currency of the Proposal is INR
- d) Currency of Payment
- 16.5 Payment under the Contract shall be made in INR.

### C. Submissions, Opening and Evaluation

17. Submission, sealing and marking of proposals
- 17.1 The original proposal (Pre-Qualification Proposal, Technical Proposal and Financial Proposal;) shall contain no interlineations or overwriting, except as necessary to correct errors made by the Bidders themselves. The person who signed the proposal must initial such corrections. Submission letters for Pre-Qualification, Technical and Financial Proposals should respectively be in the formats given in Section 3 and Section 4 respectively.
- 17.2 An authorized representative of the Bidders shall initial all pages of the original Pre-Qualification, Technical and Financial Proposals. The authorization shall be in the form of a written power of attorney accompanying the Proposal or in any other form demonstrating that the representative has been duly authorized to sign. The signed Pre-Qualification, Technical and

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Financial Proposals shall be marked "ORIGINAL".

17.3 The Pre-Qualification & Technical Proposal shall be marked "ORIGINAL" or "COPY" as appropriate and should be hard bound. The proposals received without hard bound shall not be evaluated and shall be considered non-responsive. The Proposals shall be sent to the addresses referred to in Clause 17.5 and in the number of copies indicated in the Data Sheet. All required copies of the Proposal are to be made from the original. If there are discrepancies between the original and the copies of the Proposal, the original governs.

17.3.1 The Proposals addressed to the Client as mentioned in the Data Sheet shall be submitted in three separate sealed covers (with respective marking in bold letters) following the formats/schedules given for respective proposal.

17.3.2 The first cover marked "Pre-Qualification Proposal" in one separate envelope, viz., Cover-1 must be sealed properly and clearly marked with the Title of the Services as mentioned in the Data Sheet. This cover should contain the following documents:

17.3.2.1 **Pre-Qualification Proposal**

- PQ-1: Pre-Qualification Proposal Submission Form
- PQ-2: Pre-Qualification Bid Check List
- PQ-3: Particulars of the Bidder
- PQ-4: Power of Attorney for Signing of Proposal
- PQ-5: Certificate of No Deviation
- PQ-6: Bidder's Relevant Experience Summary
- PQ-7: Bidder's Relevant Experience Details
- PQ-8: Financial Capacity of Bidder
- PQ-9: Self- Certified Undertaking on ineligibility for corrupt or fraudulent practices/ blacklisted by any of the Government or Public-Sector Units or Local Governments
- **Earnest Money Deposit (EMD / Bid Security)**
  1. The bidders shall submit, as part of its pre-qualification bid proposal, an EMD of amount INR 4,00,00,000/- only (Rupees Four Crores only) in the shape of Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque or Bank Guarantee from any Scheduled Bank in Bihar drawn/pledged in favour of "Deputy Secretary, RWD" payable at Patna. If the Bank Guarantee is issued from any schedule bank outside Bihar then it will have to be converted to a branch within the state of Bihar.
  2. The Bank Guarantee shall be in the format as

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per provided in the RFP. Bank Guarantee shall remain valid for 90 days beyond the validity period for the bid and will be extended accordingly by the bidder as and when requested by RWD. All bank charges shall be borne by the bidder.

3. Proposals of the Bidders submitted without EMD / for a shorter period/lesser amount as demanded will summarily rejected.
4. EMD of the selected Bidders will be returned, without any interest, upon signing of the agreement and furnishing the Performance Security Deposit in form of Bank Guarantee in accordance with the provisions of this RFP.
5. The Earnest Money Deposit (EMD) furnished by all unsuccessful bidders will be returned as early as possible after the expiration of the period of tender validity but not later than 30 days of the award of the contract.
6. The Bidder, by submitting its bid pursuant to this RFP, shall be deemed to have acknowledged and confirmed that the RWD will not suffer loss and damage on account of withdrawal of its bid or for any other default by the bidder during the bid validity period.
7. EMD shall be forfeited and appropriated by the RWD hereunder or otherwise, under the following conditions:
  - i. If a Bidder withdraws its bid, during the period of bid validity (only after the bid submission deadline) as specified in this RFP and as extended by the RWD from time to time
  - ii. If the technically qualified bidder fails:
    - a. To sign the Agreement and/or
    - b. To furnish the Performance Security Deposit within the period prescribed
  - iii. Technically qualified Bidders shall ensure the EMD remains valid till signing of Agreement. In case, the EMD bank draft is expiring before signing of the agreement, Bidders may be asked to replace it with a fresh Bank Draft of the same value.

17.3.3 The second cover marked "Technical Proposal" in a

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separate envelope, viz., Cover-2 must be sealed properly and clearly marked with the Title of the Project as mentioned in the Data Sheet. This cover should contain the following documents:

**17.3.3.1 Technical Proposal**

- TECH-1: Technical Proposal Submission Form
- TECH-2: Technical Evaluation Criteria Check List
- TECH-3: Bidder's Relevant Experience Summary
- TECH-4: Bidder's Relevant Experience Details
- TECH-5: Proposed Solution, Approach, Methodology and Work Plan
- TECH-6: Implementation Plan
- TECH-7: Compliance to Technical, Functional and Operational requirements
- TECH-8: CVs of Proposed Key Resources

17.3.4 The Bidder shall prepare two copies of the Pre-Qualification and Technical proposal (one clearly marked as "ORIGINAL" and the other as "COPY") to be submitted to the Client along with soft copy (CD/DVD/Pen drive) of the Technical Proposal.

17.3.5 The Proposal and its copy shall be typed or written in indelible ink, hard bound and signed in all pages by the authorized signatory of the Bidder who shall initial each page, in blue ink. Each page of the proposal should be numbered serially given an index of submissions. All the alterations, omissions, additions, or any other amendments made to the Proposal shall be initialled by the person(s) signing the Proposal. The Proposals must be properly signed by the authorized representative (the "Authorized Representative") as detailed below:

- By a partner, in case of a partnership firm and/or a limited liability partnership; or
- By a duly authorized person holding the Power of Attorney, in case of a Limited Company/Private Limited Company or a Corporation; or
- By the Authorised Representative of the Lead Member, in case of Consortium; or
- By a person authorized through a General or Specific Board Resolution for signing proposals; Certified True Copy of such resolution in the hands of a Director of the Company shall be submitted for this purpose.

17.3.6 The Third cover marked "Financial Proposal" in another separate envelope, viz., Cover-3 must be sealed properly and clearly marked with the Title of the Project as mentioned in the Data Sheet. This cover should contain

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the contents as below:

17.3.6.1 Financial Proposal

- FIN-1: Financial Proposal Submission Form
- FIN-2: Breakdown of the Costs

17.3.6.2 Bidders shall submit the financial proposal in the proposed formats clearly indicating the total cost of the Assignment in both figures and words, in Indian Rupees, and signed by the Bidder's Authorised Representative. In the case of discrepancy between figures and words in the financial proposal, the lower of the two shall be considered.

17.3.6.3 While submitting the Financial Proposal, the Bidder shall ensure the following:

- All the costs associated with the assignment shall be included in the Financial Proposal. These shall normally cover all the deliverables including remuneration for all the Personnel (field and office etc.) and reimbursable component as mentioned in the Financial Proposal. The total amount indicated in the Financial Proposal shall be without any condition attached or subject to any assumption and shall be final and binding. In case any assumption or condition is indicated in the Financial Proposal, it shall be considered non-responsive and liable to be rejected.
- The Financial Proposal shall take into account all expenses and tax liabilities except GST which shall be paid at applicable rates. For the avoidance of doubt, it is clarified that all taxes except GST shall be deemed to be included in the costs shown in the Financial Proposal. Further, all payments shall be subject to deduction of taxes at source as per Applicable Laws.
- Costs shall be expressed in INR.

17.3.7 The sealed envelopes Cover 1, 2 and 3 should again be placed in a separate sealed outer envelope, which shall be clearly marked with the Title of the Assignment, as mentioned in the Data Sheet, RFP No., Name and Address of the Bidder, and proposal submission date and received as per the timeline mentioned in Date Sheet and addressed to the Official mentioned in Data Sheet. It shall bear on top, the following: **“Do not open, except in presence of the Authorised Person of the Client”**.

17.3.8 If the envelope is not sealed and marked as instructed above, the Client assumes no responsibility for the

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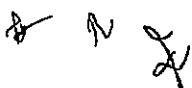
misplacement or premature opening of the contents of the Proposal submitted and consequent losses, if any, suffered by the Bidder. Client may also choose not to open the envelope and return the same treating as "Not Qualified".

- 17.3.9 The Bidders are advised in their own interest to ensure that completed Proposals reaches the office of Client at the address mentioned well before the dates stipulated in the document.
- 17.3.10 Proposals submitted through Speed post/ Courier/ Hand delivered shall be accepted. Proposals submitted through Telex / Telegraphic / Fax / email will not be considered and summarily rejected. Proposals received after the date and time stipulated in this RFP shall not be considered and shall be summarily rejected. Any proposal received after the closing time for submission of proposals shall be returned unopened. The Client shall not be responsible for delayed receipt of Proposals.
- 17.3.11 Prior to evaluation of Proposals, the Client will determine whether each Proposal is responsive to the requirements of the RFP. The Client may, in its sole discretion, reject any Proposal that is not responsive hereunder. A Proposal shall be considered responsive only if:
- The Pre-Qualification Proposal is received in the forms specified in this RFP.
  - The Technical Proposal is received in the forms specified in this RFP
  - It is received by the Proposal Due Date including any extension there of pursuant to as mentioned in data sheet.
  - It is signed, sealed, bound in hard.
  - It is accompanied by the Power of Attorney.
  - It contains all the information (complete in all respects) as requested in the RFP;
- 17.3.12 The Pre-Qualification Proposal will be opened by the Authorized Representative first immediately after the deadline for their submission, the eligibility of Bidders will be verified based on the eligibility information mentioned in Data Sheet and provided by the Bidders as per the formats given in this RFP. Subsequently the Technical Proposal of only those Bidders found eligible and satisfying the minimum eligibility criteria shall be evaluated and scored based on the marking criteria mentioned Data Sheet. The envelopes with the Financial Proposal shall remain sealed and securely stored. It may be noted that the Financial Proposal shall be opened in the presence of the shortlisted Bidders Representative who

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choose to attend.

18. Confidentiality
- 18.1 From the time the Proposals are opened to the time the Contract is awarded, the Bidder should not contact the Client on any matter related to its Technical and/or Financial Proposal. Information relating to the evaluation of Proposals and award recommendations shall not be disclosed to the Bidders who submitted the Proposals or to any other party not officially concerned with the process, until the publication of the Contract award information.
- 18.2 Any attempt by shortlisted Bidders or anyone on behalf of the Bidder to influence improperly the Client in the evaluation of the Proposals or Contract award decisions may result in the rejection of its Proposal, and may be subject to the application of prevailing Client's sanctions procedures.
- 18.3 Notwithstanding the above provisions, from the time of the Proposals' opening to the time of Contract award publication, if a Bidder wishes to contact the Client on any matter related to the selection process, it should do so only in writing.
19. Opening of Technical Proposal
- 19.1 The Client's evaluation committee shall conduct the opening of the Technical Proposals in the presence of the shortlisted Bidders' (Shortlisted at Pre-Qualification Stage) authorized representatives who choose to attend (in person, or online if this option is offered in the **Data Sheet**). The opening date, time and the address are stated in the **Data Sheet**. The envelopes with the Financial Proposal shall remain sealed and shall be securely stored with a reputable public auditor or independent client until they are opened in accordance with the ITB.
- 19.2 At the opening of the Technical Proposals the following shall be read out: (i) the name of the Bidder (ii) the presence or absence of a duly sealed envelope with the Financial Proposal; (iii) any modifications to the Proposal submitted prior to proposal submission deadline; and (iv) any other information deemed appropriate or as indicated in the **Data Sheet**.
20. Proposal Evaluation
- 20.1 Subject to provision of Clause 15.1 of the ITB, the evaluators of the Technical Proposals shall have no access to the Financial Proposals until the technical evaluation is concluded, and the Client issues its "no objection", if applicable.
- 20.2 The Bidder is not permitted to alter or modify its Proposal in any way after the proposal submission deadline except as permitted under Clause 13.2 of this ITB. While evaluating the Proposals, the Client will conduct the evaluation solely on the basis of the submitted Technical and Financial Proposals.
21. Evaluation of
- 21.1 The Client's evaluation committee shall evaluate the Proposals on



Technical Proposal

the basis of their responsiveness to the Terms of Reference and the RFP, applying the evaluation criteria, sub-criteria, and point system specified in the **Data Sheet**. Each responsive Proposal will be given a technical score. A Proposal shall be rejected at this stage if it does not respond to important aspects of the RFP or if it fails to achieve the minimum technical score indicated in the **Data Sheet**

22. Opening of  
Financial Proposal  
(QCBS Only)

22.1 After the technical evaluation is completed, the Client shall notify those Bidders whose Proposals were considered non-responsive to the RFP and TOR or did not meet the minimum qualifying technical score, that their Financial Proposals will be returned unopened after completing the selection process and Contract signing. The Client shall simultaneously notify in writing those Bidders that have achieved the minimum overall technical score and inform them of the date, time and location for the opening of the Financial Proposals. The opening date should allow the Bidders sufficient time to make arrangements for attending the opening. The Bidder's attendance at the opening of the Financial Proposals (in person, or online if such option is indicated in the **Data Sheet**) is optional and is at the Bidder's choice.

22.2 The Financial Proposals shall be opened by the Client's evaluation committee in the presence of the representatives of those Bidders whose proposals have passed the minimum technical score. At the opening, the names of the Bidders, and the overall technical scores, shall be read aloud. The Financial Proposals will then be inspected to confirm that they have remained sealed and unopened. These Financial Proposals shall be then opened, and the total prices read aloud and recorded. Copies of the record shall be sent to all Bidders who submitted Proposals and to the Client.

23. Correction of errors

23.1 Activities and items described in the Technical Proposal but not priced in the Financial Proposal, shall be assumed to be included in the prices of other activities or items, and no corrections are made to the Financial Proposal.

a) Taxes

23.2 The Client's evaluation of the Bidder's Financial Proposal shall include all applicable taxes and duties except GST in accordance with the instructions in the **Data Sheet**.

23.3 For the evaluation purposes, prices shall be converted to a single currency i.e., INR using the selling rates of exchange, source and date indicated in the **Data Sheet**.

b) Combined Evaluation

23.4 In the case of QCBS, the total score is calculated by weighting the technical and financial scores and adding them as per the formula

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and instructions in the **Data Sheet**. The Bidder achieving the highest combined technical and financial score will be invited for negotiations.

#### **D. Negotiations and Award**

24. Negotiation
- 24.1 The negotiations will be held at the date and address indicated in the **Data Sheet** with the Bidder's representative(s) who must have written power of attorney to negotiate and sign a Contract on behalf of the Bidder.
- 24.2 The Client shall prepare minutes of negotiations that are signed by the Client and the Bidder's authorized representative.
- a) Availability of Personnel
- 24.3 The invited Bidder shall confirm the availability of all proposed personnel's as per the requirement included in the Proposal as a pre-requisite to the negotiations. Failure to confirm the Personnel's availability may result in the rejection of the Bidder's Proposal.
- 24.4 Notwithstanding the above, the substitution of personnel at the negotiations may be considered if due solely to circumstances outside the reasonable control of and not foreseeable by the Bidder, including but not limited to death or medical incapacity. In such case, the Bidder shall offer a substitute within the period of time specified in the letter of invitation to negotiate the Contract, who shall have equivalent or better qualifications and experience than the original candidate.
- b) Technical Negotiation
- 24.5 The negotiations include discussions of the Terms of Reference (TORs), the proposed methodology, the Client's inputs, the special conditions of the Contract, and finalizing the "Description of Services" part of the Contract. These discussions shall not substantially alter the original scope of services under the TOR or the terms of the contract, lest the quality of the final product, its price, or the relevance of the initial evaluation be affected.
- (c) Financial Negotiation
- 24.6 The negotiations include the clarification of the Bidder's tax liability and how it should be reflected in the Contract.
- 24.7 If the selection method included cost as a factor in the evaluation, the total price stated in the Financial Proposal for a Lump-Sum contract shall not be negotiated
25. Conclusion of Negotiation
- 25.1 The negotiations are concluded with a review of the finalized draft Contract, which then shall be initiated by the Client and the Bidder's authorized representative.
- 25.2 If the negotiations fail, the Client shall inform the Bidder in writing of all pending issues and disagreements and provide a final opportunity to the Bidder to respond. If disagreement persists, the

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Client shall terminate the negotiations informing the Bidder of the reasons for doing so.

26. Award of Contract

26.1 After completing the negotiations, the Client shall obtain the Govt's no objection to the negotiated draft Contract, if applicable; sign the Contract; publish the award information as per the instructions in the **Data Sheet**; and promptly notify the other shortlisted Bidders.

26.2 The Bidder is expected to commence the assignment on the date and at the location specified in the **Data Sheet**.

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Instructions to Bidders (ITB)

**E. Data Sheet**

<b>A. General</b>		
S. No.	ITB Clause Reference	
1	1.1	<p><b>Name of the Client:</b> Chief Engineer-4, Rural Works Department, Government of Bihar</p> <p><b>Method of selection:</b> Quality and Cost Based Selection (QCBS)</p>
2	1.2	<p>Financial Proposal to be submitted together with Technical Proposal: Yes</p> <p>The name of the assignment is: <b>“SELECTION OF SYSTEM INTEGRATOR (SI) CUM MASTER SERVICE PROVIDER (MSP) FOR DEVELOPMENT MAINTENANCE &amp; OPERATION OF DIGITAL PROJECT AND ASSET MANAGEMENT INFORMATION SYSTEM (DPAMIS) -CUM- INTELLIGENT RURAL ROAD MAINTENANCE MONITORING SYSTEM (IRRMMS) FOR RURAL WORKS DEPARTMENT, BIHAR.”</b></p>
3	1.3	<p><b>A pre-Bid Meeting will be held:</b></p> <p>Venue: Conference Hall, 5<sup>th</sup> Floor, Vishweshwaraiya Bhawan, Bailey Road, Patna-800015 on 03/11/2023 at 03:00PM.</p>
4	1.4	<p>The Client will provide the following inputs, project data, reports, etc. to facilitate the preparation of the Proposals: see TOR in details.</p>
<b>B. Preparation of Proposals</b>		
5	8.1	<p>This RFP has been issued in the English language.</p> <p>Proposal shall be submitted in English.</p> <p>All correspondence exchange shall be in English language.</p>

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6	9.1	<p>The Proposal shall comprise the following:</p> <p><u>FULL TECHNICAL PROPOSAL (FTP):</u></p> <p>1<sup>st</sup> Qualification Proposal:</p> <ul style="list-style-type: none"> <li>(1) PQ-1</li> <li>(2) PQ-2</li> <li>(3) PQ-3</li> <li>(4) PQ-4</li> <li>(5) PQ-5</li> <li>(6) PQ-6</li> <li>(7) PQ-7</li> <li>(8) PQ-8</li> <li>(9) PQ-9</li> <li>(10) EMD</li> </ul> <p>2<sup>nd</sup> Technical Proposal:</p> <ul style="list-style-type: none"> <li>(1) TECH-1</li> <li>(2) TECH-2</li> <li>(3) TECH-3</li> <li>(4) TECH-4</li> <li>(5) TECH-5</li> <li>(6) TECH-6</li> <li>(7) TECH-7</li> <li>(8) TECH-8</li> </ul> <p>3<sup>rd</sup> Financial Proposal (if applicable):</p> <ul style="list-style-type: none"> <li>(1) FIN-1</li> <li>(2) FIN-2</li> </ul>
7	11.1	<p><b>Proposals must remain valid for 120 calendar days after the proposal submission deadline.</b></p>
8	11.3	<p>Bidders will be notified about the validity extensions – by email.</p>
9	13.1	<p><b>Clarifications may be requested no later than 15 (<i>fifteen</i>) days prior to the submission deadline.</b></p> <p><b>The address for requesting clarifications is</b></p> <p>_____</p> <p>Clarifications shall be submitted through E-mail</p> <p>_____</p>

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		<b>Clarifications sent through any other medium shall not be accepted.</b>
10	15.1	The format of the Technical Proposal to be submitted is: FTP Submission of the Technical Proposal in a wrong format may lead to the Proposal being deemed non-responsive to the RFP requirements.
11	16.2	<b>A price adjustment provision applies to remuneration rates:</b>  <b>Not Applicable</b>
12	16.3	<b>Information on the Bidder's tax obligations in India can be found in GST and income tax act of India (Taxes shall be indicated separately in the financial proposal).</b>
13	16.5	<b>The Financial Proposal shall be stated in the following currencies: Bidder to express the price for their Services in INR.</b>  <b>Financial Proposal should state local costs in INR (local currency): Yes</b>
<b>C. Submission, Opening and Evaluation</b>		
14	17.3	The Bidders "shall" submit their Proposals in Hard copy only (electronic submission not acceptable).
15	17.3	Bidder must submit the original and one copy of the Pre-Qualification Proposal, Technical Proposal, and the original of the Financial Proposal
16	17.3.9	<b>The Proposal submission address is:</b> The Chief Engineer-4 Rural Works Department 5 <sup>th</sup> Floor, Vishweshwaraiya Bhawan Bailey Road, Patna-800015 The Proposals must be submitted no later than: Date: [16/11/2023] Time: 15:00 hrs (Local Time)
17	17.3.12	<b>Opening of Pre-Qualification Proposal will be conducted at the following Address :</b> The Chief Engineer-4 Rural Works Department 5 <sup>th</sup> Floor, Vishweshwaraiya Bhawan Bailey Road, Patna-800015 The Proposals must be submitted no later than:

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		Date: [16/11/2023] Time: 15:30 hrs (Local Time)
18	19.1	<p><b>Opening of the Technical Proposals will be conducted at the following Address:</b></p> <p>The proposals found to be responsive at Pre-Qualification stage shall be opened in the presence of the representatives of the responsive bidders.</p> <p>The Date and time of opening of technical Proposal shall be intimated to the responsive bidders through E-Mail</p>
19	21.1 (For FTP)	<p>Criteria, sub-criteria, and point system for the evaluation of the Proposal:</p> <p><b>1<sup>st</sup> Pre-Qualification Proposal:</b></p> <p>The Shortlisting criteria will be as per the criteria and check list given in Section-3, clause-2, Annexure: Pre-Qualification Proposal</p> <p>Note: The Pre-Qualification Proposal should contain sufficient supporting documents to substantiate the claim of the Bidder towards their qualification as per the short- listing criteria.</p> <p><b>2. The Technical Proposal</b></p> <p>The 'Annexure: Technical Proposal' lists down the evaluation criteria and the associated marks allotted and criteria- wise cut-off marks for qualification that would be used in technical evaluations of the proposals. Technical Bids, which do not qualify the criteria wise cut-off marks, would be rejected.</p> <p><b>The minimum technical score (ST) required to pass technical bid evaluation is: 60</b></p>
20	22.1	The date, time and place for opening of the financial proposal will be communicated to bidders through email.
21	22.2	Bidders can witness of opening financial proposals, if they wish so.
22	23.2	For the purpose of the evaluation, the Client will exclude all local identifiable indirect taxes such as excise tax, GST or similar taxes levied on the Bidder's invoices; and If a Contract is awarded, at Contract negotiations, all such taxes will be discussed, finalized (using the itemized list as a guidance but not limiting to it) and added to the Contract amount as a separate line, also indicating

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		which taxes shall be paid by the Bidder and which taxes are withheld and paid by the Client on behalf of the Bidder.
23	23.3	The single currency for the conversion of all prices expressed in various currencies into a single one is <b>Indian Rupee (INR)</b>
24	23.4 (QCBS only)	<p>The lowest evaluated <b>Financial Proposal (FM)</b> is given the maximum financial score (SF) of 100.</p> <p>The formula for determining the financial scores (SF) of all other Proposals is calculated as following:</p> <p>SF = 100 x FM/ F, in which "SF" is the financial score, "FM" is the lowest price, and "F" the price of the proposal under consideration.</p> <p>The weights given to the <b>Technical (T)</b> and <b>Financial (P)</b> Proposals are:</p> <p>T = 0.8 (80%), and</p> <p>P = 0.2 (20%)</p> <p>Proposals are ranked according to their combined technical (ST) and financial (SF) scores using the weights (T = the weight given to the Technical Proposal; P = the weight given to the Financial Proposal; T + P = 1) as following:</p> <p><math>S = ST \times T\% + SF \times P\%</math>. i.e., <math>S = (ST \times 0.8) + (SF \times 0.2)</math></p>
<b>D. Negotiations and Award</b>		
25	24.1	<p><b>Expected date and address for contract negotiations, if any:</b></p> <p><b>Date:</b> To be intimated</p> <p><b>Address:</b> The Chief Engineer- 4 Rural Works Department 5<sup>th</sup> Floor, Vishweshwaraiya Bhawan Bailey Road, Patna-800015</p>
26	26.2	<p><b>Expected date for the commencement of the Services:</b></p> <p>_____, 2023</p>

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## Section- 3: Annexures and Forms

### 1. Pre-Bid Queries

#### Sample Format for Pre-bid Queries

The Bidders are required to submit their queries in the format given below to the tendering authority.

Bidder's Request for Clarification		
Name & address of the Bidder Submitting queries	Name and Position of Person submitting queries	Contact Details of the Organization / Authorized Representative
		Telephone:
		Fax:
		Mobile:
		E-Mail:

SI. No.	Page No. of RFP	Section No. & Clause No.	Content of RFP requiring Clarification(s)	Points of clarification

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## 2. Pre- Qualification Proposal- Criteria and Standard Forms

### ANNEXURE: Pre- Qualification Criteria

S. No.	Criteria	Pre-qualification Criteria description	Required Documents
1	Incorporation of the Firm, Legal Entity	<p>The bidder should be a single Business Entity/ a Consortium/ Private Limited Company/ a Firm/ Limited Liability Partnership (LLP)</p> <p>For the purpose of this RFP, a Business Entity shall mean a company registered in India under the Companies Act 1956 or in any country under respective laws.</p> <p>The Bidder in case of a single Business Entity/ a Consortium/ Private Limited Company/ a Firm/ Limited Liability Partnership should be a registered company in India under the companies Act 1956 and should be in existence and operating for at least 05 years as of date of publishing of the Tender Notice.</p>	<p>Self-attested copy of Incorporation / Registration Certificate of the company/ a Firm/ Limited Liability Partnership.</p> <p>In case of Consortium and LLP copies of Incorporation/ Registration Certificate of all the members of consortium shall be submitted.</p>
2	Financial Strength	<p>The bidder should have a minimum annual turnover of INR 20.00 Crores (Rupees Twenty Crores only) in the business of IT / IYES services in each of the following three financial years (FY 2019-20, 2020- 21 &amp; 2021-22)</p> <p>Note: Turnover of any parent, subsidiary, associate or other related entity or consortium members or LLP will not be considered.</p>	<p>Audited Financial Statements (Balance Sheet and P&amp;L Audited by a Certified Chartered Accountant) for the following 3 (three) financial years 2019-20, 2020- 21, 2021-22 of the Bidder.</p> <p>Certificate from a registered Chartered Accountant (CA) certifying the turnover of the bidder.</p>

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S. No.	Criteria	Pre-qualification Criteria description	Required Documents
3	Net worth	<p>The bidder should have positive net worth during each of the following three financial years (FY 2019- 20,2020-21 &amp; 2021-22)</p> <p>Note: Net worth of any parent, subsidiary, associate or other related entity or consortium/ LLP will not be considered.</p>	<p>Certificate from a registered Chartered Accountant (CA) certifying the Net Worth of the company during following 03(three) financial years 2019-20, 2020-21, 2021-22.</p>
4	Past Experience of Design, Development and Implementation of e-Governance/ IT Projects.	<p>The Bidder should have experience of at least one ongoing / implemented / completed and operating project in Design, Development &amp; Rollout of e-Governance/ IT Solution with scope of work containing Web Portal, GPS, GIS, MIS for any Central/ State Government Department, PSU's in India in the last Five (5) Years from the last date of submission of bid.</p>	<p>Copy of Work Orders / Purchase Orders / Contracts along with Completion Certificates / Go-Live certificates/ Self- Certificate signed by Authorized Signatory for On-going projects.</p> <p>Details of the projects to be submitted in the format "Form PQ-7"</p>
5	Past Experience of Data Centre Implementation.	<p>The Bidder should have On-going/ implemented/ completed and operating at least one IT/ ITES project with scope including establishment and maintenance of Data Centre for any Central State Government Departments / Organisations, PSUs in India in the last Five (5) years from the last date of submission of bid.</p>	<p>Copy of Work Orders / Purchase Orders / Contracts along with Completion Certificates / Go-Live certificates / Self- Certificate signed by Authorized Signatory for On-going project.</p> <p>Details of the projects to be submitted in the format "Form PQ-7"</p>
6	Past Experience of Design, Development and implementation of Road Maintenance and Monitoring System in India.	<p>The Bidder should have experience of at least one ongoing / implemented / completed project of Design, Development, Implementation of Road Maintenance and Monitoring System with scope of work containing Artificial Intelligence based Faceless autonomous distress detection of roads and road furniture, GPS tagged display of multimedia &amp; multi-sensor objects viz. videos, images of the defects, comparative visual of synchronized videos,</p>	<p>Copy of Work Orders / Purchase Orders / Contracts along with Completion Certificates / Go-Live certificates / Self- Certificate signed by Authorized Signatory for On-going project.</p> <p>Details of the projects to be submitted in the format "Form PQ-7"</p>

S. No.	Criteria	Pre-qualification Criteria description	Required Documents
		Plotting of the roads GIS / GPS Maps, Dashboards, MIS Reports for any Central/ State Government Departments/ Organizations in India in the last Five (5) years from the last date of submission of bid.	
7	Past experience of providing skilled manpower in IT Operations project	The Bidder should have Experience of at least one ongoing/ implemented/ completed project of providing skilled manpower and carrying out IT field operations, maintenance support of large-scale IT/ ITES Projects in any government/ PSU in India in the last Five (5) years from the last date of submission of bid.	Copy of Work Orders /Purchase Orders / Contracts along with Completion Certificates / Go-Live certificates / Self-Certificate signed by Authorized Signatory for On-going project.  Details of the projects to be submitted in the format "Form PQ-7"
8	Local Presence	The Bidder should have presence in Bihar in the form of a registered office / branch/ project office in the State of Bihar before signing of contract.	Self-Attested copy of Documentary evidence of Local Presence.  OR  Self-certificate declaring the local presence duly signed by Authorized Signatory.
9	Blacklisting	The Bidder should not have been blacklisted by any State/ Central Government Departments/ Organizations/ PSUs in India or by any agencies Globally for corrupt, fraudulent or any other unethical business practices or for any other reason with in last 5 years from the last date of submission of bid.	Self-certified Undertaking on the company's letter head by its authorized signatory as per the format "Form PQ-9".  This should be duly notarized by a notary public.
10	Certifications	The Bidder must have the following standard quality certifications viz. 1. ISO 9001 2. ISO 27001 3. CMMi Level 3 or above	Self-attested copy of certificates valid as on last date of bid submission

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S. No.	Criteria	Pre-qualification Criteria description	Required Documents
11	GST Registration and PAN card	The Bidder shall be registered for GST and shall have valid PAN number. Any of the members in case of the Consortium/ LLP registered outside India, shall submit copies of the Tax Registration Certificates of respective Country.	Self-attested copies of GST registration certificate and PAN card.

Note:

- (i) The Pre-Qualification Proposal should contain sufficient supporting documents to substantiate the claim of the Bidder towards their qualification as per the short-listing criteria.
- (ii) All self-certificates shall be duly signed and stamped by authorized signatory of the Bidder, unless specified otherwise.

*A B. J*

**Pre-Qualification Proposal – Standard Forms ANNEXURE-XXXX**

**FORM PQ -1: Pre-Qualification Proposal Submission Form**

[On the Letter head of the Bidder]

Date:

Ref No:

To

The Chief Engineer-4  
Rural Works Department  
5<sup>th</sup> Floor, Vishweshwaraiya Bhawan  
Bailey Road, Patna-800015

**Subject:** Submission of Pre-Qualification Proposal in response to your RFP for “Selection of System Integrator (SI) Cum Master Service Provider (MSP) For Development, Maintenance & Operation of Digital Project And Asset Management Information System (DPAMIS) -Cum- Intelligent Rural Road Maintenance Monitoring System (IRRMMS) For Rural Works Department, Bihar.”

Dear Sir,

1. With reference to your RFP Document dated ....., I/we, having examined all relevant documents and understood their contents, hereby submit our Pre-Qualification proposal for Selection for “Selection Of System Integrator (SI) Cum Master Service Provider (MSP) For Development, Maintenance & Operation Of Digital Project And Asset Management Information System (DPAMIS) -Cum -Intelligent Rural Road Maintenance Monitoring System (IRRMMS) For Rural Works Department, Bihar” The Proposal is unconditional.
2. We are submitting our Proposal as sole bidder.
3. I/We declare that we are not a member of any other Bid applying for Selection as a Bidder.
4. A Power of Attorney in favor of the authorized signatory to sign and submit this Proposal and documents is attached herewith in Form PQ-4.
5. I/We agree to keep this offer valid for 120 (One Hundred Twenty) days from the due date for submission of proposal specified in the RFP.
6. All information provided in the Proposal is true and correct and all documents accompanying such Proposal are true copies of their respective originals.
7. I/We shall make available to the Authority any additional information it may deem necessary or require for supplementing or authenticating the Proposal.
8. I/We acknowledge the right of the Authority to reject our application without assigning any reason or otherwise and hereby waive our right to challenge the same on any account whatsoever.
9. I/We declare that:
  - a. I/We have examined and have no reservations to the RFP Document, including any Addendum issued by the Authority;

A. R. J.

- b. I/We do not have any conflict of interest in accordance with the terms of the RFP Document;
- 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 RFP document, in respect of any tender or request for Proposal issued by or any agreement entered into with the Authority or any other public sector enterprise or any government, Central or State; and
10. I/We hereby certify that we have taken steps to ensure that in conformity with the provisions of the RFP, no person acting for us or on our behalf will engage in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice.
11. I/We understand that you may cancel the Selection Process at any time and that you are neither bound to accept any Proposal that you may receive nor to select the Bidder, without incurring any liability to the Bidders in accordance with clauses of the RFP document.
12. I/We certify that in regard to matters other than security and integrity of the country, we or any of our affiliates have not been convicted by a Court of Law or indicted or adverse orders passed by a regulatory authority which would cast a doubt on our ability to undertake the Contract or which relates to a grave offence that outrages the moral sense of the community.
13. I/We further certify that in regard to matters relating to security and integrity of the country, we have not been charge-sheeted by any agency of the Government or convicted by a Court of Law for any offence committed by us or by any of our affiliates.
14. I/We hereby irrevocably waive any right or remedy which we may have at any stage at law or howsoever otherwise arising to challenge or question any decision taken by the Authority [and/ or the Government of Bihar] in connection with the selection of Bidder or in connection with the Selection Process itself in respect of the above-mentioned Study.
15. I/We agree and understand that the Proposal is subject to the provisions of the RFP document. In no case, shall I/we have any claim or right if Proposal is not opened or rejected.
16. In the event of my/ our firm being selected as the Bidder, I/we agree to enter into a Contract in accordance with conditions of the RFP. We agree not to seek any changes in the aforesaid form and agree to abide by the same.
17. The Technical and Financial Proposals are being submitted in separate covers. This Pre-Qualification Proposal read with the Technical Proposal & Financial Proposal shall constitute the Application which shall be binding on us.
18. We understand you are not bound to accept any Proposal you receive.

In witness thereof, I/we submit this Proposal under and in accordance with the terms of the RFP Document.

Yours faithfully,

(Signature, name and designation of the authorized signatory)  
(Name and seal of the Bidder)

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### FORM PQ - 2: Pre-qualification Bid Check List

The Bidder is required to fill relevant information in the format given below. The pre-qualification bid must contain documentary evidences and supporting information to enable the Client to evaluate the eligibility of the Bidder without ambiguity.

S. No.	Criteria	Pre-qualification Criteria description	Required Documents	Response (Yes / No)	Reference in Response to Pre-qualification (Section # and Page #)
1	Incorporation of the Firm, Legal Entity	<p>The bidder should be a single Business Entity/ a Consortium/ Private Limited Company/ a Firm/ Limited Liability Partnership (LLP) For the purpose of this RFP, a Business Entity shall mean a company registered in India under the Companies Act 1956 or in any country under respective laws.</p> <p>The Bidder in case of a single Business Entity/ a Consortium/ Private Limited Company/ a Firm/ Limited Liability Partnership should be a registered company in India under the companies Act 1956 and should be in existence and operating for at least 05 years as of date of publishing of the Tender Notice.</p>	<p>Self-attested copy of Incorporation / Registration Certificate of the company/ a Firm/ Limited Liability Partnership.</p> <p>In case of Consortium and LLP copies of Incorporation/ Registration Certificate of all the members of consortium shall be submitted.</p>		

*Handwritten signature/initials*

S. No.	Criteria	Pre-qualification Criteria description	Required Documents	Response (Yes / No)	Reference in Response to Pre-qualification (Section # and Page #)
2	Financial Strength	<p>The bidder should have a minimum annual turnover of INR 20.00 Crores (Rupees Twenty Crores only) in the business of IT / ITES services in each of the following three financial years (FY 2019-20, 2020-21 &amp; 2021-22)</p> <p><b>Note:</b> Turnover of any parent, subsidiary, associate or other related entity or consortium members or LLP will not be considered.</p>	<p>Audited Financial Statements (Balance Sheet and P&amp;L Audited by a Certified Chartered Accountant) for the following 3 (three) financial years 2019-20, 2020-21, 2021-22 of the Bidder.</p> <p>Certificate from a registered Chartered Accountant (CA) certifying the turnover of the bidder.</p>		
3	Net worth	<p>The bidder should have positive net worth during each of the following three financial years (FY 2019-20, 2020-21 &amp; 2021-22)</p> <p><b>Note:</b> Net worth of any parent, subsidiary, associate or other related entity or consortium/ LLP will not be considered.</p>	<p>Certificate from a registered Chartered Accountant (CA) certifying the Net Worth of the company during following 03 (three) financial years 2019-20, 2020-21, 2021-22.</p>		
4	Past Experience of Design, Development and Implementation of e-Governance/ IT Projects.	<p>The Bidder should have experience of at least one ongoing / implemented / completed and operating project in Design, Development &amp; Rollout of e-Governance/ IT Solution with scope of work containing Web Portal, GPS, GIS, MIS for any Central/ State Government Department, PSU's in India in the last Five (5) Years from the last date of submission of bid.</p>	<p>Copy of Work Orders / Purchase Orders / Contracts along with Completion Certificates / Go-Live certificates/ Self- Certificate signed by Authorized Signatory for On-going projects.</p> <p>Details of the projects to be submitted in the format "Form PQ-7"</p>		

S. No.	Criteria	Pre-qualification Criteria description	Required Documents	Response (Yes / No)	Reference in Response to Pre-qualification (Section # and Page #)
5	Past Experience of Data Centre Implementation.	The Bidder should have On-going/ implemented/ completed and operating at least one IT/ ITES project with scope including establishment and maintenance of Data Centre for any Central State Government Departments / Organisations, PSUs in India in the last Five (5) years from the last date of submission of bid.	Copy of Work Orders / Purchase Orders / Contracts along with Completion Certificates / Go-Live certificates / Self- Certificate signed by Authorized Signatory for On-going project.  Details of the projects to be submitted in the format "Form PQ-7"		
6	Past Experience of Design, Development and implementation of Road Maintenance and Monitoring System in India.	The Bidder should have experience of at least one ongoing / implemented / completed project of Design, Development, Implementation of Road Maintenance and Monitoring System with scope of work containing Artificial Intelligence based Faceless autonomous distress detection of roads and road furniture, GPS tagged display of multimedia & multi-sensor objects viz. videos, images of the defects, comparative visual of synchronized videos, Plotting of the roads GIS / GPS Maps, Dashboards, MIS Reports for any Central/ State Government Departments/Organizations in India in the last Five (5) years from the last date of submission of bid.	Copy of Work Orders / Purchase Orders / Contracts along with Completion Certificates / Go-Live certificates / Self- Certificate signed by Authorized Signatory for On-going project.  Details of the projects to be submitted in the format "Form PQ-7"		

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S. No.	Criteria	Pre-qualification Criteria description	Required Documents	Response (Yes / No)	Reference in Response to Pre-qualification (Section # and Page #)
7	Past experience of providing skilled manpower in IT Operations project	The Bidder should have Experience of at least one ongoing/ implemented/ completed project of providing skilled manpower and carrying out IT field operations, maintenance support of large-scale IT/ ITES Projects in any government/ PSU in India in the last Five (5) years from the last date of submission of bid.	Copy of Work Orders /Purchase Orders / Contracts along with Completion Certificates / Go-Live certificates / Self-Certificate signed by Authorized Signatory for On-going project.  Details of the projects to be submitted in the format "Form PQ-7"		
8	Local Presence	The Bidder should have presence in Bihar in the form of a registered office / branch/ project office in the State of Bihar before signing of contract.	Self-Attested copy of Documentary evidence of Local Presence.  OR  Self-certificate declaring the local presence duly signed by Authorized Signatory.		
9	Blacklisting	The Bidder should not have been blacklisted by any State/ Central Government Departments/ Organizations/ PSUs in India or by any agencies Globally for corrupt, fraudulent or any other unethical business practices or for any other reason with in last 5 years from the last date of submission of bid.	Self-certified Undertaking on the company's letter head by its authorized signatory as per the format "Form PQ-9".  This should be duly notarized by a notary public.		
10	Certifications	The Bidder must have the following standard quality certifications viz. 4. ISO 9001 5. ISO 27001 6. CMMi Level 3 or above	Self-attested copy of certificates valid as on last date of bid submission		

S. No.	Criteria	Pre-qualification Criteria description	Required Documents	Response (Yes / No)	Reference in Response to Pre-Qualification (Section # and Page #)
11	GST Registration and PAN card	The Bidder shall be registered for GST and shall have valid PAN number. Any of the members in case of the Consortium/ LLP registered outside India, shall submit copies of the Tax Registration Certificates of respective Country.	Self-attested copies of GST registration certificate and PAN card.		
12	Power of Attorney	Power of attorney to authorized signatory for signing of proposal.  In case of consortium/ LLP, all the members of the consortium to submit power of attorney authorizing the Lead Bidder on their behalf.	Power of attorney duly executed and notarized.		
13	Certificate of no deviation	Certificate of no deviation of terms and conditions of the RFP	Self-certificate of no deviation duly signed by Authorized Signatory.		
14	EMD	EMD as per the details given in ITB	Details of EMD along with the original document		

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### FORM PQ - 3: Particulars of the Bidder

(On the Letterhead of the Bidder)

Ref: RFP for "Selection Of System Integrator (SI) Cum Master Service Provider (MSP) For Development Maintenance & Operation Of Digital Project and Asset Management Information System (DPAMIS) -cum- Intelligent Rural Road Maintenance Monitoring System (IRRMMS) For Rural Works Department, Bihar".

Bidder's particulars:

<b>Details of the Bidder</b>	
Name of Bidder	
Legal status	
Country of incorporation	
Year of Incorporation	
Year of commencement of business	
Registered Office address	
Principal place of business	
In case of non-Indian Firm, does the Firm have business presence in India?	Yes/No
Has the Bidder or any of its associates been ever blacklisted [debarred /terminated/declared having dissatisfactory performance with any state/central government organization /PSU Organization (bilateral /multilateral funding agencies.	Yes/No If answer to these questions is YES, the Bidder is not eligible for this assignment
<b>Details of authorized signatory of the Bidder</b>	
Name of authorized signatory	
Designation	
Address	
Phone No and E-mail address	
<b>Details of Key Contact Person of the Bidder</b>	
Name of authorized signatory	
Designation	
Address	
Phone No and E-mail address	

For and on behalf of \_\_\_\_\_

(Signature, name and designation of the authorized signatory)

(Name and seal of the Bidder)

**Note:** In case of Consortium, the Form PQ-3: Particulars of the Bidder, should be submitted for all the members of the Consortium.

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**FORM PQ - 4: Power of Attorney for Signing of Proposal**

Know all men by these presents, we..... (Name of Firm and address of the registered office) do hereby constitute, nominate, appoint and authorize Mr./Ms.....son/daughter/wife 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 Representative") 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 Proposal against RFP No. \_\_\_\_\_ dated \_\_\_\_\_ for "Selection Of System Integrator (SI) Cum Master Service Provider (MSP) For Development Maintenance & Operation Of Digital Project And Asset Management Information System (DPAMIS) -cum- Intelligent Rural Road Maintenance Monitoring System (IRRMMS) For Rural Works Department, Bihar", including but not limited to signing and submission of all applications, Proposals and other documents and writings, participating in pre-proposal and other conferences and providing information/ responses to the Rural Works Department, GoB., representing us in all matters before the Rural Works Department, GoB., signing and execution of all contracts and undertakings consequent to acceptance of our Proposal and generally dealing with the Rural Works Department, GoB. in all matters in connection with or relating to or arising out of our Proposal for the said work and/or upon award thereof to us till the entering into of the Contract with Rural Works Department, GoB.

AND we do hereby agree to ratify and confirm all acts, deeds and things lawfully done or caused to be done by our said Authorized Representative 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 Authorized Representative in exercise of the powers hereby conferred shall and shall always be deemed to have been done by us in relation with our Proposal against the RFP No. \_\_\_\_\_ dated \_\_\_\_\_.

IN WITNESS WHEREOF WE, ..... THE ABOVE NAMED PRINCIPAL HAVE

EXECUTED THIS POWER OF ATTORNEY ON THIS..... DAY OF .....2023.

For .....

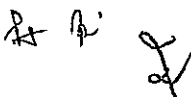
(Signature, name, designation and address)

Witnesses:

- 1.
- 2.


Power of Attorney Accepted

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



*Notes to Power of Attorney:*

- I. *To be executed by the Bidder in favour of Authorised Signatory.*
- II. *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.*
- III. *The Power of Attorney should be executed on a non-judicial stamp paper of Rs. 1000 (one Thousand) and duly notarized by a notary public.*
- IV. *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.*
- V. *For a Power of Attorney executed and issued overseas, the document will also have to be notarized in the jurisdiction where the Power of Attorney is being issued.*
- VI. *In case the Application is signed by an Authorised Director of the Bidder, a certified copy of the Appropriate resolution/ document conveying such authority may be enclosed in lieu of the Power of Attorney.*

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**FORM PQ - 5: Certificate of No Deviation**

[On the Letter head of the Bidder]

Ref. No.:

Date:

To

The Chief Engineer-4  
Rural Works Department  
5<sup>th</sup> Floor, Vishweshwaraiya Bhawan  
Bailey Road, Patna-800015

Subject: Certificate of No Deviation in response to your RFP for Selection of System Integrator (SI) Cum Master Service Provider (MSP) For Development Maintenance & Operation of Digital Project And Asset Management Information System (DPAMIS)-cum- Intelligent Rural Road Maintenance Monitoring System (IRRMMS) For Rural Works Department, Bihar.

Sir,

1. This is to certify that, the specifications of Software and IT Hardware which I/We have mentioned in the Technical bid Response, and which I/We shall supply if I/We am/are awarded with the Contract, are in conformity with the minimum specifications of the RFP document and that there are no deviations of any kind from the requirement specifications.
2. This is to certify that the proposed manpower for the Business Operations is in full conformity with the requirements as per this RFP document.
3. Also, I/ we have thoroughly read the tender and by signing this certificate, we hereby submit our token of unconditional acceptance to all the terms & conditions of the RFP document without any deviations.
4. We also certify that the price I/ we have quoted is inclusive of all the cost factors involved in the end-to-end implementation and execution of the project, to meet the desired Standards set out in the RFP Document.

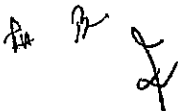
Thanking You,

Yours Faithfully,

For and on Behalf of \_\_\_\_\_

(Signature, name, designation and address, email address of authorised signatory)

(Name and seal of the Bidder)



**FORM PQ-6: BIDDERS RELEVANT EXPERIENCE SUMMARY**

**1. Outline of Similar Project Experience:**

Sl. No.	Assignment Name	Client Name	Location	Total Project Fees (Rs. In Lacs)	Total Project Cost (Rs. In Lacs)	Date of Commencement	Status of the project	Date of Completion	Proof Attached

Kindly attach Relevant Experience details as per format given in FORM PQ-7 and Relevant Proofs (For Completed Projects - Work Order / Agreement Copy and Completion Certificate (issued by Client or Self Certificate signed by the Authorized Signatory), For Ongoing Projects - Work Order/LOA/Agreement Copy / Engagement Letter and Project Ongoing certificate (issued by Client or Self Certificate signed by the Authorized Signatory) from the client for each of the above-mentioned projects.

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**FORM PQ -7 : BIDDER'S RELEVANT EXPERIENCE DETAILS**

<b>Details of Bidder's Relevant Experience</b>		
<b>Particulars</b>	<b>Details</b>	<b>Proper references to documentary proof enclosed with Page #</b>
<b>General Information</b>		
Name of the Bidder		
Name of the project		
Name of the Client for which the Project was executed		
Address of the Client		
<b>Project Details</b>		
Description of the project		
Scope of Services		
Technologies used		
<b>Other Details</b>		
Total cost of the project		
Total cost of the services provided by the Bidder		
Duration of the project (no. of months, start date, completion date, current status)		
<b>Other Relevant Information</b>		
Copy of Work Order and Certificate		

**Certification:** I, the undersigned, certify that to the best of my knowledge and belief, the above data provided correctly describe the Projects implemented by our Company.

For and on behalf of \_\_\_\_\_

(Signature, name and designation of the authorized signatory)

(Name and seal of the Bidder)

Handwritten signature and initials in black ink.



FORM PQ - 8: FINANCIAL CAPACITY OF BIDDER

[To be submitted separately on Chartered Accountant's letterhead for the bidder with Unique Documents Identifier Number (UDIN)]

Ref. No.:

Date:

To  
The Chief Engineer-4  
Rural Works Department  
5<sup>th</sup> Floor, Vishweshwaraiya Bhawan  
Bailey Road, Patna-800015

I / We hereby declare that I/We scrutinized and audited the financial statement of M/s..... Turnover of M/s ..... for financial years FY 2019-20, 2020-21 & 2021-22 as per audited statement is as follows. Below mentioned turnover is from the business of IT / ITES.

Financial Year	2019-20	2020-21	2021-22
Revenue from the business if IT / ITES services (INR Lakhs)			
Net Worth (INR Lakhs)			

I/ We hereby certify that M/s \_\_\_\_\_ has a positive net worth as on the 31<sup>st</sup> March 2022.

This is to certify that.....(name of the Bidder) has received the payments shown above against the respective years on account of Revenue from the business of IT/ ITES services.

For M/s. ....  
Chartered Accountants

Signature  
Name of Chartered Accountant  
Membership No.  
Seal/Stamp  
Note:

- i. The Bidder should provide the Financial Capability based on its own financial statements. Financial Capability of the Bidder's parent company or its subsidiary or any associate company will not be considered for computation of the Financial Capability of the Bidder.
- ii. Bidder to enclose Audited Balance Sheet and Profit & Loss account for above mentioned financial years.

*Handwritten signature*

**FORM PQ – 9: Self -certified Undertaking on ineligibility for corrupt or fraudulent practices/  
blacklisted by any of the Government or Public – Sector Units or Local Governments**

**[On the Letter head of the Bidder]**

**Ref No:**

**Date:**

To

The Chief Engineer-4

Rural Work Department

5<sup>th</sup> Floor, Vishweshwaraiya Bhawan

Bailey Road, Patna-800015

Sub: Self -certified Undertaking of not being an ineligibility for corrupt or fraudulent practices/  
blacklisted by any of the Government or Public – Sector Units or Local Governments in India.

Dear Sir,

With reference to the above subject, we hereby declare that, \_\_\_\_\_ (Name of the Bidder) is having unblemished record and hasn't been debarred by any Central/State Government or Public - Sector Units or Local Governments in India. I as on the date of Submission of the Bid and there has been no litigation with any PSU/ Corporation in Central/ any State Government in India which may have any impact on our ability to deliver the project (if awarded) or under a declaration of ineligibility for corrupt or fraudulent practices as on date of submission of Bid.

If this declaration is found to be incorrect then without prejudice to any other action that may be taken, my/ our bid security may be forfeited in the full and the Bid if any to the extent accepted may be cancelled.

Yours faithfully,

For and on behalf of \_\_\_\_\_

(Signature, name and designation of the authorized signatory)

(Name and seal of the Bidder)

Note:

- i) This Undertaking should be signed by the Authorized Signatory of the Bidder and duly notarized by a notary public.
- ii) This Undertaking should be submitted by the single Bidder/ all members in case of Consortium/ LLP/Private Limited Company/ Firm.

**Technical Proposal- Criteria and Standard Forms**  
**ANNEXURE: Technical Proposal Evaluation Criteria**

S.No	Criteria	Marks System	Required Documents
<b>(a) Past- Experience of bidder (Total Maximum Marks- 75 )</b>			
1	<p>The single Bidder/ Private Limited Company/ Firm or the Lead Bidder in case of Consortium/ LLP should have experience in Design, Development &amp; Rollout of e-Governance / IT Solution with scope of work containing Web Portal, GPS/GIS, MIS for any Central / State Government Departments / Organizations, PSUs in India in the last Five (5) years from the last date of submission of bid</p>	<p>The Bidder should have completed or on-going projects with the following Scope of Work. The Scope should be part of single project only:</p> <ol style="list-style-type: none"> <li>1. Design and Development of Government Web Portal</li> <li>2. GIS/ GPS based System</li> <li>3. Accounts Management System- Billing, Payments, Reconciliation, Stock Management etc.</li> <li>4. Integration with 3<sup>rd</sup> party system like external portal, banks, government systems etc.</li> <li>5. Alert Notification through SMS/ Email etc.</li> <li>6. Public Grievance &amp; Redressal System</li> <li>7. MIS Reports</li> <li>8. Mobile Applications</li> <li>9. Hosting on Cloud</li> <li>10. Training</li> <li>11. Centralised control Center Help Desk and Call Center</li> <li>12. Field IT operations at client site with more than 200 locations/ operational staffs.</li> </ol>	<p>Work order + Client ongoing/completion certificates; OR</p> <p>Work order + Self certificate of ongoing (by Authorized Signatory);</p> <p>Submit project details as per format the "FORM TECH-4"</p>

*Handwritten signature/initials*

		<ul style="list-style-type: none"> <li>- Single Project with at least 10 to 12 out of 12 of the above scope = 15 Marks</li> <li>- Single Project with at least 7 to 9 out of 12 of the above scope = 10 Marks</li> <li>- Single Project with at least 4 to 6 out of 12 of the above scope = 5 Marks</li> </ul>	
2	<p>The single Bidder/ Private Limited Company/ Firm or the Lead Bidder in Case of Consortium/ LLP should have Experience of executing at least one e-Governance IT project with scope of work including establishment and maintenance of Data Centre, Design &amp; Development of Software and carrying out field Operations for any Central / State Government Departments / organizations, PSUs in India in the last FIVE (5) years from the date of submission of bid.</p>	<p>The Bidder should have completed or on-going project:</p> <ul style="list-style-type: none"> <li>- Single Project Value of More than Rs. 50 Cr = 10 Marks</li> <li>- Single Project Value of More than or equal to Rs. 30 Cr upto RS. 50 Cr = 5 Marks</li> <li>- Single Project Value of less than Rs. 30 Cr upto Rs. 20 Cr = 3 Marks</li> </ul>	<p>Work order + Client ongoing/ completion certificate;</p> <p>OR</p> <p>Work order + Self certificate of ongoing (by Authorized Signatory);</p> <p>Submit project details as per format the "FORM TECH-4"</p>
3	<p>The single Bidder/ Private Limited Company/ Firm or any one of the members in case of a Consortium/ LLP should have experience of at least one project of Design, Development, Implementation, Maintenance and Operation of Road Maintenance and Monitoring System with scope of work containing</p>	<p>The Bidder should have completed or on-going projects with the following Scope of Work. The Scope should be part of single project only:</p> <ol style="list-style-type: none"> <li>1. Artificial Intelligence (AI/ ML) based Software for detection of defects such as Cracks, Pot Holes, Edge Defects, other defects (Bleeding/ Flushing/</li> </ol>	<p>Work order + Client ongoing/ completion certificates; OR</p> <p>Work order + Self certificate of ongoing (by Authorized Signatory);</p> <p>Submit project details as per format the</p>

*Handwritten marks/signatures*

<p>Artificial Intelligence based Faceless autonomous distress detection of roads and road furniture, GPS tagged display of multimedia &amp; multi-sensor objects viz. videos, images of the defects, visual of comparative visual synchronized videos, Plotting of the roads GIS GPS Maps, Dashboards, MIS Reports for any Central / State Government Departments Organizations in India in the last Five (5) years from the last date of submission of bid.</p>	<p>Raveling/ Rutting/ depression etc.), Unwanted Materials on road surface and shoulders, rain-cuts, defective road markings (White/ yellow Marking on sides of the road), Vegetation Defects of roads.</p> <ol style="list-style-type: none"> <li>2. Data Acquisition: Autonomous collection of data for AI based faceless distress detection of roads and road furniture.</li> <li>3. Bespoke multi-sensor fusion box with 2D/3D Camera, LiDAR, GPS, IR Camera, Accelerometer and Gyroscope and Mounting on a vehicle.</li> <li>4. Collection of GIS/GPS tagged multisensory data including 2D/3D/ Infrared images and video along with inertial and navigation data into a system (like Laptop)</li> <li>5. Tagging all the surveyed assets with geo-coordinates/ geolocation. Division of road into 100-meter chainages and geo-tagging of every chainage.</li> <li>6. Data Cleansing and removal abnormalities to make it ready for analysis, analyze the collected data, develop and train AI models.</li> <li>7. Identification of road items such as Kilometer stones, 200 meter stones, Cross drainage walls and structures, Road Signages etc.</li> <li>8. GIS based Maps showing</li> </ol>	<p>"FORM TECH-4"</p>
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		<p>the equality status of the Surveyed Roads with color coding</p> <p>9. Hosting and managing the system on AL based Cloud</p> <p>10. Dashboard- Road quality status statistics, progress of survey, comparative analytics information of multiple surveys.</p> <p>11. Side by side streaming of synchronized videos of consecutive surveys.</p> <p>12. MIS Reports</p> <ul style="list-style-type: none"> <li>• Generation of visual streams, images marked with detected defects for reporting.</li> <li>• Defect wise ticket generation and verification of defect rectification.</li> <li>• Generation of statistics for each road using the distress information.</li> <li>• Generation of reports in different formats (html, PDF, text or other required formats)</li> </ul> <p>13. Automated Email/SMS/Whatsapp notifications of events to the stakeholders.</p> <p>14. Setting up of Help Desk support and training of stakeholders</p> <p>15. Deployment of manpower with required equipment including laptop for survey.</p> <ul style="list-style-type: none"> <li>- Single Project with at least 12 to 15 out of 15 of the above scope = 20 Marks</li> <li>- Single Project with at least 9 to 11 out of 15 of the above scope = 10 Marks</li> <li>- Single Project with at least 8</li> </ul>	
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		<p>out of 15 of the above scope = 5 Marks</p> <p>If the above project is implemented in the state of Bihar, India the bidder will get additional 10 Marks.</p>	
4	<p>The single Bidder/ Private Limited Company/ Firm or Lead Bidder in case of Consortium/ LLP should have Experience of providing skilled manpower towards the field operations and maintenance support of large-scale IT / ITES Projects for the Government of Bihar or Bihar State Government Agencies in the last FIVE (5) years from the date of submission of bid.</p>	<p>The Bidder should have completed or on-going project. The Manpower from a single project will only be considered. Single project with:</p> <ul style="list-style-type: none"> <li>- Manpower of 500 or more = 20 Marks</li> <li>- Manpower of 300 to 499 = 10 Marks</li> <li>- Manpower of 100 or 299 = 5 Marks</li> </ul>	<p>Work order + Client ongoing/ completion certificates; OR</p> <p>Work order + Self certificate of ongoing (by Authorized Signatory);</p> <p>Submit project details as per format the "FORM TECH-4"</p>
(b) Proposed Solution and Approach (Total Maximum Marks- 20)			
5	<p>Proposed Solution: Bidders must demonstrate their understanding of the RFP requirements</p> <p>Please note Bidder shall be required to present their understanding separately in the form technical presentation and/or Demonstration.</p>	<p>a. Bidders Understanding of System- 5 Marks</p> <p>b. Solution Approach and Methodology, Proposed Solution- 15 Marks</p>	<p>Submit details as per FORM TECH-5, FORM TECH-6, AND FORM TECH7</p>

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(c) Qualification and Experience of Key Personnel (Total Maximum Marks- 5)			
6	<p>The Bidder should provide the Key Personnel proposed for the Project, are to be evaluated against the tasks assigned in accordance with four main criteria:</p> <ul style="list-style-type: none"> <li>i) General experience such as academic qualification and the no. of years of related experience</li> <li>ii) Project related experience based on the number of relevant projects implemented / Years of Experience</li> <li>iii) Experience for any similar projects; and</li> <li>iv) For assessing employment, the personnel deployed who has worked for the current employer on a regular / permanent basis continuously for the 12 months or more.</li> </ul>	<p>Maximum of 5 Marks for all the Key Resources Together.</p>	<p>CVs of the Key Personnel deployment of resources</p> <p>Submit details as per FORM TECH-8</p>

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## ANNEXURE: Technical Proposal Forms

### Technical Proposal-CHECKLIST OF REQUIRED FORMS

S No.	FORM	DESCRIPTION	Page#
1	TECH-1	Technical Proposal Submission Form.	
2	TECH-2	Technical Evaluation Criteria Check List	
3	TECH-3	Bidder's Relevant Experience Summary	
4	TECH-4	Bidder's Relevant Experience Details	
5	TECH-5	Proposed Solution, Approach, Methodology and Work Plan	
6	TECH-6	Implementation Plan	
7	TECH-7	Compliance to Technical, Functional, and Operational requirements	
8	TECH-8	CVs of Proposed Key Resources	

**Note: All pages of the original proposal shall be initialed by the same authorized representative of the Bidders who signs the proposal.**

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**FORM TECH- 1: TECHNICAL PROPOSAL SUBMISSION FORM**  
[On the Letter head of the Bidder]

RefNo. :

Date :

To

The Chief Engineer-4  
Rural Works Department  
5<sup>th</sup> Floor, Vishweshwaraiya Bhawan  
Bailey Road, Patna-800015

Subject: Submission of Technical Proposal in response to your RFP for " Selection of System Integrator (SI) Cum Master Service Provider (MSP) For Development Maintenance & Operation of Digital Project And Asset Management Information System (DPAMIS)-cum- Intelligent Rural Road Maintenance Monitoring System (IRRMMS) For Rural Works Department, Bihar.."

Dear Sir,

We, the undersigned, offer to provide the services for "Selection of System Integrator (SI) Cum Master Service Provider (MSP) For Development Maintenance & Operation of Digital Project And Asset Management Information System (DPAMIS)-cum- Intelligent Rural Road Maintenance Monitoring System (IRRMMS) For Rural Works Department, Bihar.." in accordance with your Request for Proposals (RFP) RFP No. \_\_\_\_\_ dated \_\_\_\_\_ and our proposal being submitted in response to the RFP.

We hereby are submitting our Technical Proposal in a sealed envelope.

We hereby declare that:

- (a) All the information and statements made in this Proposal are true and we accept that any misinterpretation or misrepresentation contained in this Proposal may lead to our disqualification by the Client and/ or may be sanctioned by the Client.
- (b) Our Proposal shall be valid and remain binding upon us for the period of time specified in the Data Sheet.
- (c) We have no conflict of interest in accordance with ITB.
- (d) We meet the eligibility requirements as stated in data sheet, and we confirm our understanding of our obligation to abide by the Client's policy in regard to corrupt and fraudulent practices as per ITB.

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- (e) We are not subject to, and not controlled by any entity or individual that is subject to, a temporary suspension or a debarment imposed by Client.
- (f) In competing for (and, if the award is made to us, in executing) the Contract, we undertake to observe the laws against fraud and corruption, including bribery, in force in India.
- (g) Except as stated in the Data Sheet, we undertake to negotiate a Contract on the basis of the proposal we submit.
- (h) Our Proposal is binding upon us and subject to any modifications resulting from the Contract negotiations.

We undertake, if our Proposal is accepted and the Contract is signed, to initiate the Services related to the assignment no later than the date indicated in the Data Sheet.

We understand that the Client is not bound to accept any Proposal that the Client receives.

Yours sincerely,

For M/s \_\_\_\_\_

Signature of the Authorized Signature

Name:

Designation:

Name of Bidder:

In the capacity of:

Address:

Contact information (phone and e-mail):


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**FORM TECH -2: Technical Evaluation Criteria Check List**

S.No	Criteria	Supporting Documents	Response (Yes / No)	Reference in Technical Proposal (Section # and Page#)
<b>(a) Past-Experience of the Firm</b>				
1	The single Bidder/ Private Limited Company/ Firm or the Lead Bidder in case of Consortium/ LLP should have experience in Design, Development & Rollout of e-Governance / IT Solution with scope of work containing Web Portal, GPS/GIS, MIS for any Central / State Government Departments / Organizations, PSUs in India in the last Five (5) years from the last date of submission of bid	Work order + Client ongoing/completion certificates; OR Work order + Self certificate of ongoing (by Authorized Signatory); Submit project details as per format the "FORM TECH-4"		
2	The single Bidder/ Private Limited Company/ Firm or the Lead Bidder in Case of Consortium/ LLP should have Experience of executing at least one e- Governance IT project with scope of work including establishment and maintenance of Data Centre, Design & Development of Software and carrying out field Operations for any Central / State Government Departments / organizations, PSUs in India in the last FIVE (5) years from the date of submission of bid.	Work order + Client ongoing/ completion certificate; OR Work order + Self certificate of ongoing (by Authorized Signatory); Submit project details as per format the "FORM TECH-4"		

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3	<p>The single Bidder/ Private Limited Company/ Firm or any one of the members in case of a Consortium/ LLP should have experience of at least one project of Design, Development, Implementation, Maintenance and Operation of Road Maintenance and Monitoring System with scope of work containing Artificial Intelligence based Faceless autonomous distress detection of roads and road furniture, GPS tagged display of multimedia &amp; multi-sensor objects viz. videos, images of the defects, visual of comparative visual synchronized videos, Plotting of the roads GIS GPS Maps, Dashboards, MIS Reports for any Central / State Government Departments Organizations in India'in the last Five (5) years from the last date of submission of bid.</p>	<p>Work order + Client ongoing/ completion certificates; OR</p> <p>Work order + Self certificate of ongoing (by Authorized Signatory);</p> <p>Submit project details as per format the</p> <p>"FORM TECH-4"</p>		
4	<p>The single Bidder/ Private Limited Company/ Firm or Lead Bidder in case of Consortium/ LLP should have Experience of providing skilled manpower towards the field operations and maintenance support of large-scale IT / ITES Projects for the Government of Bihar or Bihar State Government Agencies in the last FIVE (5) ears from the date of submission of bid.</p>	<p>Work order + Client ongoing/ completion certificates; OR</p> <p>Work order + Self certificate of ongoing (by Authorized Signatory);</p> <p>Submit project details as per format the</p> <p>"FORM TECH-4"</p>		
<b>(b) Proposed Solution and Approach</b>				
5	<p>Proposed Solution: Bidders must demonstrate their understanding of the RFP requirements</p> <p>Please note Bidder shall be required to present their understanding separately in the form technical presentation and/or Demonstration.</p>	<p>Submit details as per FORM TECH-5, FORM TECH-6, AND FORM TECH7</p>		

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**(c) Qualification and Experience of Key personnel**

6	<p>The Bidder should provide the Key Personnel proposed for the Project, are to be evaluated against the tasks assigned in accordance with four main criteria:</p> <ul style="list-style-type: none"><li>i) General experience such as academic qualification and the no. of years of related experience.</li><li>ii) Project related experience based on the number of relevant projects implemented / Years of Experience</li><li>iii) Experience for any similar projects;</li></ul>	<p>CVs of the Key Personnel deployment of resources</p> <p>Submit details as per FORM TECH-8</p>		
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**FORM TECH-3 : BIDDERS RELEVANT EXPERIENCE SUMMARY**

**2. Outline of Similar Project Experience:**

Sl. No.	Assignment Name	Client Name	Location	Total Project Fees (Rs. In Lacs)	Total Project Cost (Rs. In Lacs)	Date of Commencement	Status of the project	Date of Completion	Proof Attached

Kindly attach Relevant Experience details as per format given in FORM TECH-4 and Relevant Proofs (For Completed Projects - Work Order / Agreement Copy and Completion Certificate (issued by Client or Self Certificate signed by the Authorized Signatory), For Ongoing Projects - Work Order/LOA/Agreement Copy / Engagement Letter and Project Ongoing certificate (issued by Client or Self Certificate signed by the Authorized Signatory) from the client for each of the above-mentioned projects.

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**FORM TECH-4 : BIDDER'S RELEVANT EXPERIENCE DETAILS**

<b>Details of Bidder's Relevant Experience</b>		
<b>Particulars</b>	<b>Details</b>	<b>Proper references to documentary proof enclosed with Page #</b>
<b>General Information</b>		
Name of the Bidder		
Name of the project		
Name of the Client for which the Project was executed		
Address of the Client		
<b>Project Details</b>		
Description of the project		
Scope of Services		
Technologies used		
<b>Other Details</b>		
Total cost of the project		
Total cost of the services provided by the Bidder		
Duration of the project (no. of months, start date, completion date, current status)		
<b>Other Relevant Information</b>		
Copy of Work Order/ Contract and Certificate		
Letter from the client to indicate the successful completion or Ongoing Status of the project		

**Certification:** I, the undersigned, certify that to the best of my knowledge and belief, the above data provided correctly describe the Projects implemented by us.

For and on behalf of \_\_\_\_\_

(Signature, name and designation of the authorized signatory)

(Name and seal of the Bidder)

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## FORM TECH-5: Proposed Solution, Approach, Methodology and Work Plan

This Form TECH-5 is to provide a description of the approach, Methodology and Work Plan for performing the assignment, including a detailed description of the proposed solution methodology and proposed staffing as per the Term of Reference (TOR). The Bidder is required to describe the proposed Technical Solution in this section.

The Bidder should cover the following aspects in their Technical Proposal:

- The Bidder should cover details of the approach and methodology proposed to be adopted for planning and implementation of Software and Operations as outlined in TOR.
- Clear articulation and description of the design and technical solution and various components.
- Extent of compliance to functional and technical requirements specified in the scope of work.
- Technical Design and clear articulation of various components of the solution.
- By means of diagrammatic/pictorial representations, the Bidder should provide complete details of the hardware, software and network architecture of the solution.
- Solution details included in the proposed solution is required to meet functional and technical requirements.
- Functional coverage of the solution and One to One mapping of Clients functional requirement with solution module/component proposed.
- Details of any third – party software/ components, their description and purpose (if Proposed).
- Capabilities of the proposed solution to address the functional requirements.
- Bill of Material of Hardware, System Software, RDBMS, etc. required to deploy the proposed solution.
- Detailed Methodology and approach provided for training of the different stakeholders.
- Best practices from undertaking change Management.
- The Bidder should provide details about of the Call Centre, Helpdesk staff available for the purpose of resolution of issues pertaining to the conditions at the proposed solution.
- Additional information directly relevant to the scope of services of the tender may be submitted to accompany the proposal.
- Detailed Implementation Plan.
- Details of services offered for Warranty, ATS and Support and Maintenance services.

The Technical Solution proposed would be evaluated on the following broad parameters. The Client reserves the rights to add, delete, or modify these parameters at any time during the Tender process, without assigning any reason whatsoever and without being required to intimate the Bidder of any such change.

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## FORM TECH – 6: Implementation Plan

Bidder should propose comprehensive project plan for implementation. Meeting tender requirements.  
(Bidder may propose a timeline equal to or lesser than that of mentioned in the tender)

S.No	Item of Activity	Month/Week-Wise Program					
		W1	W2	W3	W4	W5	....
1	Activity 1						
1.1	Sub-Activity 1						
1.2	Sub-Activity 2						
2	Activity 2						
2.1	Sub-Activity 1						
2.2	Sub-Activity 2						
3	Activity 3						
3.1	Sub-Activity 1						
3.2	Sub-Activity 1						

- Indicate all main activities of the assignment and other benchmarks such as approvals. For phased assignment indicate activities, deliverables, and benchmarks separately for each Phase.
- Duration of activities shall be indicated in the form of a bar chart

Note: The above activities chart is just for the purpose of illustration. Bidders are requested to provide detailed activity & Phase wise timelines for executing the project with details of deliverables & milestones as per their proposal.

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**FORM TECH-7: Compliance to Technical Function, and Operational Requirements**

<b>RFP Section</b>	<b>Component</b>	<b>Description</b>	<b>Compliance (Full/Partial/Non Compliance)</b>

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## FORM TECH - 8: CVs of Proposed Key Resources

CVs of the Key Personnel (Project Manager, DC Administrators, Software Programmers) shall be submitted in the format given below.

1	Name of the Resource					
2	Proposed Position					
3	Total years of Experience					
4	Certification					
5	Education	Qualification	Name of School/College/ University	Degree Obtained	Year of Completion	
6	Language	Language	Read	Write	Speak	
7	Employment Record	Employer	Position	From (MM/YYYY Y)	To (MM/YYYY Y)	Exp. in Months
8	Past Experience	Name of Assignment/ Project				
		Year				
		Location				
		Client				
		Main Project				

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		Features	
		Positions held	
		Activities Performed	
9	Certification	<p>I, the undersigned, certify that to the best of my knowledge and belief, this bio-data correctly describes personal, Qualification and experience of the person as stated above.</p> <p>Signature of the Authorized Signatory of Bidder.</p>	

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### 3. Financial Proposal - Standard Forms

Financial Proposal Standard Forms shall be used for the preparation of the Financial Proposal according to the instructions given in ITB. Such Forms are to be used whichever is the selection method indicated in Data Sheet.

Form FIN-1 : Financial Proposal Submission Form  
Form FIN-2 : Breakdown of Costs

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**FORM FIN – 1: Financial Proposal Submission Form**

[On the Letter head of the Bidder]

Ref No:

Date:

To  
The Chief Engineer-4  
Rural Works Department  
5<sup>th</sup> Floor, Vishweshwaraiya Bhawan  
Bailey Road, Patna-800015

Subject: Submission of Financial Proposal in response to your RFP for " Selection of System Integrator (SI) Cum Master Service Provider (MSP) For Development Maintenance & Operation of Digital Project And Asset Management Information System (DPAMIS)-cum- Intelligent Rural Road Maintenance Monitoring System (IRRMMS) For Rural Works Department, Bihar.

”.

Dear Sir,

We, the undersigned, offer to provide the service for “Selection of System Integrator (SI) Cum Master Service Provider (MSP) For Development Maintenance & Operation of Digital Project And Asset Management Information System (DPAMIS)-cum- Intelligent Rural Road Maintenance Monitoring System (IRRMMS) For Rural Works Department, Bihar.

“ in accordance with your Request for Proposal, RFP Ref no. \_\_\_\_\_ dated \_\_\_\_\_ and our Technical Proposal.

Our attached Financial Proposal is for a total sum of Rs. \_\_\_\_\_ [Insert amount(s) in words and figures].

Price and Validity: All the prices that shall be quoted during bid submission are in accordance with the terms as specified in the Tender documents. All the prices and other terms and conditions are valid for a period of 120 calendar days from the last date for submission of the Proposal.

We hereby confirm that the quoted amount is exclusive of the local taxes such as GST as per the terms stated in the RFP, which shall be identified during negotiations and shall be added to the above amount.

We hereby confirm that the price quoted is in accordance with all requirements, instruction, terms and conditions and procedures included in RFP documents.

We hereby declare that our Proposal is made in good faith, without collusion or fraud and the

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information contained in the Proposal is true and correct to the best of our knowledge and belief.

We understand that our Financial Proposal shall be binding upon us subject to the modifications resulting from Contract negotiations, up to expiration of the validity period of the Proposal, i.e. before the date indicated in the Date Sheet.

We confirm that no deviations are associated with financial offer.

We confirm that we have submitted the information as required by the Client in ITB. In case the Client require any other further information/documentary proof in this regard before evaluation of our Bid, we agree to furnish the same in time.

We understand you are not bound to accept any Proposal you receive. We remain.

Yours sincerely,

For M/s \_\_\_\_\_

Signature of the Authorized Signatory

Name:

Designation:

Name of Bidder:

In the capacity of:

Address:

Contact information (phone and e-mail):

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**FORM FIN -2: Financial Proposal - Breakdown of the Costs**

**I. Implementation of Digital Project and Asset Management Information System (DPAMIS) and Intelligent Rural Road Maintenance Monitoring System (IRRMMS) – (One Time Cost Component-X)**

**A. Digital Project and Asset Management Information System (DPAMIS) and Intelligent Rural Road Maintenance Monitoring System (IRRMMS) Software as per Requirement Specifications given in the RFP.**

Sl. No.	Component	Quantity	Unit price	Price (Before GST)	GST %	GST Amount	Total price (Inclusive of GST)
	A	B	C	D = B*C	E	F = D * E	G = D + F
1	Digital Project and Asset Management Information System (DPAMIS) Software – Design, Development / customise, Testing, Deployment, Go-Live	1					
2	Central Server Software: Intelligent Rural Road Maintenance Monitoring System Software (IRRMMS) as per Requirement Specifications given in the RFP - Design, Development, Customise, Testing, Deployment, Go-Live	1					
3.	Data Acquisition Sensor Box Software	108					
<b>Total Cost of Component (A)</b>							

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**B. Data Centre - IT Hardware and Systems Software for Data Centre with 5 years of on-site Warranty and Maintenance**

Sl. No.	Component	Quantity	Unit price	Price (Before GST)	GST %	GST Amount	Total price (Inclusive of GST)
	A	B	C	D = B*C	E	F = D * E	G = D + F
1	Analytics Server Hardware (AI Server)	4					
2	Gateway Server	2					
3	Reporting Server (WebUI Portal)	2					
4	Database Server Hardware	4					
5	Application and Portal Server Hardware for DPAMIS	2					
6	GIS/ GPS Server Hardware	2					
7	Management Servers Hardware (Backup, NMS, HelpDesk, etc)	4					
8	Storage Platform with RAID - 750 TB Usable- For AI Servers	1					
9	Enterprise Storage Platform with RAID-3PB (3000TB) Usable- For Survey Data Storage	1					
10	SAN Storage for Database Servers - 20 TB Usable	1					
11	Tape Library with Tapes for Backup of Active Data	As required					
12	Private Cloud Software	As required					
13	Virtualisation Software	As required					
14	Operating System for Servers - Windows Server	As required					

Sl. No.	Component	Quantity	Unit price	Price (Before GST)	GST %	GST Amount	Total price (Inclusive of GST)
	A	B	C	D = B*C	E	F = D * E	G = D + F
15	Operating System for Servers - Linux	As required					
16	GIS/ GPS Enterprise Server Software	1					
17	GPS Based Vehicle Tracking System Software	1					
18	Other Third Party Software Licenses	As required					
19	Database Software - MySQL Enterprise	As required					
20	Database Software - MS SQL Enterprise	As required					
21	Database Software - PostgreSQL Enterprise	As required					
22	Application Server Software	As required					
23	Network Management Software (NMS)	1					
24	Backup Software	1					
25	Anti-Virus Software	90					
26	Network Firewall with including Load Balancing with required subscriptions for 5 years	As required					
27	SAN Switches	As required					
28	L2 Network Switch	As required					
29	L3 Network Switch	As required					
30	Server Rack with PDU and Accessories	As required					
31	Server Console Unit	3					
32	Online UPS - 200 KVA with 2 hours of	2					

Sl. No.	Component	Quantity	Unit price	Price (Before GST)	GST %	GST Amount	Total price (Inclusive of GST)
	A	B	C	D = B * C	E	F = D * E	G = D + F
	power Backup						
33	CCTV Cameras – Indoor Network IP Dome Cameras of 2MP or higher	As Required					
34	CCTV DVR/NVR with 30 days of data retention	1					
35	Fingerprint / Face Biometric Access Control System to Data Centre Room	4					
36	Desktop Computers – Control Center Operators – AI Data Monitoring	55					
37	Desktop Computers – Operations Monitoring	25					
38	Network Printer	2					
39	Video Wall (4 cubes x 2 cubes) with Controller, Stand and Video Wall Management Software	1					
40	Other, if any						
<b>Total of Cost Component (B)</b>							

### C. Operational Resources During Implementation

SL. No.	Position	No. of Resources	Unit Rate per Month	Duration in months	Total Rate (Before GST)	GST %	GST Amount	Total Charges (inclusive of GST)
	H	I	J	K	L = (I * J * K)	M	N	O = L + N

R R

SL. No.	Position	No. of Resources	Unit Rate per Month	Duration in months	Total Rate (Before GST)	GST %	GST Amount	Total Charges (inclusive of GST)
	H	I	J	K	$L=(I*J*K)$	M	N	$O=L+N$
<b>Resources to be Deployed at Head Quarter- Project Management, Data Center and Command Control Center, Help Desk, Call Center support etc.</b>								
1	Programme Manager/ Project Head	1						
2	Project Manager - DPAMIS	1						
3	Operations Manager - IRRMMS	1						
4	Assistant Project Manager- Operations	17						
5	Data Center Manager	1						
6	System / Server Administrator	6						
7	Network / Security Administrator	4						
8	Database Administrator (DBA)	4						
9	Manager- Command Control Center	1						
10	Civil Engineers – Control Center	2						
11	Control Center – Monitoring Operators	42						
12	Helpdesk Operator	16						
13	Call Center Operator	12						

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SL. No.	Position	No. of Resources	Unit Rate per Month	Duration in months	Total Rate (Before GST)	GST %	GST Amount	Total Charges (inclusive of GST)
	H	I	J	K	$L=(I*J*K)$	M	N	$O=L+N$
14	Data Entry/ Data Collection Operators	10						
15	Software Development Manager	1						
16	Software Development – Team Leader	2						
17	Software Developers – Operations Support	6						
18	Software Developers	5						
19	Mobile Application Developers	2						
20	Data Scientist	2						
	<b>Field Operations Resources</b>							
21	Survey Operator	108						
22	Vehicle Driver	108						
23	Equipment Support Engineer	38						
24	IT Support Engineer	38						
25	Operations Support – Civil Engineer	38						
<b>Total of Cost Component (C)</b>								

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**D. Leasing and Subscriptions During Implementation**

SL. No.	Details	Quantity	Unit Rate per Month	Duration in months	Total Rate (Before GST)	GST %	GST Amount	Total Charges (inclusive of GST)
	H	I	J	K	$L=(I*J*K)$	M	N	$O=L+N$
1	Dedicated Vehicle with GPS Tracker on Lease to mount the Survey Equipment and use for Survey	108						
2	Leasing of Survey Equipment Kit as per the Technical Specifications given in the RFP	108						
3	Third-Party Software Maintenance, if any	As Required						
4	Internet Leased Line (ILL) at Data Center – 1 Gbps Dedicated 1:1 Connection – Cost per month	4						
5	Internet Broadband Leased Line (ILL) for web portals and Control Center at Head Quarter – 500 Mbps Connection –	4						

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SL. No.	Details	Quantity	Unit Rate per Month	Duration in months	Total Rate (Before GST)	GST %	GST Amount	Total Charges (inclusive of GST)
	H	I	J	K	$L=(I*J*K)$	M	N	$O=L+N$
	Cost per Month							
6	Internet Broad band Connectivity at PIUs – 500Mbps Connection – Cost per month	108						
<b>Total of Cost Component (D)</b>								

#### E. Operations and Maintenance Costs During Implementation

Sl. No.	Component	Quantity	Unit price	Price (Before GST)	GST %	GST Amount	Total price (Inclusive of GST)
	A	B	C	$D = B * C$	E	$F = D * E$	$G = D + F$
1	Survey of Roads for GIS Mapping using Mobile Application (Cost per KM)	1,29,000 approx					
2	Vehicle Running Cost per KM for Survey for IRRMMS	3,20,0000 approx					
3	SMS Gateway Cost per 1 Lakh SMSs	5					
4	WhatsApp Business Messaging Cost per 1 Lakh	5					
5	Training of Stake Holders in batches not less than 25. Cost of training per person	1					
6	Travel Allowances per day per person	1					

*Handwritten initials/signature*



Sl. No.	Component	Quantity	Unit price	Price (Before GST)	GST %	GST Amount	Total price (Inclusive of GST)
	A	B	C	$D = B * C$	E	$F = D * E$	$G = D + F$
7	ISO 27001 Certification for Data Centre - Initial Certification	1					
<b>Total of Cost Component (E)</b>							

**Summary of Charges for Implementation - (One Time Cost Component - X)**

Sl. No.	Component	Charges (Exclusive of GST)	GST %	GST Amount	Total Charges (inclusive of GST)
	P	Q	R	S	$T = (Q + S)$
1	Digital Project and Asset Management Information System (DPAMIS) and Intelligent Rural Road Maintenance Monitoring System (IRRMMS) Software as per Requirement Specifications given in the RFP - A				
2	Data Centre – IT Hardware and Systems Software for Data Center with 5 years of onsite Warranty and Maintenance-B				
4	Operational Resources During Implementation- C				
5	Lease and Subscription Expenses during Implementation - D				
6	Operations and Maintenance Costs During Implementation- E				
<b>Total Implementation Price - Cost Component - X (A + B + C + D + E)</b>					

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**II. Post Implementation - Maintenance and Operationalisation of Digital Project and Asset Management Information System (DPAMIS) and Intelligent Rural Road Maintenance Monitoring System (IRRMMS)**

**F. Business Operations and Maintenance Charges (Cost Component — Y1)-Year 1**

**(a) Operational Resources for Year I – Y1A**

SL. No.	Position	No. of Resources	Unit Rate per Month	Duration in months	Total Rate (Before GST)	GST %	GST Amount	Total Charges (inclusive of GST)
	H	I	J	K	$L=(I*J*K)$	M	N	$O=L+N$
<b>Resources to be Deployed at Head Quarter- Project Management, Data Center and Command Control Center, Help Desk, Call Center support etc.</b>								
1	Programme Manager/ Project Head	1		12				
2	Project Manager - DPAMIS	1		12				
3	Operations Manager - IRRMMS	1		12				
4	Assistant Project Manager-Operations	17		12				
5	Data Center Manager	1		12				
6	System / Server Administrator	6		12				
7	Network / Security Administrator	4		12				
8	Database Administrator (DBA)	4		12				
9	Manager- Command Control Center	1		12				
10	Civil Engineers –	2		12				

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SL. No.	Position	No. of Resources	Unit Rate per Month	Duration in months	Total Rate (Before GST)	GST %	GST Amount	Total Charges (inclusive of GST)
	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>	<b>L=(I*J*K)</b>	<b>M</b>	<b>N</b>	<b>O=L+N</b>
	Control Center							
11	Control Center – Monitoring Operators	42		12				
12	Helpdesk Operator	16		12				
13	Call Center Operator	12		12				
14	Data Entry/ Data Collection Operators	10		12				
15	Software Development Manager	1		12				
16	Software Development – Team Leader	2		12				
17	Software Developers – Operations Support	6		12				
18	Software Developers	5		12				
19	Mobile Application Developers	2		12				
20	Data Scientist	2		12				
	<b>Field Operations Resources</b>							
21	Survey Operator	108		12				
22	Vehicle Driver	108		12				
23	Equipment Support Engineer	38		12				

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SL. No.	Position	No. of Resources	Unit Rate per Month	Duration in months	Total Rate (Before GST)	GST %	GST Amount	Total Charges (inclusive of GST)
	H	I	J	K	$L=(I*J*K)$	M	N	$O=L+N$
24	IT Support Engineer	38		12				
25	Operations Support – Civil Engineer	38		12				
<b>Total of Cost Component – Y1A</b>								

**(b) Leasing and Subscriptions and Software Maintenance During Implementation Costs for Year 1 – Y1B**

SL. No.	Details	Quantity	Unit Rate per Month	Duration in months	Total Rate (Before GST)	GST %	GST Amount	Total Charges (inclusive of GST)
	H	I	J	K	$L=(I*J*K)$	M	N	$O=L+N$
1	Dedicated Vehicle with GPS Tracker on Lease to mount the Survey Equipment and use for Survey	108		12				
2	Leasing of Survey Equipment Kit as per the Technical Specifications given in the RFP	108		12				
3	Third-Party Software Maintenance, if any	As Required		12				
4	Internet Leased Line (ILL) at Data	4		12				

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SL. No.	Details	Quantity	Unit Rate per Month	Duration in months	Total Rate (Before GST)	GST %	GST Amount	Total Charges (inclusive of GST)
	H	I	J	K	$L=(I*J*K)$	M	N	$O=L+N$
	Center – 1 Gbps Dedicated 1:1 Connection – Cost per month							
5	Internet Broadband Leased Line (ILL) for web portals and Control Center at Head Quarter – 500 Mbps Connection – Cost per Month	4		12				
6	Internet Broadband Connectivity at PIUs – 500Mbps Connection – Cost per month	108		12				
7	Maintenance of Digital Project and Asset Management Information System (DPAMIS) Software	1		12				
8	Maintenance of Central Server Software: AI based	1		12				

A. J.

SL. No.	Details	Quantity	Unit Rate per Month	Duration in months	Total Rate (Before GST)	GST %	GST Amount	Total Charges (inclusive of GST)
	H	I	J	K	$L=(I*J*K)$	M	N	$O=L+N$
	Intelligent Rural Road Maintenance and Monitoring System Software (IRRMMS)							
9	Maintenance of Data Acquisition Sensor Box Software	1		12				
<b>Total of Cost Component – Y1B</b>								

(c) Operations and Maintenance Costs for Year 1 – Y1C

Sl. No.	Component	Quantity	Unit price	Price (Before GST)	GST %	GST Amount	Total price (Inclusive of GST)
	A	B	C	$D = B * C$	E	$F = D * E$	$G = D + F$
1	Survey of Roads for GIS Mapping using Mobile Application (Cost per KM)	1,29,000 approx					
2	Vehicle Running Cost per KM for Survey for IRRMMS	3,20,0000 approx					
3	SMS Gateway Cost per 1 Lakh SMSs	5					
4	WhatsApp Business Messaging Cost per 1 Lakh	5					
5	Training of Stake Holders in batches not less than 25. Cost of	1					

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Sl. No.	Component	Quantity	Unit price	Price (Before GST)	GST %	GST Amount	Total price (Inclusive of GST)
	A	B	C	$D = B * C$	E	$F = D * E$	$G = D + F$
	training per person						
6	Travel Allowances per day per person	1					
7	ISO 27001 Certification for Data Centre - Initial Certification	1					
<b>Total of Cost Component – Y1C</b>							

**Summary of Charges for Business Operations for Year I- (Y1)**

SL No.	Component	Charges (Exclusive GST)	GST%	GST Amount	Total Charges (inclusive of GST)
	P	Q	R	S	$T = (Q+S)$
1	Operational Resources for Year 1 – Y1A				
2	Leasing and Subscriptions and Software Maintenance During Implementation Costs for Year 1 – Y1B				
3	Operations and Maintenance Costs for Year 1 – Y1C				
<b>Business Operations and Maintenance Charges- Cost Component—Y I (Y1A+Y1B+Y1C)</b>					

*B. B. J.*

**G. Business Operations and Maintenance Charges (Cost Component- Y2)-Year 2**


**(a) Operational Resources for Year 2 – Y2A**

SL. No.	Position	No. of Resources	Unit Rate per Month	Duration in months	Total Rate (Before GST)	GST %	GST Amount	Total Charges (inclusive of GST)
	H	I	J	K	$L=(I*J*K)$	M	N	$O=L+N$
<b>Resources to be Deployed at Head Quarter- Project Management, Data Center and Command Control Center, Help Desk, Call Center support etc.</b>								
1	Programme Manager/ Project Head	1		12				
2	Project Manager - DPAMIS	1		12				
3	Operations Manager - IRRMMS	1		12				
4	Assistant Project Manager- Operations	17		12				
5	Data Center Manager	1		12				
6	System / Server Administrator	6		12				
7	Network / Security Administrator	4		12				
8	Database Administrator (DBA)	4		12				
9	Manager- Command Control Center	1		12				
10	Civil Engineers – Control Center	2		12				
11	Control Center – Monitoring Operators	42		12				

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SL. No.	Position	No. of Resources	Unit Rate per Month	Duration in months	Total Rate (Before GST)	GST %	GST Amount	Total Charges (inclusive of GST)
	H	I	J	K	$L=(I*J*K)$	M	N	$O=L+N$
12	Helpdesk Operator	16		12				
13	Call Center Operator	12		12				
14	Data Entry/ Data Collection Operators	10		12				
15	Software Development Manager	1		12				
16	Software Development - Team Leader	2		12				
17	Software Developers - Operations Support	6		12				
18	Software Developers	5		12				
19	Mobile Application Developers	2		12				
20	Data Scientist	2		12				
	<b>Field Operations Resources</b>							
21	Survey Operator	108		12				
22	Vehicle Driver	108		12				
23	Equipment Support Engineer	38		12				
24	IT Support Engineer	38		12				
25	Operations Support - Civil Engineer	38		12				

A. R. 

SL. No.	Position	No. of Resources	Unit Rate per Month	Duration in months	Total Rate (Before GST)	GST %	GST Amount	Total Charges (inclusive of GST)
	H	I	J	K	$L=(I*J*K)$	M	N	$O=L+N$
Total of Cost Component – Y2A								

(b) Leasing and Subscriptions and Software Maintenance During Implementation Costs for Year 2 – Y2B

SL. No.	Details	Quantity	Unit Rate per Month	Duration in months	Total Rate (Before GST)	GST %	GST Amount	Total Charges (inclusive of GST)
	H	I	J	K	$L=(I*J*K)$	M	N	$O=L+N$
1	Dedicated Vehicle with GPS Tracker on Lease to mount the Survey Equipment and use for Survey	108		12				
2	Leasing of Survey Equipment Kit as per the Technical Specifications given in the RFP	108		12				
3	Third-Party Software Maintenance, if any	As Required		12				
4	Internet Leased Line (ILL) at Data Center – 1 Gbps Dedicated 1:1 Connection – Cost per	4		12				

*[Handwritten marks]*

SL. No.	Details	Quantity	Unit Rate per Month	Duration in months	Total Rate (Before GST)	GST %	GST Amount	Total Charges (inclusive of GST)
	H	I	J	K	$L=(I*J*K)$	M	N	$O=L+N$
	month							
5	Internet Broadband Leased Line (ILL) for web portals and Control Center at Head Quarter -- 500 Mbps Connection -- Cost per Month	4		12				
6	Internet Broadband Connectivity at PIUs -- 500Mbps Connection -- Cost per month	108		12				
7	Maintenance of Digital Project and Asset Management Information System (DPAMIS) Software	1		12				
8	Maintenance of Central Server Software: AI based Intelligent Rural Road Maintenance and Monitoring	1		12				

A B I

SL. No.	Details	Quantity	Unit Rate per Month	Duration in months	Total Rate (Before GST)	GST %	GST Amount	Total Charges (inclusive of GST)
	H	I	J	K	$L=(I*J*K)$	M	N	$O=L+N$
	System Software (IRRMMS)							
9	Maintenance of Data Acquisition Sensor Box Software	1		12				
<b>Total of Cost Component – Y2B</b>								

(c) Operations and Maintenance Costs for Year 2 – Y2C

Sl. No.	Component	Quantity	Unit price	Price (Before GST)	GST %	GST Amount	Total price (Inclusive of GST)
	A	B	C	$D = B * C$	E	$F = D * E$	$G = D + F$
1	Survey of Roads for GIS Mapping using Mobile Application (Cost per KM)	If Required					
2	Vehicle Running Cost per KM for Survey for IRRMMS	As Required					
3	SMS Gateway Cost per 1 Lakh SMSs	5					
4	WhatsApp Business Messaging Cost per 1 Lakh	5					
5	Training of Stake Holders in batches not less than 25. Cost of training per person	1					
6	Travel Allowances per day per person	1					
7	ISO 27001 Certification for Data Centre - Initial	1					

Sl. No.	Component	Quantity	Unit price	Price (Before GST)	GST %	GST Amount	Total price (Inclusive of GST)
	A	B	C	$D = B * C$	E	$F = D * E$	$G = D + F$
	Certification						
<b>Total of Cost Component – Y2C</b>							

**Summary of Charges for Business Operations for Year 2- (Y2)**

SL No.	Component	Charges (Exclusive GST)	GST%	GST Amount	Total Charges (inclusive of GST)
	P	Q	R	S	$T = (Q+S)$
1	Operational Resources for Year 2 – Y2A				
2	Leasing and Subscriptions and Software Maintenance During Implementation Costs for Year 2 – Y2B				
3	Operations and Maintenance Costs for Year 2 – Y2C				
<b>Business Operations and Maintenance Charges- Cost Component—Y 2 (Y2A+Y2B+Y2C)</b>					

*B. J.*

## H. Business Operations and Maintenance Charges (Cost Component -Y3) -Year 3

### (a) Operational Resources for Year 3 – Y3A

SL. No.	Position	No. of Resources	Unit Rate per Month	Duration in months	Total Rate (Before GST)	GST %	GST Amount	Total Charges (inclusive of GST)
	H	I	J	K	$L=(I*J*K)$	M	N	$O=L+N$
<b>Resources to be Deployed at Head Quarter- Project Management, Data Center and Command Control Center, Help Desk, Call Center support etc.</b>								
1	Programme Manager/ Project Head	1		12				
2	Project Manager - DPAMIS	1		12				
3	Operations Manager - IRRMMS	1		12				
4	Assistant Project Manager- Operations	17		12				
5	Data Center Manager	1		12				
6	System / Server Administrator	6		12				
7	Network / Security Administrator	4		12				
8	Database Administrator (DBA)	4		12				
9	Manager- Command Control Center	1		12				
10	Civil Engineers – Control Center	2		12				
11	Control Center – Monitoring Operators	42		12				

A. R. J

SL. No.	Position	No. of Resources	Unit Rate per Month	Duration in months	Total Rate (Before GST)	GST %	GST Amount	Total Charges (inclusive of GST)
	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>	<b>L=(I*J*K)</b>	<b>M</b>	<b>N</b>	<b>O=L+N</b>
12	Helpdesk Operator	16		12				
13	Call Center Operator	12		12				
14	Data Entry/ Data Collection Operators	10		12				
15	Software Development Manager	1		12				
16	Software Development – Team Leader	2		12				
17	Software Developers – Operations Support	6		12				
18	Software Developers	5		12				
19	Mobile Application Developers	2		12				
20	Data Scientist	2		12				
	<b>Field Operations Resources</b>							
21	Survey Operator	108		12				
22	Vehicle Driver	108		12				
23	Equipment Support Engineer	38		12				
24	IT Support Engineer	38		12				
25	Operations Support – Civil Engineer	38		12				

A. B. J

SL. No.	Position	No. of Resources	Unit Rate per Month	Duration in months	Total Rate (Before GST)	GST %	GST Amount	Total Charges (inclusive of GST)
	H	I	J	K	$L=(I*J*K)$	M	N	$O=L+N$
Total of Cost Component – Y3A								

(b) Leasing and Subscriptions and Software Maintenance During Implementation Costs for Year 3 – Y3B

SL. No.	Details	Quantity	Unit Rate per Month	Duration in months	Total Rate (Before GST)	GST %	GST Amount	Total Charges (inclusive of GST)
	H	I	J	K	$L=(I*J*K)$	M	N	$O=L+N$
1	Dedicated Vehicle with GPS Tracker on Lease to mount the Survey Equipment and use for Survey	108		12				
2	Leasing of Survey Equipment Kit as per the Technical Specifications given in the RFP	108		12				
3	Third-Party Software Maintenance, if any	As Required		12				
4	Internet Leased Line (ILL) at Data Center – 1 Gbps Dedicated 1:1 Connection – Cost per	4		12				



SL. No.	Details	Quantity	Unit Rate per Month	Duration in months	Total Rate (Before GST)	GST %	GST Amount	Total Charges (inclusive of GST)
	H	I	J	K	$L=(I*J*K)$	M	N	$O=L+N$
	month							
5	Internet Broadband Leased Line (ILL) for web portals and Control Center at Head Quarter – 500 Mbps Connection – Cost per Month	4		12				
6	Internet Broadband Connectivity at PIUs – 500Mbps Connection – Cost per month	108		12				
7	Maintenance of Digital Project and Asset Management Information System (DPAMIS) Software	1		12				
8	Maintenance of Central Server Software: AI based Intelligent Rural Road Maintenance and Monitoring	1		12				

A B. J

SL. No.	Details	Quantity	Unit Rate per Month	Duration in months	Total Rate (Before GST)	GST %	GST Amount	Total Charges (inclusive of GST)
	H	I	J	K	$L=(I*J*K)$	M	N	$O=L+N$
	System Software (IRRMMS)							
9	Maintenance of Data Acquisition Sensor Box Software	1		12				
<b>Total of Cost Component – Y3B</b>								

(c) Operations and Maintenance Costs for Year 3 – Y3C

Sl. No.	Component	Quantity	Unit price	Price (Before GST)	GST %	GST Amount	Total price (Inclusive of GST)
	A	B	C	$D = B * C$	E	$F = D * E$	$G = D + F$
1	Survey of Roads for GIS Mapping using Mobile Application (Cost per KM)	If Required					
2	Vehicle Running Cost per KM for Survey for IRRMMS	As Required					
3	SMS Gateway Cost per 1 Lakh SMSs	5					
4	WhatsApp Business Messaging Cost per 1 Lakh	5					
5	Training of Stake Holders in batches not less than 25. Cost of training per person	1					
6	Travel Allowances per day per person	1					
7	ISO 27001 Certification for Data Centre - Initial	1					

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SL No.	Component	Quantity	Unit price	Price (Before GST)	GST %	GST Amount	Total price (Inclusive of GST)
	A	B	C	$D = B * C$	E	$F = D * E$	$G = D + F$
	Certification						
<b>Total of Cost Component – Y3C</b>							

**Summary of Charges for Business Operations for Year 3- (Y3)**

SL No.	Component	Charges (Exclusive GST)	GST%	GST Amount	Total Charges (inclusive of GST)
	P	Q	R	S	$T = (Q+S)$
1	Operational Resources for Year 3 – Y3A				
2	Leasing and Subscriptions and Software Maintenance During Implementation Costs for Year 3 – Y3B				
3	Operations and Maintenance Costs for Year 3 – Y3C				
<b>Business Operations and Maintenance Charges- Cost Component—Y 3 (Y3A+Y3B+Y3C)</b>					

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**I. Business Operations Charges (Cost Component – Y4) - Year 4**

**(a) Operational Resources for Year 4 – Y4A**

SL. No.	Position	No. of Resources	Unit Rate per Month	Duration in months	Total Rate (Before GST)	GST %	GST Amount	Total Charges (inclusive of GST)
	H	I	J	K	$L=(I*J*K)$	M	N	$O=L+N$
<b>Resources to be Deployed at Head Quarter- Project Management, Data Center and Command Control Center, Help Desk, Call Center support etc.</b>								
1	Programme Manager/ Project Head	1		12				
2	Project Manager - DPAMIS	1		12				
3	Operations Manager - IRRMMS	1		12				
4	Assistant Project Manager- Operations	17		12				
5	Data Center Manager	1		12				
6	System / Server Administrator	6		12				
7	Network / Security Administrator	4		12				
8	Database Administrator (DBA)	4		12				
9	Manager- Command Control Center	1		12				
10	Civil Engineers – Control Center	2		12				
11	Control Center – Monitoring Operators	42		12				

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SL. No.	Position	No. of Resources	Unit Rate per Month	Duration in months	Total Rate (Before GST)	GST %	GST Amount	Total Charges (inclusive of GST)
	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>	<b>L=(I*J*K)</b>	<b>M</b>	<b>N</b>	<b>O=L+N</b>
12	Helpdesk Operator	16		12				
13	Call Center Operator	12		12				
14	Data Entry/ Data Collection Operators	10		12				
15	Software Development Manager	1		12				
16	Software Development – Team Leader	2		12				
17	Software Developers – Operations Support	6		12				
18	Software Developers	5		12				
19	Mobile Application Developers	2		12				
20	Data Scientist	2		12				
	<b>Field Operations Resources</b>							
21	Survey Operator	108		12				
22	Vehicle Driver	108		12				
23	Equipment Support Engineer	38		12				
24	IT Support Engineer	38		12				
25	Operations Support – Civil Engineer	38		12				

R. B. J


SL. No.	Position	No. of Resources	Unit Rate per Month	Duration in months	Total Rate (Before GST)	GST %	GST Amount	Total Charges (inclusive of GST)
	H	I	J	K	$L=(I*J*K)$	M	N	$O=L+N$
<b>Total of Cost Component – Y4A</b>								

**(b) Leasing and Subscriptions and Software Maintenance During Implementation Costs for Year 4 – Y4B**

SL. No.	Details	Quantity	Unit Rate per Month	Duration in months	Total Rate (Before GST)	GST %	GST Amount	Total Charges (inclusive of GST)
	H	I	J	K	$L=(I*J*K)$	M	N	$O=L+N$
1	Dedicated Vehicle with GPS Tracker on Lease to mount the Survey Equipment and use for Survey	108		12				
2	Leasing of Survey Equipment Kit as per the Technical Specifications given in the RFP	108		12				
3	Third-Party Software Maintenance, if any	As Required		12				
4	Internet Leased Line (ILL) at Data Center – 1 Gbps Dedicated 1:1 Connection – Cost per	4		12				

*B. P. J.*

SL. No.	Details	Quantity	Unit Rate per Month	Duration in months	Total Rate (Before GST)	GST %	GST Amount	Total Charges (inclusive of GST)
	H	I	J	K	$L=(I*J*K)$	M	N	$O=L+N$
	month							
5	Internet Broadband Leased Line (ILL) for web portals and Control Center at Head Quarter – 500 Mbps Connection – Cost per Month	4		12				
6	Internet Broadband Connectivity at PIUs – 500Mbps Connection – Cost per month	108		12				
7	Maintenance of Digital Project and Asset Management Information System (DPAMIS) Software	1		12				
8	Maintenance of Central Server Software: AI based Intelligent Rural Road Maintenance and Monitoring	1		12				

R. R. 

SL. No.	Details	Quantity	Unit Rate per Month	Duration in months	Total Rate (Before GST)	GST %	GST Amount	Total Charges (inclusive of GST)
	H	I	J	K	$L=(I*J*K)$	M	N	$O=L+N$
	System Software (IRRMMS)							
9	Maintenance of Data Acquisition Sensor Box Software	1		12				
<b>Total of Cost Component – Y4B</b>								

**(c) Operations and Maintenance Costs for Year 4 – Y4C**

Sl. No.	Component	Quantity	Unit price	Price (Before GST)	GST %	GST Amount	Total price (Inclusive of GST)
	A	B	C	$D = B * C$	E	$F = D * E$	$G = D + F$
1	Survey of Roads for GIS Mapping using Mobile Application (Cost per KM)	If Required					
2	Vehicle Running Cost per KM for Survey for IRRMMS	As Required					
3	SMS Gateway Cost per 1 Lakh SMSs	5					
4	WhatsApp Business Messaging Cost per 1 Lakh	5					
5	Training of Stake Holders in batches not less than 25. Cost of training per person	1					
6	Travel Allowances per day per person	1					
7	ISO 27001 Certification for Data Centre - Initial	1					

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Sl. No.	Component	Quantity	Unit price	Price (Before GST)	GST %	GST Amount	Total price (Inclusive of GST)
	A	B	C	$D = B * C$	E	$F = D * E$	$G = D + F$
	Certification						
<b>Total of Cost Component – Y4C</b>							

**Summary of Charges for Business Operations for Year 4- (Y4)**

SL No.	Component	Charges (Exclusive GST)	GST%	GST Amount	Total Charges (inclusive of GST)
	P	Q	R	S	$T = (Q+S)$
1	Operational Resources for Year 4 – Y4A				
2	Leasing and Subscriptions and Software Maintenance During Implementation Costs for Year 4 – Y4B				
3	Operations and Maintenance Costs for Year 4 – Y4C				
<b>Business Operations and Maintenance Charges- Cost Component—Y 4 (Y4A+Y4B+Y4C)</b>					

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**J. Business Operations Charges (Cost Component – Y5) -Year 5**

**(a) Operational Resources for Year 5 – Y5A**

SL. No.	Position	No. of Resources	Unit Rate per Month	Duration in months	Total Rate (Before GST)	GST %	GST Amount	Total Charges (inclusive of GST)
	H	I	J	K	$L=(I*J*K)$	M	N	$O=L+N$
<b>Resources to be Deployed at Head Quarter- Project Management, Data Center and Command Control Center, Help Desk, Call Center support etc.</b>								
1	Programme Manager/ Project Head	1		12				
2	Project Manager - DPAMIS	1		12				
3	Operations Manager - IRRMMS	1		12				
4	Assistant Project Manager- Operations	17		12				
5	Data Center Manager	1		12				
6	System / Server Administrator	6		12				
7	Network / Security Administrator	4		12				
8	Database Administrator (DBA)	4		12				
9	Manager- Command Control Center	1		12				
10	Civil Engineers – Control Center	2		12				
11	Control Center – Monitoring Operators	42		12				

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SL. No.	Position	No. of Resources	Unit Rate per Month	Duration in months	Total Rate (Before GST)	GST %	GST Amount	Total Charges (inclusive of GST)
	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>	<b>L=(I*J*K)</b>	<b>M</b>	<b>N</b>	<b>O=L+N</b>
12	Helpdesk Operator	16		12				
13	Call Center Operator	12		12				
14	Data Entry/ Data Collection Operators	10		12				
15	Software Development Manager	1		12				
16	Software Development – Team Leader	2		12				
17	Software Developers – Operations Support	6		12				
18	Software Developers	5		12				
19	Mobile Application Developers	2		12				
20	Data Scientist	2		12				
	<b>Field Operations Resources</b>							
21	Survey Operator	108		12				
22	Vehicle Driver	108		12				
23	Equipment Support Engineer	38		12				
24	IT Support Engineer	38		12				
25	Operations Support – Civil Engineer	38		12				

A B J

SL. No.	Position	No. of Resources	Unit Rate per Month	Duration in months	Total Rate (Before GST)	GST %	GST Amount	Total Charges (inclusive of GST)
	H	I	J	K	$L=(I*J*K)$	M	N	$O=L+N$
Total of Cost Component – Y5A								

(b) Leasing and Subscriptions and Software Maintenance During Implementation Costs for Year 5 – Y5B

SL. No.	Details	Quantity	Unit Rate per Month	Duration in months	Total Rate (Before GST)	GST %	GST Amount	Total Charges (inclusive of GST)
	H	I	J	K	$L=(I*J*K)$	M	N	$O=L+N$
1	Dedicated Vehicle with GPS Tracker on Lease to mount the Survey Equipment and use for Survey	108		12				
2	Leasing of Survey Equipment Kit as per the Technical Specifications given in the RFP	108		12				
3	Third-Party Software Maintenance, if any	As Required		12				
4	Internet Leased Line (ILL) at Data Center – 1 Gbps Dedicated 1:1 Connection – Cost per	4		12				

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SL. No.	Details	Quantity	Unit Rate per Month	Duration in months	Total Rate (Before GST)	GST %	GST Amount	Total Charges (inclusive of GST)
	H	I	J	K	L=(I*J*K)	M	N	O=L+N
	month							
5	Internet Broadband Leased Line (ILL) for web portals and Control Center at Head Quarter – 500 Mbps Connection – Cost per Month	4		12				
6	Internet Broadband Connectivity at PIUs – 500Mbps Connection – Cost per month	108		12				
7	Maintenance of Digital Project and Asset Management Information System (DPAMIS) Software	1		12				
8	Maintenance of Central Server Software: AI based Intelligent Rural Road Maintenance and Monitoring	1		12				

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SL. No.	Details	Quantity	Unit Rate per Month	Duration in months	Total Rate (Before GST)	GST %	GST Amount	Total Charges (inclusive of GST)
	H	I	J	K	$L=(I*J*K)$	M	N	$O=L+N$
	System Software (IRRMMS)							
9	Maintenance of Data Acquisition Sensor Box Software	1		12				
<b>Total of Cost Component – Y5B</b>								

(c) Operations and Maintenance Costs for Year 5 – Y5C

Sl. No.	Component	Quantity	Unit price	Price (Before GST)	GST %	GST Amount	Total price (Inclusive of GST)
	A	B	C	$D = B * C$	E	$F = D * E$	$G = D + F$
1	Survey of Roads for GIS Mapping using Mobile Application (Cost per KM)	If Required					
2	Vehicle Running Cost per KM for Survey for IRRMMS	As Required					
3	SMS Gateway Cost per 1 Lakh SMSs	5					
4	WhatsApp Business Messaging Cost per 1 Lakh	5					
5	Training of Stake Holders in batches not less than 25. Cost of training per person	1					
6	Travel Allowances per day per person	1					
7	ISO 27001 Certification for Data Centre - Initial	1					

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Sl. No.	Component	Quantity	Unit price	Price (Before GST)	GST %	GST Amount	Total price (Inclusive of GST)
	A	B	C	$D = B * C$	E	$F = D * E$	$G = D + F$
	Certification						
<b>Total of Cost Component – Y5C</b>							

**Summary of Charges for Business Operations for Year 5- (Y5)**

SL No.	Component	Charges (Exclusive GST)	GST%	GST Amount	Total Charges (inclusive of GST)
	P	Q	R	S	$T = (Q+S)$
1	Operational Resources for Year 5 – Y5A				
2	Leasing and Subscriptions and Software Maintenance During Implementation Costs for Year 5 – Y5B				
3	Operations and Maintenance Costs for Year 5 – Y5C				
<b>Business Operations and Maintenance Charges- Cost Component—Y 5 (Y5A+Y5B+Y5C)</b>					

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### III. TOTAL BID PRICE

Sl. No.	Component	Charges (Exclusive of GST)	GST %	GST Amount	Total Charges
	P	Q	R	S	T = (Q+S)
1	Total implementation Price- Cost Component-X				
2	Business Operations Charges for Year 1 (Cost Component- Y1)				
3	Business Operations Charges for Year 2 (Cost Component- Y2)				
4	Business Operations Charges for Year 3 (Cost Component- Y3)				
5	Business Operations Charges for Year 4 (Cost Component- Y4)				
6	Business Operations Charges for Year 5 (Cost Component- Y5)				
<b>Total Bid Price – Cost Component (Z)</b>					

**NOTE:**

- i. Bidder must ensure NOT TO SUBMIT Financial Bid with prequalification and/or technical bid
- ii. All charges are to be provided in Indian Rupees (INR)

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## 2. PAYMENT TERMS

The Bidder can raise claim on task completion and/or calendar month basis according to the services delivered, number of manpower engaged in the project as the case may be. The department will release the payment to the SI within 15 days of their submission of Tax Invoices.

The SI shall be eligible for payment as per the milestones as a percentage of the implementation cost and Operations and maintenance cost as per the payment schedule given below:

Sl. No.	Milestones	Payment
1	<b>Implementation of Digital Project and Asset Management Information System (DPAMIS) and Artificial Intelligence Based Intelligent Rural Road Maintenance and Monitoring System (IRRMMS) - (One Time Cost Component-X)</b>	
A	<b>Digital Project and Asset Management Information System (DPAMIS) and Artificial Intelligence Based Intelligent Rural Road Maintenance and Monitoring System (IRRMMS) Softwares as per Requirement Specifications</b>	<b>% age of Cost</b>
1.	Submission and Acceptance of SRS of DPAMIS	25%
2.	Software Design and Approval of Design Document (SDD) - DPAMIS	25%
3.	Development and Deployment of DPAMIS application for Phase I (Alpha Version)	25%
4.	Development of Application Software (Final Version), Deployment in Data Center and Offer for UAT of DPAMIS	20%
5.	Completion of UAT and Go-Live of DPAMIS	5%
6.	Submission and Acceptance of SRS of IRRMMS	25%
7.	Software Design and Approval of Design Document (SDD) - IRRMMS	25%
8.	Development and Deployment of IRRMMS application for Phase I (Alpha Version)	25%
9.	Development of Application Software (Final Version), Deployment in Data Center and Offer for UAT of IRRMMS	20%
10.	Completion of UAT and Go-Live of IRRMMS	5%
B	<b>Data Centre IT Hardware and Systems Software for Data Centre with 5 years of on-site Warranty and Maintenance</b>	<b>% age of Cost</b>
1.	Delivery of IT Infrastructure (Hardware and Software) as per the Financial Proposal.	90% of Respective Delivery
2.	Completion of Installation, Configuration, and Commissioning of Supplied Hardware and Software and offer	5%

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	for FAT	
3.	Completion of FAT for Data Centre and Go-Live	5%
<b>C</b>	<b>Operational Resources, Leasing, Subscriptions, Operations and Maintenance Costs During Implementation.</b>	<b>% age of Cost</b>
1.	Operational Resources During Implementation. The Billing will be as per actual deployment during the given month.	100% Monthly basis upon completion of the calendar month
2.	Lease and Subscription Costs During Implementation	100% Monthly basis upon completion of the calendar month
3.	Operations and Maintenance Costs During Implementation. Billing will be as per actual running/utilisation / services delivered during the given month.	100% Monthly basis upon completion of the calendar month
<b>D</b>	<b>Post Implementation - Maintenance and Operationalisation of Digital Project and Asset Management Information System (DPAMIS) and Artificial Intelligence Based Intelligent Rural Road Maintenance and Monitoring System (IRRMMS) - Year 1 to Year 5.</b>	<b>% age of Cost</b>
1.	Operational Resources. The Billing will be as per actual deployment during the given month.	100% Monthly basis upon completion of the calendar month
2.	Leasing, Subscriptions and Software Maintenance During Implementation Costs	100% Monthly basis upon completion of the calendar month
3.	Operations and Maintenance Costs. Billing will be as per actual running / utilisation / services delivered during the given month.	100% Monthly basis upon completion of the calendar month

Notes:

- a) The Invoice for the Operational Resources shall be raised as per the actual deployment during the calendar month.
- b) If the number of resources are increased / decreased beyond those specified in the contract, during the contract period, then such payment will be calculated on the basis of contract rates of such resource position and period for which they are deployed.
- c) The Invoice for Vehicle Running cost shall be raised as per the actual distance (in KM) travelled for project implementation during the month as per GPS Tracking reports.
- d) The Invoice for cost of Survey of Roads for GIS Mapping using Mobile Application for DPAMIS shall be raised as per the actual distance (KM) surveyed during the month.
- e) Payment due shall be made after deducting applicable taxes.
- f) GST/ any other applicable taxes shall be paid at actuals / as per prevailing rates at the time of invoicing.

### 3. EQUIPMENT ADVANCE

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Equipment advance of 10% of equipment purchased after producing Invoice to the Client. which can be given against Bank Guarantee. This Bank Guarantee will be over and above the Performance Guarantee.

This Equipment advance, if any, will be adjusted proportionately against the invoice(s) raised till the complete advance amount is recovered.

#### **4. PERFORMANCE GUARANTEE**

The Bidder, before signing of Contract, shall provide a Performance Guarantee (PG) totaling to 5% (Five Percent) of the Cost of Implementation i.e. One Time Cost Component - X, exclusive of GST, within 30 days from the date of issue of Work Order / Letter of Acceptance for the contract period. Performance Guarantee shall be in the shape of Bank Guarantee from any Scheduled Commercial Bank or Scheduled Bank in the State of Bihar and shall be pledged in favour of "Deputy Secretary, RWD" payable at Patna.

The Performance Guarantee will be returned after a period of ninety days beyond the date of completion of successful discharge of services and completion of contractual obligations of the Contract by the System Integrator.

#### **5. TENURE OF CONTRACT**

The Total tenure of the Contract will be for 6 (Six) years, which includes 1 (One) year of implementation and 5 (Five) years of operations and maintenance. The contract may be extended on mutual consent for additional 2 (Two) years after expiry of tenure if performance of Bidder found satisfactory.

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## Term of Reference

### **SELECTION OF SYSTEM INTEGRATOR (SI) CUM MASTER SERVICE PROVIDER (MSP) FOR DEVELOPMENT, MAINTENANCE & OPERATION OF DIGITAL PROJECT AND ASSET MANAGEMENT INFORMATION SYSTEM (DPAMIS) -CUM -INTELLIGENT RURAL ROAD MAINTENANCE MONITORING SYSTEM (IRRMMS) FOR RURAL WORKS DEPARTMENT, BIHAR.**

#### **INTRODUCTION:**

- 1.1 Rural Works Department, Government of Bihar is primarily responsible for development of Rural Roads in the State of Bihar through centrally sponsored flagship scheme, Pradhan Mantri Gram Sadak Yojana (PMGSY) and the state flagship schemes like Mukhya Mantri Gram Sampark Yojana (MMGSY), Gramin Tola Sampark Nischay Yojna (GTSNY) as well as other state schemes.
- 1.2 State has about 1.29 lakhs kilometers of rural roads network. Department has constructed about 1.12 lakhs kilometers of rural roads and new roads are being constructed every year, the road asset created are subjected to wear-and-tear due to the traffic using the road and also is exposed to extreme climatic conditions thus making the task of maintaining such assets an ardent task for RWD
- 1.3 A compelling exigency arises for the conception and implementation of an autonomous and depersonalized road surveillance and maintenance system tailored explicitly for rural roadways. These rural roads, colloquially referred to as Other District Roads (ODR) within India, function as the vital conduits that facilitate all-weather connectivity to remote habitations devoid of prior linkages. These vital arteries intricately interlace rural localities with commercial hubs, administrative focal points, and principal district thoroughfares, thereby efficiently threading together the fabric of villages.
- 1.4 The integral role of these rural roads extends beyond their rudimentary function as passageways. They burgeon into gateways that open access to the very bedrock of economic and societal infrastructure, fostering an environment where augmented agricultural yield and enhanced access to rudimentary healthcare and educational amenities become tangibly attainable. Furthermore, they generate avenues for employment within the rural milieu, propelling the wheels of socio-economic advancement. Consequently, this cumulative effect contributes substantially to the holistic progress of the encompassing geographic expanse. Overseeing the maintenance of these rural roads falls under the purview of the Rural Works Department (RWD) in Bihar, orchestrated through mechanisms like the Pradhan Mantri Gram Sadak Yojana (PMGSY) and Mukhya Mantri Gram Sampark Yojana (MMGSY). However, these programs mandate rigorous monitoring to discern and rectify any signs of road degradation.

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- 1.5 As new roads unfailingly materialize each year, the upkeep of this colossal infrastructure becomes an onerous task, necessitating a continuum of unwavering commitment from the RWD.
- 1.6 RWD has made a significant advance in the IT sector in the past few years with standardized procedures already in place. To this end, the RWD presently relies on an Internet Technology Infrastructure incorporating Management Information Systems (MIS) to oversee its road-related assets. However, the agency now seeks to usher in an era of transformative change by assimilating cutting-edge technologies, solutions, and systems.
- 1.7 The department is intending to further upgrade its structure by introducing new state of the art technologies, solutions and systems for road asset management, monitoring and maintenance. RWD intends to roll out a robust technology based autonomous Road Assets Management Platform (including infrastructure design, planning, development, project execution, stocks, supply of material, and work force management.) software tools/ hardware/ licenses, installation and commissioning with integrated latest software into its ambit of available IT infrastructure.
- 1.8 RWD intends to setup a sustainable technology-based intervention in the rural road network in an efficient and effective manner to manage assets on its own, In brief, the proposed system shall have the following scope and features but not limited to:
- Streamline process, workflow, recordkeeping and program data/document management to meet all functional and technical requirements stated in this RFP using robust solution software that requires minimal customization to implement and maintain, and operates with ease.
  - Includes real-time integration with GIS (geographic information systems)
  - To develop web/mobile based software system.
  - Online accounting system for vouchers and Measurement Book
  - Provide metric/ Key Performance Indicator (KPI) performance tracking real time
  - Track and use automated workflows for compliance tasks/corrective actions to ensure timely completion.
  - Build organizational consistency with template form creators
- RWD intends to implement the system in two independent modules integrated through Services API Interface. The Modules are:
- Digital Project and Asset Management Information System (DPAMIS)
  - Intelligent Rural Road Maintenance Monitoring System (IRRMMS)

Detailed Requirement of each of the modules is given below in this section.

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## 2. SCOPE OF WORK

This section outlines the broad areas of scope of work proposed for the System Integrator (SI) cum Master Services Provider under this RFP and the referred sections herein below provide the detailed scope of work in each of the respective activities:

- I. Setting up Data Centre required for hosting and running Digital Project Asset Management Information system (DPAMIS) software and AI based Intelligent Rural Road Maintenance and Monitoring System (IRRMMS).
- II. Design, Development/ customisation, Deployment & Maintenance of Digital Project Asset Management Information system (DPAMIS) software as per the scope given in this section.
- III. Design, Development/ customisation, Deployment & Maintenance of AI based Intelligent Rural Road Maintenance and Monitoring System (IRRMMS) software as per the scope given in this section.
- IV. Hosting and Maintenance of Digital Project Asset Management Information system (DPAMIS) and AI based Intelligent Rural Road Maintenance and Monitoring System (IRRMMS) at the designated Data Centre.
- V. Integration of Digital Project Asset Management Information system (DPAMIS) software with AI based Intelligent Rural Road Maintenance and Monitoring System (IRRMMS).
- VI. Integration of Digital Project Asset Management Information system (DPAMIS) software with third party system as may be required
- VII. Setting up of Centralised Operations Control Centre (COCC) at RWD Head Quarter.
- VIII. Operations and Maintenance by deploying trained manpower with required IT Equipment to carryout Day-To-Day activities of field operations as detailed in this RFP.

## 3. Setting up of Data Center

The System Integrator (SI) cum Master Service Provider (MSP) shall be responsible for:

- (i) Setting up Data Centre
  - Site visit, study and prepare the pre-requisite facilities required at the place proposed by RWD for Data Centre and provide the report requirement of RWD.
  - Supply, Installation, and commissioning of IT Hardware and Systems Software Infrastructure for Data Centre as per the requirement under this RFP.
  - Assisting RWD for conducting Final Acceptance Test (FAT) and Go-Live of Data Centre
- (ii) Hosting and Managing Digital Project Asset Management Information system (DPAMIS) software.

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- (iii) Hosting and Managing AI based Intelligent Rural Road Maintenance and Monitoring System (IRRMMS) software.
- (iv) Training of stakeholders
- (v) 24x7x365 Operation & Maintenance of Overall Data Centre by deploying adequate skilled personnel at Data Centre.
- (vi) On-site warranty and maintenance of Data Centre Hardware and Software during the Warranty period
- (vii) To obtain ISO 27001 and CERT-IN Security certifications within 6 Months from Go Live:

The client will provide adequate space in their office building at a secure place for setting up of Data Centre. Client will provide all the basic amenities required for Data Center including but not limited to:

- Closed Rooms of sufficient area with antistatic flooring and proper ceiling lighting at secure place
- Civil works may be required as per the study report of SI
- Non-Condensing Air Conditioning for 24x7 operations
- Two in-put power lines, each with 3 phase Stable Power supply with DG (Generator) Backup and sufficient earthing. Power Bills will be paid by the client.
- Internal power cabling and connection in the DC rooms as per the report of SI
- Fire Detection and Fire Fighting System integrated with the Building Fire Systems
- Fire Extinguishers
- Temperature monitoring system
- Rodent repellent system
- Physical Security

The SI should undertake a requirement study for the Data Centre at the rooms proposed by the client regarding the pre-installation requirements to be provided by the client and submits a report to the client. The client will take up the works as per the requirement report submitted by the SI. The SI shall assist the client wherever necessary in getting the works completed in a timely manner by the client. Upon completing the pre-installation requirements by the client, the SI will take over the premises for the deployment of the IT hardware provided under this RFP.

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#### 4. Digital Project Asset Management Information system (DPAMIS)

The proposed platform is designed to build a powerful relational and analytical system with in-built GIS and Reporting platforms. It will be a strong yet flexible location referencing system will ensure that all historical data will be correctly referenced including all historical changes in the Road network. It shall be designed to meet the needs of owners and contractors. It will store data on any type of asset including pavements, structures, road safety, traffic etc. It will be perfect for managing the data for analysis. The analytical module will (for predictive modeling and optimization) allow undertaking life cycle analysis, asset valuation, and risk management. Mainly the platform will focus on the following list of points:

- Asset Management System
- Information System
- Maintenance Management System
- Change of Scope/ Workflow
- Traffic Management system
- Road safety framework
- Project Monitoring and Evaluation System
- Public Complain and redressal system
- Quality monitoring system
- Survey and digital asset creation
- GIS (Geographic information systems) based application development, interfacing/Integration
- Digitizing the process through the platform along with an SOP & Checklist based Task execution
- Web/ Mobile-Based Framework
- Scalable and Secure
- User's Role, Area, and Project Controlled Access
- Notification, SMS, Email Alerts or any other digital information platform
- Physical & Financial Progress Monitoring
- Monitoring Dashboard
- To build and develop a cloud-based platform, for Road operation and management quickly for the targeted departments of road Infra
- Build an initial solution version to meet the process and work flow needs to track the activity of Maintenance, Operations, Planning & monitoring system.
- Creating Road Asset Management System software system as follows:
  - A web-based software system that:
    - Allows the responsible personnel as well as the road department engineers to create, update, delete as well as read road related information.
    - Allows RWD users to search for and view road related information.
    - Creates visualizations and trend analysis diagrams.

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- Hosts the information in the format and scheme as defined and collected in Stages
- Allows admin users to create users and allocate rights to them i.e. read only or read-write.
- Integrate with a downstream system that shall pull data from the system to perform needs analysis through decision trees, as well as pull the results of such analysis from the analytical system.
- Integrate with a GIS based system to display the data spatially on maps.
- Provide various reports regarding pavement deterioration model, road user effect due to various developments as well as the internal rate of return (IRR) and the NPV (Net present value) of different projects defining in multiyear programming.
- A detailed requirement engineering phase, including elicitation, analysis, specification and verification, with the final SRS signed off by the RWD.
- Detailed design specification, as well as configuration, customization, extension and integration as per the requirement of the RWD.
- Supporting documentation such as project plan, deployment and backup, user manual and runbook.
- The deployment shall include features such as load balancing, backup and archival, as well as disaster recovery.
- Source code versioning and documentation.
- SI shall maintain the site post go-live, including a comprehensive warranty for all hardware, software, database and network components provided by the vendor towards the development and deployment of the portal.
- Ensure upkeep & updation of all documentation and manuals during post implementation
- Deployment of the system on the cloud infrastructure.
- Design and sizing of the hardware required shall be provided by the vendor.
- Provision for classroom training for detailed exposure to the system to the RWD employees – complete with demos, hands on exercises, application simulations and student evaluation. The training shall be supplemented with a training plan.

4.1 Discussed the need for a system which should be a web-based digital platform as in e- governance, ensuring an evidence-based for effective road asset management, planning. Development maintenance and monitoring mechanism to ensure compliance. Enforce effective contract management during defect liability period (DLP), coupled with transparency i.e., faceless monitored feedback. Feeding to maintenance planning rectifying challenges due to weak data collection and analysis: inventory, condition, traffic. Institute rational planning for ensuring routine maintenance

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and prioritizing periodic maintenance. Preparation of Annual Maintenance Plans with a sustainable and expandable application that can advance and implement a viable method of autonomous road network data acquisitions and storage to a centralized or regional data-center, an application that can process these data and come up with analysis along with geo-tagged location, type of road attributes and maintain, contractor & engineer for maintaining & stocking material for that road, etc.

4.2 Hosting of this application at a secured location. Develop an application that can create a process-flow for the road asset management and development on a GIS along with provision to access external factors like active demographic profile, economic factors etc, render reports. The solution should be developed based on the outcome, creating rectification directive, autonomously assignment of maintenance work order based on configured decision logic, following the workflow and rectification closure. The system should be rugged to withstand the hostile condition. Integrators/providers can demonstrate their expertise in such technology consulting. The major benefits expected from the project are manifold. A few of them are listed below:

- Provide improved internal and external communication regarding asset information for more effective management within and outside the department.
- Improved data quality, consistency, and credibility because of adoption of standardized data collection, analytical, evaluation methods.
- Help to choose cost-effective, optimal, sound design, implementation. Execution. maintenance and rehabilitation policies, by comparing alternative maintenance/rehabilitation strategies.
- Evaluate and prioritize widening, rehabilitation, and maintenance works based on engineering, traffic, economic and social parameters.
- Review asset conditions as an outcome of resources/budgets committed/spent in the past few years for performance monitoring.
- Predict asset conditions for different funding/maintenance scenarios.
- Review impact of funding levels, or forced decisions on the overall health of the asset to decide desirable funding.
- It can be used as a rational basis for allocating funds for maximum public benefits/returns.
- Utilization of resources, stocks and effective management of work force

4.3 The Bidder will develop the application in such a way that it can integrate with any database held in RWD, and interface with any external web-based application in use or planned in future. The software will be designed with appropriate access control and roles and will not be restricted in manner for no. of users or capabilities in perpetual.

#### **4.4 DETAILED TASKS TO BE PERFORMED FOR DPAMIS**

- Identification of the core module and architecture (primarily modules):
  - Road Network Manager, embedded GIS, creates road network comprising of details of

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- road such as road name, jurisdiction, category, road length, road width, number of lanes, shoulder width, horizontal curves, drains, direction, etc.
- Road Information System, stores information about inventory, composition, roughness, pavement condition, structural strength, history of works carried out, etc
  - Bridge Information System, stores information about inventory and condition of the bridges along with digital artifacts for viewing and store overall rating of bridges with costs
  - Traffic Information System It facilitates user to assign traffic over road network using GIS map interface and also calculates MSA (million standard axles) for the pavements
  - Road Safety Information System
  - Pavement Management System
  - Annual Maintenance Tool
  - Workforce tracking and management
  - Project planning and proposal review
  - Survey and digital asset creation
  - Public complain & redressal system
  - Any service related system for contractor or end-users.

**It should include following modules with the underlying main features:**

***a) Performance management and productivity improvement.***

- GIS based development of Core network
- Estimate preparation module from field data collection till finalisation at various level.
- Administrative Approval/ Technical Approval/ Technical Sanction/ Tender detail/ Agreement/ Performance Security validation module/ Quality Inspection/ Physical & Financial Progress/Routine maintenance module Requisition/ Contractor module creation/ Road safety module/ Traffic data etc along with migration of historical data.
- Maintenance of departmental web portal.
- Flood Management monitoring system.
- Operational Online Works and Accounts management system.
- Web-Based comprehensive and detailed analysis of work executed by user's with timeline.
- Accurate timesheets to know when and how activity has been performed.
- Monitoring staff activities by categories, including app and web- based inputs.
- Monitoring of delay in the activities to increase transparency & efficiency.
- Performance report of any activity performed.
- Employee management system.

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- Regional Laboratory e-monitoring framework

**b) Online accounting system**

Online Accounts Management Information System shall cover the entire life cycle of typical construction project work right from its inspection to its final completion.

**c) Creation of Dashboard:**

A comprehensive dashboard has to be developed that should give analytical view of the physical and financial status of the various projects undertaken by the department and compiled for all the offices of the department. The analysis should be carried out under various parameters such as Head of Accounts, Schemes/Programmes, User Departments, Infrastructure types, Allotment, etc. assessed against Budgetary Grants, MB recordings and Stipulated Time Frames.

**4.4.1 Online monitoring system for all existing scheme (Roads and Bridges) including ongoing scheme**

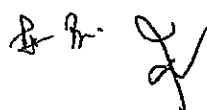
The Online monitoring system software shall be designed especially for all the road and bridge works being executed by the department as an online web-based system with centralised database and the principles underlying the operational management of the software shall be as follows:

- a) Data entry will be done at the point where data will be generated i.e. at the PIU level for project data and at the inspecting officer's level where their intervention contributes value addition to the data.
- b) The data entry shall be input based to enable outputs to be useful for management as well as monitoring. This implies that the data entry shall be closely parallel the actual work process and to ensure this, system checks will be in place to ensure that the data precedent is on-line before processing for the next step is done.
- c) Since data entry may involve some extra effort, it must be seen to be sufficiently advantageous. This would involve building in the ability to generate MIS outputs.
- d) The full power of the software is to be brought to generate outputs useful at all levels – monitoring and management output at PIU levels, progress management and management-by-exception outputs at inspecting officer level and abstracted and analysed information policy and overall management information for use at HQ level.

Online State Monitoring System Software shall consist of following main features:

**i. Master data Module -**

- Area master which contains data regarding the villages/Habitations and details of facilities available at habitation level (To be entered at PIU level).



- Roads master which includes details regarding the name of the road, surface type etc. (To be entered at PIU level).
- Project master (To be entered at PIU level).
- ii. Execution & Monitoring Module-**
  - Entry of progress against each work in physical and financial terms (to be entered at PIU level).
  - Completion of road works (to be entered at PIU level).
- iii. Maintenance Module-**
  - Physical and financial data regarding 5 years contract-based maintenance (to be entered by PIU level).
- iv. Quality Monitoring –**
  - Data Regarding QC inspection carried out by inspecting officers is to be entered.
- v. Public Complain & redressal system**
  - Mobile & Web-based complain receiving and redressal system for end user.
- vi. Reports –**
  - Engineering Work
  - Executed quantities Report
  - Quality inspection report
  - Lab Test Report
  - Inspections reports which should contain photographs
  - Physical progress report
  - Completed works reports
  - Pending works reports
  - Analytical Reports
  - Status Reports
- vii. Alert and Notification System**
  - Alert and notification for all events
- viii. Dashboard for Visualization of Key information**

A dashboard Implemented for displaying following key information.

  - Widget for Physical & Financial Progress

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- Widget for Estimation and budgeting
  - Widgets for Users profile
  - Widgets for Setting
  - Widget for Quality Monitoring
  - Widget for Charts, graphs and other graphical key information
  - Widget for performance indicators.
  - Any as per future requirement.
- ix. Migration of Existing Online System into feature based Proposed Web Application System**
- x. Implementation of Web based and Mobile Based Quality Monitoring System**
- xi. Auto Locking Mechanism:** Auto locking Mechanism basically provide guarantee of data can't be changed without proper authentication. For validating and capturing right data, web application must ensure that, once data entered into the web application, can't be changed without proper authentication by higher authorities and proper documentations.
- xii. Online Authentication and auto checking Mechanism**
- xiii. Geographical location integration:** For Data accuracy and fairness, a geographical location integration module must be developed on GIS platform.
- xiv. Mobile Based Application for monitoring System:**
- Mobile application must have different roles and privileges for different Tiers Users for data entering and Monitoring.
  - Mobile Application based on offline synchronization and online synchronization methods with State Data center.
  - Mobile Application must be Integrated by Online Monitoring and System
  - It also must be integrated by RWD web portal.
  - It must be light weighted application and easy to use.
  - It must have facility of capturing photo, uploading photos, entering or selecting data with multiple options.
  - It must support instant alerts and notification features.
  - It must be based on geo-Tagging features
  - Display uploaded photograph on Google map by web application.

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- Supports Minimum Users interaction for data entry.

## 5. Intelligent Rural Road Maintenance Monitoring System (IRRMMS)

The vision of RWD revolves around crafting an avant-garde, autonomous, and faceless workflow, designed to meticulously capture data pertaining to road degradation and maintenance requisites. These objectives are set to be realized through the infusion of advanced IT solutions, particularly those rooted in the domains of the Internet of Things (IoT) and Artificial Intelligence (AI), bolstered by the manifold potentials of Machine Learning (ML). The performance of AI model should be evaluated with standard metrics. The expected performance should reach to an acceptable level (suitable for real application).

Intricately woven into this ambitious scheme are several key pursuits:

1. **Robust AI Models:** The envisioned system entails robust AI models capable of autonomously detecting and categorizing various distress patterns and road furniture on rural roads. This involves AI algorithms on vast datasets encompassing a spectrum of road conditions, furniture, and road safety considerations thereby endowing them with the ability to distinguish between distress types, such as potholes, cracks, erosion, bad road signs, or dangerously grown vegetation posing threat to safety.
2. **IoT-enabled Sensor Networks:** The offered system would incorporate IoT-enabled sensor networks strategically used along rural roadways. These sensors would be equipped to monitor many factors including road surface, road network environment, and structural strain. This real-time data acquisition facilitates the early detection of potential distress patterns, which can subsequently be relayed to the central AI engine for analysis.
3. **Data Fusion and Analysis:** Data from IoT sensors would be synergistically fused with imagery and GIS data to get a holistic view of road conditions. This amalgamated dataset would be fed into AI-driven analytical models capable of discerning distress patterns, predicting their evolution, and formulating targeted maintenance strategies. Appropriate data storage and management mechanisms should be implemented to store the data in relevant forms, retrieve it as and when required, with proper recovery strategies.
4. **Predictive Maintenance Strategies:** AI's predictive prowess would be harnessed to anticipate road degradation patterns based on historical and real-time/ Historical data inputs. The AI model should be capable for incremental training as and when new data instances are augmented. The predicative performance should reach up to an acceptable level with standard metrics, such as accuracy, recall, precision and F1 score. This forecasting capability would empower the RWD to proactively orchestrate maintenance activities, pre-empting major disruptions and optimizing resource allocation.
5. **Geo-tagging and Comprehensive Metadata Integration:** The system should harmoniously integrate geo-tagged location data, encompassing specifics like road names, developmental schemes, and

contractor/engineer affiliations. This comprehensive metadata enables the AI system to correlate distress patterns with specific road attributes, thereby offering insights into the origins of road deterioration.

6. Anonymized and Secure Data Handling: Given the need for depersonalization, the workflow must be meticulously designed to anonymize and secure data inputs. This would entail adopting robust data encryption protocols and access controls to ensure the confidentiality of sensitive information.

7. Scalable and Secure Infrastructure: Hosting of the AI-driven application necessitates a scalable and secure infrastructure, affording the computational resources essential for real-time data analysis and storage. Cloud technologies would ensure seamless scalability to accommodate the burgeoning expanse of rural roads.

8. Ultimately, the convergence of these multifaceted technological advancements culminates in a Intelligent Remote Maintenance Monitoring System (IRMMS) poised to revolutionize the way rural roads are surveyed, assessed, and maintained. In this panorama, AI emerges as the fulcrum, marshalling data from diverse sources to engender a comprehensive comprehension of road conditions, prognosticating deterioration trajectories, and engendering targeted interventions that uphold the integral role of rural roads in socio-economic development.

### 5.3.1 System Capabilities

The **Rural Road Autonomous Monitoring and Maintenance System (RRAMMS)** should automate the monitoring, analysis, and maintenance of approximately 80,000 kilometres of rural roads. **RRAMMS** integrates advanced technologies, including Artificial Intelligence (AI) and Internet of Things (IoT), to provide accurate data collection, predictive modelling, and comprehensive reporting for optimal road upkeep. The **Rural Road Autonomous Monitoring and Maintenance System (RRAMMS)** is a technologically advanced solution that employs AI, IoT, and sensor fusing to streamline the monitoring, analysis, and maintenance of Bihar's extensive rural road network. By automating data collection, defect identification, and predictive maintenance, **RRAMMS** contributes to the socio-economic development of the region by ensuring optimal road conditions and accessibility.

### 5.3.2 Technology Details

1. The system should be capable of having Integration of AI/ML Pipelines to:- a. Automate data processing, feature extraction, and predictive modelling using AI/ML algorithms for proactive maintenance with high quartile accuracy.

2. The system should be capable of Data Collection and Monitoring to:-  
a. Perform quarterly monitoring surveys for approx 80,000 kilometres of rural roads, with single inspection per quarter per road.

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b. Utilize an automatic multisensory solution for data collection.

3. The system should be provisioned for Autonomous Data Collection without human intervention through below sensors:

**a. Vision Sensors with IMU:**

**i. 2D Camera:**

1. Resolution:  $\geq 1920 * 1080$
2. Frame Rate:  $\geq 30$ fps
3. Diagonal FOV:  $>90^\circ$
4. Scanning Range: 0.3m - 8m
5. Inbuilt stabilization

**ii. 3D Camera:**

1. Resolution:  $\geq 1920 * 1080$
2. Frame Rate:  $\geq 30$  fps
3. Diagonal FOV  $>70^\circ$
4. Scanning Range: 0.3m - 8m
5. Inbuilt stabilization

**b. Optical Sensor (LiDAR):**

- i. Scanning Range: 0.1m - 8m
- ii. Ranging Frequency: 4500 Hz
- iii. Resolution: 15 mm
- iv. Wavelength: 775-800 nm

**c. RADAR (GPR)**

- i. Ranging Frequency: 450 Hz
- ii. Data Output: 32 bit
- iii. Survey speed: up-to 70 kms/hr
- iv. Environmental: IP65
- v. Operating Time: 8 hrs continuous operation
- vi. Power supply:  $\leq 12$ V battery operated + external source
- vii. Positioning: RTK GNSS (option), DGNSS, mobile device positioning, encoder

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**d. Ultrasonic:**

- i. Range: 0.02m - 8m
- ii. Accuracy: 3 mm
- iii. Measuring Angle: < 15 degrees

**e. GPS:**

- i. Update Rate:  $\geq 10$  Hz
- ii. Accuracy:  $\leq 2$  meters
- iii. Speed Accuracy: 0.2 meters/second

**f. IR Sensor:**

- i. Laser Wavelength: 850nm  $\pm 10$  nm nominal @ 20°C, Class 1 Laser Compliant
- ii. Horizontal Field of Projection:  $\geq 90^\circ$
- iii. Vertical Field of Projection:  $\geq 60^\circ$
- iv. Diagonal Field of Projection:  $\geq 99^\circ$

**g. Inertial Measurement Unit (IMU)**

- i. Temperature Range: -10°C to 70°C
- ii. Gyro Range: 250, 500, 1000, 2000°/s
- iii. Accelerometer Range:  $\pm 0.2 \pm 4 \pm 8 \pm 16$  g

4. The above sensors should be controlled through a Sensor Acquisition Box with at least below specifications: -

- a. Processor: 64-bit ARM Core Processor with GPU/VPU / IPU or higher
- b. Memory:  $\geq 16$ GB
- c. Storage: SSD  $\geq 512$ GB
- d. support stereo depth sensor, RGB sensor.
- e. Support high Frame Rate capture up to 90 fps from different vision sensors.
- f. Connectivity: Ethernet Port, WiFi, 5 USB ports, 1 CAN Port, HDMI, UART Port, PCI, 12C
- g. Modem: LT/5G Modem
- h. Operating Temperature: -10°C to 50°C

5. The system should be capable of mounting all the above sensors along with their controller over a vehicle.

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- a. The cameras should be mounted on the front / top of the vehicle to capture the front view of the road.
6. The system should have below featured as part of Sensor Control and HUB System: -
  - a. Manage and detect devices automatically.
  - b. Support different interfaces like USB, 12C, PCI etc.
  - c. Manage autonomously addition and deletion of new sensors from the RMMS network.
  - d. Manage provisioning of various sensors in system
  - e. Manage security of sensors
7. The system should be capable of capturing 2D, 3D streams of:-
  - a. Road Surface
  - b. Road Furniture
  - c. Surrounding areas
  - d. Road Shoulder
8. The system should be capable of Data Processing and Reporting
  - a. Fully automated process from monitoring to reporting with no human intervention.
  - b. Encrypted data storage and transfer/upload.
  - c. Utilize efficient lossless compression algorithms for raw sensor data.
  - d. Data cleansing and anomaly removal for analysis readiness.
9. The system should be provisioned to feature identification of the below defects: -
  - a. Surface defects as per IRC 82-2015
    - i. cracks,
    - ii. potholes,
    - iii. rutting.
    - iii. Shoving
    - iv. Raveling, Patching and settlement and depression etc.
10. The system should be capable of Reporting below Accurate Measurements
  - a. Measure area and depth of potholes.
  - b. Measure length of cracks, edge cuts, and rain cuts.
  - c. Road and Furniture Defect Identification
  - d. Identify road length and width.
  - e. Identify missing or damaged meter and kilometre stones.
  - f. Identify cross drainage defects, such as damages to parapets on culverts.
  - g. Identify least count, units and severity level of distress.

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11. The system should identify the missing meter stones (at every 200 metres) and kilometre stones (at every 1 kilometre) or any damages to the present stones.
12. The system should have future provision for identifying cross drainage defects like damages of Parapet on Culvert.
13. The system should be provisioned to transferring information and collected data in real-time in presence of good network connectivity.
14. The system should be capable of developing a road surface condition database.
  - a. Rating Scale: From the road surface condition database, the system should have provision for rating the road with scale ranging from 1 to 10, and description as below:-
    - i. 1: Failed - The road surface is seriously deteriorated and requires immediate attention.
    - ii. 2-3: Poor - Severe distresses are present, requiring rehabilitation.
    - iii. 4-6: Fair - Moderate distresses are present, suggesting maintenance is needed.
    - iv. 7-8: Good Minor distresses are present, and the pavement is in relatively good condition.
    - v. 9-10: Excellent - The pavement is in excellent condition with minimal distress.

### 5.3.3 Key Features of the Proposed System

System should have provision for the following features:

1. Backend Display: System should have below display capabilities: -
  - a. Multiple processed video streams of Road Surface, Road furniture and Surroundings marked with the identified defects
  - b. Combined processed video streams (configurable FPS/high resolution) from 2 consecutive road surveys displaying in synchronized form. All the (four) streams from surveyed road surface and road furniture marked with the identified defects, should be displayed in comparison view.
2. Backend Technology Processing: System should have below processing demonstration capabilities: -
  - a. Process and analyse the collected data through advanced algorithms using Artificial Intelligence/Machine Learning.
    - i. Systems should have pre-trained data models available to understand and process fed-in data.
    - ii. System should have various evaluation metrics like accuracy, precision, recall, F1-score, and others assess to show how well the model performs.
    - iii. Processing algorithms on the collected data should be based on various profiling models such as: -
      1. Road Distress profiling
      2. Road Furniture profiling

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3. Road Artifacts (like signage, etc) profiling
4. Segmentation profiling
- iv. System should be capable of performing various pre-processing tasks such as:
  1. Data Filtering by selecting only required data through various filtering methods like frame drops, etc.
  2. Data Cleaning by removing/correcting errors, outliers and inconsistencies in the data.
  3. Data Transformation by scaling, normalization, and standardization to bring data to consistent range.
- v. The system should be able to work for both bituminous and cement concrete pavements.
- vi. The system should be able to exclude or add specific chainage in the identification and quantification of distress and asset, performance parameter and reporting for projects.
- vii. The project should be able to perform under various field conditions such as wet roads and shadows from adjoining structures or tree.
- viii. The system should be able to geo tag all the images of distress and asset.
- ix. The system should be able to identify severity level of individual distress and determine safety condition. Severity level of the distress should be defined. In addition to the other key performance parameters, the system should be able to compute road condition rating as per IRC 82-2015.

b. Utilization of high end-servers to accommodate the computational demands of AI/ML applications

- i. System 'should be capable of processing multiple 1K/4K/8K streams of sensor data simultaneously.
  - ii. System should be capable of processing and giving out the results of at-least 500 Kms of survey data within 3 days of data capturing.
- c. Integration of AI/ML pipelines to automate data processing, feature extraction, and predictive modelling.
- d. Effective utilization of the processing powers through load balancing algorithms.
- e. The system should have the provision of retaining with new data instances in an incremental manner.

## 2. GIS and Map

- a. Each road should be mapped onto GIS and displayed according to its location.
- b. Map should be interactive and show the road quality status with different colours.
- c. GIS information will be provided by RWD.

## 3. Defect Ticket Generation

- a. For each defect found during a road survey, the system should generate and record a ticket with a unique ID.
- b. With the data of the upcoming survey, the system should automatically identify rectification of the defect based on its ID and close it.

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#### 4. Report Generation

- a. System should be capable of generating a report of surveyed roads within 15 days of its survey.
- b. The report should contain below information:
  - i. Road Quality Statistics
  - ii. Road Monitoring Survey Information
  - iii. GIS Information of the road on Map
  - iv. Detailed Defect Information along with defect images
  - iv. Repair suggestions

#### 5. Reporting and Escalation

- a. System should automatically report a summary of defects and statistics to the concerned Junior Engineer, Assistant Engineer, Executive Engineer and Contractor.
- b. The report should consist of at least below information: -
  - i. Road Information
  - ii. Road Condition
  - iii. Present and Previous Survey Information
  - iv. Chainage wise defects
- c. System should have capability to escalate to Superintendent Engineer, Chief Engineer, Headquarters and finally to Secretary after pre-defined time periods at each stage.

#### 6. Multimedia Services

- a. System should provide streaming of high-definition processed videos of the surveyed roads covering the surface and furniture/shoulders of the road.
- b. System should stitch and stream high-definition processed videos of the consecutive surveys of the roads. The videos should be synchronized forming a comparison of the two surveys.
- c. Through a logical intelligent algorithm, the system should automatically retrieve the images of the defects for the display.
- d. System should display the comparison of the images of the road defects before and after rectification.

#### 7. MIS

- a. Dashboard
- b. Various Customised Reports

#### 8. Alerts and Notifications

- a. Alert notifications of detected defects, status etc. through SMS/ Email/WhatsApp.
- b. Provision to configure for alerts related to non-fixing and non-compliances of the defects

#### 9. Data Collection and transfer

The data collection method should be fully automated with no human intervention. The system shall keep provision for real-time as well as offline collection methods. The transfer of all kinds of data should be made through a secure mode following industry standards.

#### 10. Survey of Roads

With a long list of roads to be scheduled on an active survey every day, there should be a separate user interface for operators to monitor the roads getting surveyed, validate data collection and notify

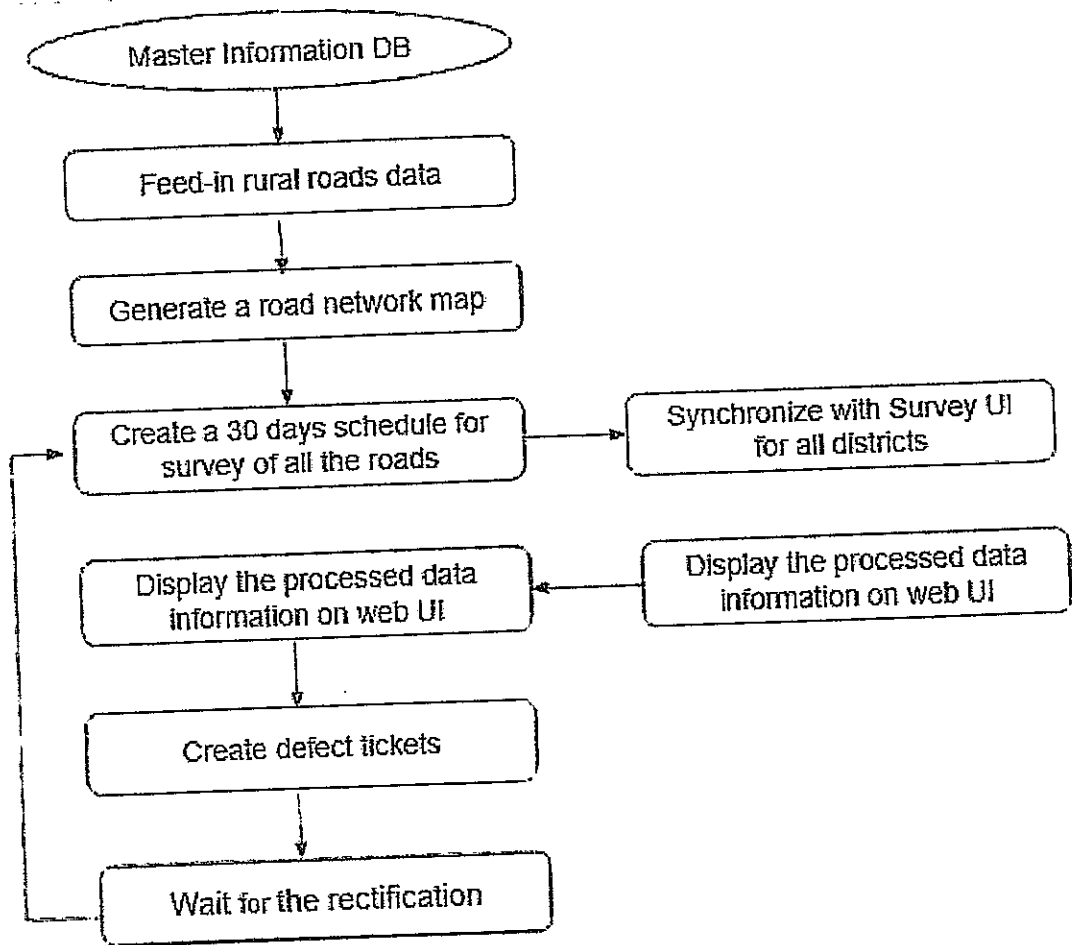
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malfunctioning of sensors, if any. With possibility of limited-to-no internet connectivity in rural areas also necessitates a separate user interface running independently for the data collection during survey. The primary requirements for survey user interface shall be:

- a. Survey UI should be capable of running in offline mode without the internet.
- b. Acquisition Control Unit should have sufficient internal storage to store the survey data acquired in offline mode and transfer when the connectivity to the Data Centre is available.
- c. Survey UI should be in synchronised mode with the main DB and Web UI.
- d. Roads to be surveyed daily should be selected and displayed on a GIS map for operators to identify and verify the actual road being surveyed.
- e. During the survey of the road, the UI should display the data from all the sensors and flag an alert in case of any malfunction of the sensors.
- f. The entire process of data collection should be unassisted with no human control intervention. Operators should not be allowed to input any control parameters on the UI. The sole purpose of the UI should only be to display the sensor data collection for its monitoring and identify errors and malfunctioning of the sensors.
- g. The system should be capable of storing at-least 150 Kms of survey data locally.
- h. The system should have provision for leading the operator vehicle to the start point of the survey, automatically detect the start and stop point locations of the road to be surveyed and autonomously start and stop the survey. All these should be displayed onto the UI for verification by the operator.

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### User Interface Requirements

With the collection and processing of data, there needs to be a user interface and dashboard in place to display the data. The proposed web UI will serve as the primary means for users to interact with and visualize road data collected from various sensors and sources.

### Functional Requirements

#### a) User Authentication and Authorization

The web UI should support user authentication to ensure secure access to the system. Different user roles should be defined, each with specific access levels and permissions, such as below:

1. Administrators
2. State, District, Division and Block viewers.

#### b) Dashboard

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The web UI should provide an interactive dashboard that presents real-time and historical road monitoring data in a visually appealing manner. It should include: -

1. Bihar Rural Road Network
2. Road Quality Statistics
3. Road Monitoring Statistics
4. Comparison statistics of consecutive surveys
5. Customizable widgets and maps

The dashboard should be designed to display statistics according to access roles for state, district, division and block level users.

#### c) Data Import/Export

The web UI should allow road details, GIS information and other related information to be imported by different means such as excel, manual input, etc.

The web UI should allow downloading above mentioned information in different formats such as excel, pdf, csv.

#### d) Data Visualization:

##### List and detailed Views

1. The web UI should display a list of total number of roads along with its relevant information like length, location, present quality status, cost of development and maintenance, etc.
2. The web UI should have provision to display a list of surveys carried out on each road along with its relevant information like date and time of survey, etc.
3. The web UI should have provision to display all the details of the road along with surveys carried out.

##### Visualization through GIS Maps

1. The web UI should allow users to visualize road conditions, and other relevant data through intuitive and responsive maps.
2. The maps should support zooming, panning, and overlaying multiple layers.
3. The UI should provide options for filtering and aggregating data based on various parameters, such as time, location, and road segment and surveys.
4. All the defects and attributes of the road should be displayed with proper labelled chainage markings.

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## Multimedia Visualization

1. The web UI should display the playback of high-definition videos collected through 2D camera sensors for survey of each road.
2. The web UI should display the images of the defects identified on each road.
3. The web UI should display the synchronized playback of videos collected from consecutive surveys of the same road, depicting it as a comparison of the road, before and after rectification of the identified defects. The videos should run simultaneously and in synchronization for consecutive surveys.
4. The web UI should display the comparison of images of an identified defect from consecutive surveys of the same road.
5. Shortcut navigation as an alternative to reviewing full videos.
6. Shortcut navigation for example from defect images to defect location on the map.

## Reporting and Analytics

The web UI should offer reporting and analytics capabilities, allowing users to generate custom reports and analyse historical data trends.

Users should be able to define report parameters, such as survey time range, location, and data filters, and export reports in various formats (e.g. PDF, CSV).

## Non-Functional Requirements

### Hosting

Server space for hosting the web UI will be provided by RWD. However, required storage space for the data collected from the surveys will be procured and borne by the eligible applicant.

The Road Monitoring reporting portal will be linked to the RWD web portal.

### Usability and Accessibility

The web UI should be intuitive, user-friendly, and responsive across different devices and screen sizes. It should comply with web accessibility standards (e.g., WCAG 2.1) to ensure inclusivity for users with disabilities.

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### **Performance and Scalability**

The web UI should provide fast response times, even when handling large volumes of real-time data.

It should be designed to scale efficiently to accommodate future growth and increased data sources.

### **Security**

The web UI should implement robust security measures, including encryption of data in transit and at rest.

User authentication and authorization should be implemented securely, following industry best practices.

### **Integration Requirements**

The proposed system should be designed to integrate with existing road monitoring systems and databases, allowing seamless data exchange and synchronization. Data of Rural Roads and GIS information should be in place for seamless and easy integration.

APIS or other integration mechanisms should be provided to facilitate the connection with external systems and data sources.


### **5.4 Maintenance and Operations of Digital Project and Asset Management Information System (DPAMIS) and Intelligent Rural Road Maintenance and Monitoring System (IRRMMS)**

The SI will setup a Centralized, Operations Control Centre (COCC) at the office of the Client to support and maintain the DPAMIS and IRRMMS and carryout the required operations. The SI will provide trained resources to work at the Control Center to perform various operations as required for the operations and management of DPAMIS and IRRMMS. The estimated list of resources that should be deployed at the Control Center is given in this section.

The SI will carry out the field operations of :

- Survey of Roads for creating the GIS/GPS data for the roads
- Survey of Roads to acquire data using Acquisition Kits fitted to the Vehicles and transmit the data to Data Center
- Field Visits as may be required

The Client will provide required office space with common amenities to the SI's deployed personnel at the COCC and Field Locations such as PIUs.

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## Survey Data Acquisition Kit

The System Integrator shall be providing an Integrated Survey Data Acquisition Kit with the sensors detailed above.

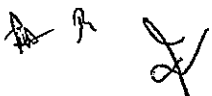
The List of Minimum Sensors/Equipment that Each Acquisition Kit Comprises are:

S No.	Name of the Equipment	Quantity
1	Vision Sensors: 2D Camera	2
2	Vision Sensors: 3D Camera	2
3	LIDAR	2
4	IR Camera	1
5	RADAR	1
6	Thermal Sensor	1
7	Ultrasonic Sensor	20
8	GPS Receiver	1
9	Inertial Measurement Unit (IMU)	1
10	Sensor Controller	1
11	Host Machine: Sensor Acquisition Box with GPU	1
12	Display	1
13	Interface and Connecting Cables	As required
14	Mounting Brackets	As required
15	Power Unit	1

The SI shall be providing 108 Data Acquisition Kits on Lease for the entire duration of the contract and should be mounted/fix securely on the Vehicle being used for Survey. Power required for operating the Data Acquisition Kit shall be drawn from the Vehicle. It is the responsibility of the SI to ensure Proper functioning of the Data Acquisition Kits and also take care of the required Warranty / Repairs / Maintenance etc. SI shall take and maintain requisite Insurance for the Acquisition Kits.

## Survey Vehicle

The SI should provide 108 dedicated vehicles on Lease for survey for the entire duration of the Contract. One Data Acquisition Kit will be mounted onto one Vehicle. The Vehicle should have all the provisions to permanently fix the Data Acquisition Kit and should not be able to remove easily. Vehicle should have a GPS Tracking unit which should be linked with the GPS Tracking module of the Proposed Solution. The Control Room Operations Team should be able to track and monitor the Vehicles status at any point of time on Map.



It is the responsibility of the SI to ensure the following:

1. Vehicle Insurance
2. Payment of Road Taxes as Applicable
3. Repairs and Maintenance of the Vehicle

The Client shall pay monthly Fixed Lease and the running cost for each vehicle based on the actual total distance travelled (i.e. from the base location to the base location on every day in the month) for the Survey by the Vehicle in a month as per the GPS tracking reports at the rate to be quoted in the financial offer submitted by the SI.

### OPERATIONAL RESOURCES REQUIREMENT

The operations team would be responsible to assist RWD in running the system. This team shall be deployed as required during the implementation phase and operations & Maintenance phase. RWD may also require additional manpower for any specific period and SI would have to provide the required number of resources and profile at the contracted rate for the required period. RWD would have the right to vary the quantity as per its requirement without any limitation.

The detail of resources given herein below is an indicative list of manpower required to manage the Data Centre for Operation & Maintenance phase. Additional manpower for any specific period and SI would have to provide the required number of resources and profile at the contracted rate for the required period.

#### Indicative Manpower required for Data Centre

The selected SI shall be responsible to ascertain successful implementation, management of the DC and addition of adequate manpower with suitable skillsets as required.

SI No	Position	Roles and Responsibilities	Quantity*
1	Data Center Manager	Overall responsibility for managing the Data Center	1
2	System/ Server Administrator	Installation, configuration, and Maintenance of Servers OS Updates and upgrades as may be necessary Day to Day system administration tasks	6
3	Database Administrator	Database monitoring, DB Administration, Backup and Restoration, etc.	4
4	Network & Security Administrator	Network Monitoring & Management, network security, etc	4

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### Business Operations Team

SI No	Position	Roles and Responsibilities	Quantity*
1	Programme Manager/ Project Head	<ul style="list-style-type: none"> <li>• Primary interface between SI and client</li> <li>• Overall responsibility for carrying out Business Operations of System</li> <li>• Responsible for overseeing project activities and team</li> <li>• Regularly meeting with Client, third parties and other stake holders to report progress</li> <li>• Monitoring progress providing</li> <li>• Managing risks to avoid delays</li> <li>• Making decisions and providing the necessary leadership and directions for field operations teams to implement those decisions</li> <li>• Creating, scheduling and following up with team to ensure that the activities are being completed as planned and scheduled</li> <li>• Field Operations Management and Monitoring</li> </ul>	1
2	Project Manager DPAMIS	<ul style="list-style-type: none"> <li>• Overall responsibility for implementation and carrying out Business Operations of DPAMIS.</li> <li>• Responsible for overseeing project activities and team working on DPAMIS.</li> <li>• Monitoring progress, guiding the teams</li> <li>• Managing risks to avoid delays</li> <li>• Making decisions and providing the necessary leadership and direction for field operations teams to implement those decisions</li> <li>• Creating, scheduling and following up with team to ensure that the activities are being completed as planned and scheduled.</li> <li>• Field Operations Management and Monitoring of DPAMIS.</li> </ul>	1

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SI No	Position	Roles and Responsibilities	Quantity*
3	Operations Manager IRRMMS	<ul style="list-style-type: none"> <li>• Overall responsibility for implementation and carrying out Business Operations of IRRMMS.</li> <li>• Responsible for overseeing project activities and team working on IRRMMS.</li> <li>• Monitoring progress, guiding the teams</li> <li>• Managing risks to avoid delays</li> <li>• Making decisions and providing the necessary leadership and direction for field operations teams to implement those decisions</li> <li>• Creating, scheduling and following up with team to ensure that the activities are being completed as planned and scheduled.</li> <li>• Field Operations Management and Monitoring of IRRMMS</li> </ul>	1
4.	Manager Command Control	<ul style="list-style-type: none"> <li>• Managing the Operations at the Control Center</li> <li>• Work distribution and ensure completion of works on time.</li> <li>• Reporting as necessary</li> </ul>	1
5	Assistant Project Manager	<ul style="list-style-type: none"> <li>• Works from COCC</li> <li>• Field Operations Management, Monitoring in the region/ zone allocated</li> <li>• Monitoring of operations of Asset Management System</li> <li>• Monitoring of operations related to DPAMIS and/or IRRMMS and reporting</li> <li>• Coordinating with RWD officials and other required stake holders for effective field operations</li> <li>• Management Reporting</li> </ul>	17
6	Civil Engineers - Control Center	<ul style="list-style-type: none"> <li>• Collaborate with tech teams to embed AI solutions for road monitoring.</li> <li>• Provide expertise to ensure AI aligns with road engineering requirements.</li> <li>• Help in analysis of issue in AI algorithms predicting road issues and maintenance needs.</li> </ul>	2

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SI No	Position	Roles and Responsibilities	Quantity*
		<ul style="list-style-type: none"> <li>Analyse data to improve road management and maintenance.</li> <li>Validate AI accuracy against real-world data.</li> <li>Review and help refine models iteratively for better predictions.</li> <li>Communicate AI insights to non-tech stakeholders.</li> <li>Coordinate with road authorities for compliance.</li> <li>Create clear AI model documentation.</li> <li>Prepare regular project updates.</li> </ul>	
7	Monitoring Operator Control Centre	<ul style="list-style-type: none"> <li>Oversee the surveys in the field operations, ensuring the collection of survey data and proper video streams coming in from the field.</li> <li>Perform daily control centre tasks with high integrity and efficiency.</li> <li>Monitor vehicle and field staff movements</li> </ul>	42
8	Helpdesk Operator	<ul style="list-style-type: none"> <li>Receiving of calls from stakeholders</li> <li>Understanding the issues/ challenges faced by users</li> <li>If possible, guide user/help user in taking corrective action/helpdesk team to take corrective action by accessing the system remotely</li> <li>If problem is persisting/ helpdesk unable to take corrective action, collect required information and communicate the same to technical team</li> <li>Follow up with the technical team for resolution within prescribed time limit</li> <li>Inform user about the resolution of problem/issue</li> </ul>	16
9	Call Center Operator	<ul style="list-style-type: none"> <li>Receiving of calls</li> <li>Register grievances and provide information</li> <li>Coordinate with the stake holders for redressal of pending grievances as may be needed.</li> </ul>	12
10	Data Entry/ Data collection	<ul style="list-style-type: none"> <li>Collection of GIS Information of roads using mobile application and transfer the data application.</li> <li>Data entry work as may be needed</li> </ul>	10

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SI No	Position	Roles and Responsibilities	Quantity*
	operator	<ul style="list-style-type: none"> <li>Reporting of any issues/ challenge faced</li> </ul>	
11	Software Development - Manager	<ul style="list-style-type: none"> <li>Should be handling the Full Lifecycle of the Software development</li> <li>Collaborate with the integration team to ensure seamless interoperability with other systems</li> <li>Leading and Guiding the Application Software Developer</li> </ul>	1
12	Software Development- Team Leader	<ul style="list-style-type: none"> <li>Leading and guiding the application software developers</li> <li>Customize/ Modify/ Change/ Develop the application modules as per the requirement of the projects operations</li> <li>Co-ordinating with the client teams for any change requests or additional reporting formats etc.</li> </ul>	1
13	Software Developer - Operations support	<ul style="list-style-type: none"> <li>Customize/ Modify/ Change/ Develop the application modules as per the requirement of the project's operations</li> </ul>	6
14	Software Developer -	<ul style="list-style-type: none"> <li>Customize/ Modify/ Change/ Develop the application modules as per the requirement of the project's operations</li> </ul>	5
15	Mobile Application Developer	<ul style="list-style-type: none"> <li>Customize/ Modify/ Change/ Develop the mobile and other application modules as per the requirement of the project's operations</li> </ul>	2
17	Vehicle Driver	<ul style="list-style-type: none"> <li>Proper Maintenance of the Vehicle and Equipment</li> <li>Drive Safely</li> <li>Assist the Survey Operator as necessary</li> </ul>	108
18	Survey Operator	<ul style="list-style-type: none"> <li>Plan and organize field trips for data collection.</li> <li>Supervise the installation and maintenance of sensors and data collection systems.</li> <li>Monitor field operations to ensure data quality and equipment functionality.</li> </ul>	108

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SI No	Position	Roles and Responsibilities	Quantity*
		<ul style="list-style-type: none"> <li>• Address any technical issues that arise in the field.</li> <li>• Collaborate with the Control Centre Operators.</li> </ul>	
19	Equipment Support Engineer	<ul style="list-style-type: none"> <li>• Conduct rigorous testing of hardware systems, including functional, performance, and reliability testing.</li> <li>• Identify and troubleshoot hardware-related issues and propose solutions.</li> <li>• Provide technical support to internal teams and external clients regarding hardware integration, troubleshooting, and maintenance.</li> <li>• Collaborate with software engineers to ensure seamless communication between embedded hardware and software components.</li> <li>• Assist in customer onboarding, training, and addressing hardware-related inquiries.</li> <li>• Create and maintain comprehensive documentation, including hardware specifications, user guides, and troubleshooting procedures.</li> </ul>	38
20	IT Support Engineer	<ul style="list-style-type: none"> <li>• Install, configure, and maintain hardware and software components in the field vehicles and data center.</li> <li>• Troubleshoot technical issues related to sensors, devices, software applications, and network connectivity.</li> <li>• Collaborate with other technical teams to ensure seamless integration of IT systems.</li> <li>• Respond to IT support tickets and inquiries from project team members.</li> <li>• Perform regular system checks, updates, and maintenance tasks.</li> <li>• Implement security measures to protect project data and systems.</li> <li>• Document IT processes, configurations, and troubleshooting procedures.</li> </ul>	38
21	Civil Engineer -	<ul style="list-style-type: none"> <li>• Plan and oversee road survey projects.</li> </ul>	38

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SI No	Position	Roles and Responsibilities	Quantity*
	Operations Support	<ul style="list-style-type: none"> <li>• Ensure conduct of quality surveys and analyze data.</li> <li>• Provide recommendations for maintenance and improvements.</li> <li>• Collaborate with stakeholders, contractors, and teams.</li> <li>• Ensure compliance with safety and environmental regulations.</li> </ul>	

**Basic Qualification of the resources to be deployed during Implementation followed by Operations and Maintenance Stage:**

SI No	Key Staff	Qualification and Experience
1	Programme Manager/ Project Head	BE/ B.Tech/ MCA/ MSc/ MBA with over 10 Years of overall experience in handling large IT Projects. E-governance projects experience is preferable. Experience in handling manpower deployed in field operations.
2	Project Manager - DPAMIS	BE/ B.Tech/ MCA/ MSc/ MBA with over 5 Years of overall experience in handling large IT Projects. E-governance projects experience is preferable. Experience in handling manpower deployed in field operations.
3	Operations Manager- IRRMMS	BE/ B.Tech/ MCA/ MSc/ MBA with over 5 Years of overall experience in handling large IT Projects. E-governance projects experience is preferable. Experience in handling manpower deployed in field operations.
4	Data Center Manager	BE/ B.Tech/ MCA/ MSc (Computers) with minimum 5 Years of experience in handling similar IT Projects.
5	Manager - Command Control Center	BE/ B.Tech/ MCA/ MSc/ MBA with over 5 Years of overall experience in handling large IT Projects. E-governance projects experience is preferable. Experience in handling manpower deployed in field operations.
6	Software Development- Manager	BE/ B.Tech/MCA/MSc (Computers) with minimum of 10 years of experience as Software Developer and atleast 2 years' Experience as Software Development Manager
7	Software Development- Team Leader	BE/ B.Tech/MCA/MSc (Computers) with minimum of 3 years of experience as Software Developer and should have experience in developing similar software

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SI No	Key Staff	Qualification and Experience
8	Software Developer	BE/ B.Tech/ MCA/MSc (Computers) with minimum of 3 years of experience as Software Developer and should have experience in developing similar software
9	Mobile Application Developer	BE/ B.Tech/MCA/MSc (Computers) with minimum of 3 years of experience as Software and mobile application Developer and should have experience in developing similar applications.
10	System Administrator	BE/B.Tech/ MCA/ MSc (Computers) with minimum of 3 Years of experience as system/ Network Administrator
11	Database Administrator	BE/B.Tech/ MCA/ MSc (Computers) with minimum of 3 Years of experience as Database Administrator
12	Network & Security Administrator	BE/B.Tech/ MCA/ MSc (Computers) with minimum of 3 Years of experience as Network/ System Administrator
13	Assistant Project Manager	BE/ B.Tech/MCA/ MBA with 3 Years of overall experience in handling IT Projects Operations

#### **Working Hours, Overtime, Leave, etc.**

Working hours and holidays for Resources deployed shall be as per labour laws and rules of Government of Bihar.

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

Once approved by the client, no changes shall be made in the key Personnel. If, for any reason beyond the reasonable control of the SI, it becomes necessary to replace any of the key Personnel, the SI shall fort with provide as a replacement a person of equivalent or better qualifications.

#### **Access to Office Space**

The client warrants that the SI shall have, free of charge, unimpeded access to all office space in respect of which access is required for the performance of the services. The Client will be responsible for any damage to such office or any property thereon resulting from such access and will indemnify the SI and each of the personnel in respect of liability for any damage, unless such damage is caused by the default or negligence of the SI or its Personnel of either of them.

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## 6. FUNCTIONAL PERFORMANCE REQUIREMENTS OF THE SYSTEM

### 6.3 General Requirement of the Software

The software, in general, will:

- Have a uniform, map-based and modular interface for easy acceptability.
- Allow for menus, interface and reports in English.
- Be designed according to the accepted international practices (e.g. common user interface, data import/export standards, truth-in-data standards)
- Be web-based to ensure operability and data uploading / downloading using the internet
- Have data entry forms (with in-built validation routines), including labels in English language, so that the user does not need to use a table view for entering data
- Have an inbuilt alert system to ensure updating of road and pavement condition data periodically and flag the year of data collection while analysing for each parameter
- Be able to check the data accuracy, inconsistencies, beyond the acceptable ranges
- Be able to export to Excel / Access / Dbf etc. the road network data stored/viewed in respective modules along with road attributes for road sections
- Accommodate various network numbering rules, including any change in road classification, no. etc.
- Preserve the integrity of the current and historical data for the sections of road subject to split/join or modification of alignments
- Record (and preserve audit trail of) changes to the road network definition/data, and allow a review of those changes. The audit should record the date and time, and, the nature of the change, and the person making the change
- Store additional data that the client may require, with their attributes.
- Allow the storage of data for different time periods, to enable comparison of such data. There should be facility to view/select the most current data or for a user defined period
- Have the facility to display multi-media objects (e.g. geo-tagged photographs, video clips etc.) as attributes of data items.
- Design the system for multi-level user requirements (i.e. headquarters, and field offices) with security, interfaces and reporting facilities appropriate to the level of the user
- Permit security set-up so that user may have different security privileges for networks in different geographical or administrative areas, and users have levels of access (for modules) compatible with their function. Assign roles to users
- Provide flexible reporting to enable RWD staff to custom design reports and make these available to other users. Reporting of all items in the database must be permitted, including reporting on user-defined items and attributes, comparisons of current data with historical data, audit records etc. Export to spread sheet and/or comma-delimited text files should also be provided. The consultant should also provide details of any interfaces to third-party reporting tools.

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#### 6.4 Latest Technologies to be used in Proposed System

Sl. No.	Technology	Platform
1.	Proposed System	Latest Technology
2.	Framework	Like( Microsoft .Net Framework 4.0/4.5, Java) or any Latest Technology
3.	Language	Visual C#.net/ Visual Basic.net and open standard or any Latest Technology
4.	Database	Microsoft SQL Server 2012/ My SQL/ Oracle or any Latest Technology
5.	Web Technologies	Microsoft Visual Studio Asp.NET 2013 Microsoft SharePoint, ASP.NET CSS, JQuery, Ajax, Flash or any Latest Technology
6.	Web Server	Microsoft Internet Information Services (IIS) or Java web server or any latest technology
7.	Server Hardware	Intel Based Servers or any Latest Technology
8.	Datacentre	Intel Based Servers installed at State Data Centre or any Latest Technology
9.	Securities	As per State Data Centre or any Latest Technology
10.	Operating System	Microsoft Windows Server and/or Linux or any latest technology
11.	Office Tool	Microsoft Office or any Latest Technology

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Sl. No.	Technology	Platform
12.	Reporting System	Crystal report or Microsoft Visual Studio Reporting Tools or any Latest Technology

### 6.5 Requirement for Adherence to Standards

Application	Standard
Portal Development	W3C Specification, Client-side web technologies, responsive UI
Information access / transfer Protocols	HTTP/HTTPS, RDBMS Web API / REST
Interoperability	Open Web Standard/ protocols.
Photograph	JPEG (minimum resolution 640 X 480 Pixels)
Scanned Documents	TIFF (Resolution of 600 X 600 dpi)
Information Security	ISO 27001 certified System
Operation	ISO 9001 Certified
Data Standards	All-important data entities would be in line with standards published by DIT ( <a href="http://egovstandards.gov.in">http://egovstandards.gov.in</a> )
Localization Standards	All Applications would comply with standards published on <a href="http://egovstandards.gov.in">http://egovstandards.gov.in</a> to ensure common look and feel.

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## 6.6 System Security and User Management

- **Authentication** - The system will adopt Single Sign On (SSO) security system for authentication with appropriate encryption level for user data.
- **Authorisation** - Following levels of user security management features must be present in the application.

### a) *User Management* –

Application will request list of users through the SSO from central portal, the modality of which will be discussed with department in the inception. These lists of users will always be dynamically synced and a copy of the same will be stored within application database to assign role and jurisdiction. The agency will make alternate arrangements to build own security module to create/manage users if the SSO facility is not available.

### b) *Role Management* –

The system will define levels of system use (roles). This will allow grouping of select functions available in a module(s), and create roles for users. The functions must include separate mode for view only, and/or editing for all such functions and allow for assignment of role(s) to users.

### c) *Jurisdiction management* –

The system will have facility to control data access of network inventory, condition and cross-drainage structure based on jurisdiction defined in the system. This will also have facility to bind jurisdiction accessibility with role management.

## 6.7 System Development, Testing

After the finalization of the overall system, the architecture and design reports of modules, system development, configuration, and testing will be undertaken by the agency in accordance with technical requirements. Agency will use its own hardware and software for development of the application. However, the testing should be conducted at the client's office by the agency staff. The agency will use the data collected on the project to load in the system and undertake all testing, including preparation of a maintenance plan for selected roads. The system should incorporate all the procedures, and maintenance strategies developed for this purpose.

The agency is encouraged to split the design report schedule in order to initiate system development of some modules on a priority basis. The system should undergo testing using the use cases as defined in the design report. The test cases should be finalized with the client before commencing user acceptance testing. Upon completion of user acceptance testing and the integration, the system will be released for client testing. The client will provide comments / suggestions related to the software for incorporation in the final release.

## 6.8 Operational / User Acceptance Testing

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The tested system will undergo Operational/User Acceptance Testing in the environment used by the agency for development. The agency should ensure to submit copies of system user manuals for each application describing all the functional use cases and business scenarios before conducting User Acceptance testing. Upon testing, identified deficiencies will be resolved by the agency and necessary changes made before finally deploying in the client's infrastructure.

The testing will be conducted by the client and/or its appointed representative using the test cases and business scenarios described in design reports and user manuals. For the testing it is mandatory to use data collected on the project in a test environment.

### 6.9 System Deployment and Security

After successful conduct of Operational/User Acceptance Testing, the system will be deployed at client's environment. The system when deployed at the client's infrastructure shall comply with all the integration requirements as per given mandate and comply to identified deficiencies during Operational / User Acceptance Testing. The system will comply with security requirements as per government's IT policy.

### 6.10 Training and System Implementation

The agency will impart training on use of software modules and the maintenance of the systems. A training program will be prepared, on all components of the software developed. The training program will use workshops, field training and on-the-job training to transfer skills. The agency will prepare and provide all operational and training material including training manual, videos of use of software, online exercises to use various modules of software and presentations which will be property of RWD.


## 7. ENVISAGED IMPLEMENTATION SCHEDULE:

Following implementation plan is envisaged:

S. No	Milestone	Completion Time
	<b>Design, Development and Deployment of Software</b>	
1	Requirement Study, Business Process re-engineering for best fit solution, preparation of SRS and its approval.	T+ 3 Months
2	Design of Software and Approval	T+ 6 Months

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3	Development and Deployment of Software – Phase I as defined in SRS	T+ 8 Months
4	Development and Deployment of Final Software	T+ 10 Months
5	User Acceptance Pre- Go-Live Activites	T+ 11 Months
6	Go live	T+ 12 Months
<b>Setting up of Data Center</b>		
1	Providing Building/Rooms for Data Center with all the pre-requisite Amenities by Client	T+ 2 Months
2	Delivery of Hardware and Systems Software for Data center and Central Control Center	T+ 6 Months
3	Installation and Testing of Provided Hardware and Software	T+ 7 Months
4	Final Acceptance Test (FAT) and Go Live of the Data Center	T+ 8 Months
<b>Deployment of Operational Resources and Operations</b>		
1	Deployment of Resources - Programme Manager	T+ 1 Months
2	Deployment of Resources - Data Center Managers and Data Center Maintenance Resources	T+ 6 Months
3	Deployment of Resources - Project Manager - DPAIMS, Operations Manager, Control Center Manager, Assistant Project Managers	T+ 6 Months
4	Deployment of Resources at Head Quarter	T+ 8 Months
5	Deployment of Filed Operational Resources for Phase I	T+ 8 Months
6	Providing Vehicles on Lease for Phase I	T+ 8 Months
7	Providing Survey Data Acquisition Kits on Lease for Phase I	T+ 8 Months

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8	Commencement of Survey - Phase I	T+ 8 Months
9	Deployment of Filed Operational Resources in all Divisions	T+ 12 Months
10	Providing Vehicles on Lease for all PIUs	T+ 12 Months
11	Providing Survey Data Acquisition Kits on Lease for all PIUs	T+ 12 Months
12	Commencement of Survey at all Divisions	T+ 12 Months

Note: T is the Date of Issuance of Work Order/ Letter of Intent (LoI)

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**Section-6**

**STANDARD FORM OF CONTRACT**

The attached Form of Contract shall be used.

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ANNEXURE

STANDARD FORM OF CONTRACT

SI cum MSP Services

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# I. Form of Contract

(Text in brackets [ ] is optional; all notes should be deleted in final text)

This CONTRACT (hereinafter called the "Contract") is made the [day] day of the month of [month], [year], between, on the one hand, [name of client] (hereinafter called the "Client") and, on the other hand, [name of SI cum MSP] (hereinafter called the "SI").

## WHEREAS

- (a) The Client invited open Request for Proposal RFP No. \_\_\_\_\_ dated \_\_\_\_\_ ("the RFP") for "Selection of System Integrator (SI) Cum Master Service Provider (MSP) For Development Maintenance and Operation of Digital Project and Asset Management Information System (DPAMIS) And Intelligent Rural Road Maintenance Monitoring System (IRRMMS) For Rural Works Department, Bihar."
- (b) The System Integrator (SI) participated in the tender and submitted its Pre-Qualification, Technical and Financial proposal for the same.
- (c) The System Integrator emerged as successful bidder.
- (d) The Client has issued a Lol Ref. \_\_\_\_\_ dated \_\_\_\_\_ to the System Integrator and the System Integrator accepted the Lol.
- (e) Now the System Integrator has come forward to enter into the Contract with the Client as per the terms of the RFP.

NOW THEREFORE the parties hereto hereby agree as follows:

1. Contract shall be effective from \_\_\_\_\_ day of \_\_\_\_\_ 2023 and shall comply with all the terms and conditions from the effective day.
2. The scope of services, deliverables, duration, team composition, payment schedule along with all other terms and conditions shall be as per the RFP No.: \_\_\_\_\_ dated \_\_\_\_\_ and the Proposal submitted by the SI.
3. The following documents attached hereto shall be deemed to form an integral part of this Contract:
  - (a) The General Conditions of Contract;
  - (b) The Special Conditions of Contract;
  - (c) The following Appendices:[Note: List the Appendices as required]

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- Appendix A :
- Appendix B :
- Appendix C :
- Appendix D :
- Appendix E :
- Appendix F :

2. The mutual rights and obligations of the Client and the SI shall be as set forth in the Contract, in particular:
- (a) The SI shall carry out the Services in accordance with the provisions of the Contract; and
  - (b) The Client shall make payments to the SI accordance with the provisions of the Contract.

IN WITNESS WHEREOF, the Parties hereto have caused this Contract to be signed in their respective names as of the day and year first above written.

For and on behalf of *[name of Client]*

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[Authorized Representative]

For and on behalf of *[name of SI]*

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[Authorized Representative]

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## II. General Conditions of Contract

### 1. GENERAL PROVISIONS

- 1.1 **Definitions:** Unless the context otherwise requires, the following terms whenever used in this Contract have the following meanings:
- (a) "Applicable Law" means the laws and any other instruments having the force of law in the Government's country, or in such other country as may be specified in the Special Conditions of Contract (SC), as they may be issued and in force from time to time.
  - (b) "SI" means any private or public entity that will provide the Services to the Client under the Contract.
  - (c) "Contract" means the Contract signed by the Parties and all the attached documents listed in its Clause 1, that is these General Conditions (GC), the Special Conditions (SC), and the Appendices.
  - (d) "Day" means calendar day.
  - (e) "Effective Date" means the date on which this Contract comes into force and effect pursuant to Clause GC 2.1.
  - (f) "Foreign Currency" means any currency other than the currency of the Client's country.
  - (g) "GC" means these General Conditions of Contract.
  - (h) "Government" means the Government of the Client's country.
  - (i) "Local Currency" means the currency of the Client's country.
  - (j) "Member" means any of the entities that make up the joint venture/consortium/association; and "Members" means all these entities.
  - (k) "Party" means the Client or the SI, as the case may be, and "Parties" means both of them.
  - (l) "Personnel" means professionals and support staff provided by the SI or by any Sub-SI and assigned to perform the Services or any part thereof; "Foreign Personnel" means such professionals and support staff who at the time of being so provided had their domicile outside the Government's country; "Local Personnel" means such professionals and support staff who at the time of being so provided had their domicile inside the Government's country; and "Key Personnel" means the Personnel referred to in Clause GC4.2(a).
  - (m) "Reimbursable expenses" means all assignment-related costs other than SI's remuneration.
  - (n) "SC" means the Special Conditions of Contract by which the GC may be amended or supplemented.
  - (o) "Services" means the work to be performed by the SI pursuant to this Contract, as described in Appendix A hereto.
  - (p) "Sub-SI" means any person or entity to whom/which the SI subcontracts any part of the Services.
  - (q) "Third Party" means any person or entity other than the Government, the Client, the SI or a Sub-SI.

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(r) "In writing" means communicated in written form with proof of receipt.

## **1.2 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 the Client and the SI. This is a Service Contract, in which the SI would perform the services assigned as per the Contract. The SI, subject to this Contract, has complete charge of Personnel, if any, performing the Services and shall be fully responsible for the Services performed by them or on their behalf hereunder.

## **1.3 Resolution of Disputes**

Resolution of disputes between the parties should be as per Clause 8

## **1.4 Law Governing Contract**

This Contract, its meaning and interpretation, and the relation between the Parties shall be governed by the Applicable Law.

## **1.5 Language**

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

## **1.6 Headings**

The headings shall not limit, alter or affect the meaning of this Contract.

## **1.7 Notices**

1.7.1 Any notice, request or consent required or permitted to be given or made pursuant to this Contract 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 in the SC.

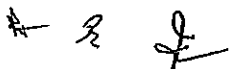
1.7.2 A Party may change its address for notice hereunder by giving the other Party notice in writing of such change to the address specified in the SC.

## **1.8 Location**

The Services shall be performed primarily at Client's office at Patna, Bihar and such other locations as per requirement of the project or elsewhere, as the Client may approve with consent of SI.

## **1.9 Authorized Representatives**

Any action required or permitted to be taken, and any document required or permitted to be executed under



this Contract by the Client or the SI may be taken or executed by the officials specified in the SC.

### **1.10 Taxes and Duties**

The SI shall pay such indirect taxes, duties, fees and other impositions levied under the Applicable Law as specified in the SC.

### **1.11 Fraud and Corruption**

If the Client determines that the SI and/or its Personnel, sub-contractors, services providers and suppliers has engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices, in competing for or in executing the Contract, then the Client may, after giving 14 days notice to the SI, terminate the SI's services under the Contract. Should any Personnel of the SI be determined to have engaged in corrupt, fraudulent, collusive, coercive, or obstructive practice during the execution of the Contract, then that Personnel shall be removed.

#### **1.11.1 Definitions For the purposes of this Sub-Clause, the terms set-forth below are defined as follows:**

- (i) "corrupt practice" is the offering, giving, receiving or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;
- (ii) "fraudulent practice" is any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;
- (iii) "collusive practice" is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;
- (iv) "coercive practice" is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;
- (v) "obstructive practice" is deliberately destroying, falsifying, altering or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede a Client investigation into allegations of a corrupt, fraudulent, coercive or collusive practice; and/or threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation; or acts intended to materially impede the exercise of the Client's inspection.

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## 2. COMMENCEMENT, COMPLETION, MODIFICATION AND TERMINATION OF CONTRACT

### 2.1 Effectiveness of Contract

This Contract shall come into force and effect on the date (the "Effective Date") of the Client's notice to the SI instructing the SI to begin carrying out the Services. This notice shall confirm that the effectiveness conditions, if any, listed in the SC have been met.

### 2.2 Termination of Contract for Failure to Become

Effective If this Contract has not become effective within such time period after the date of the Contract signed by the Parties as specified in the SC, either Party may, by not less than twenty one (21) days written notice to the other Party, declare this Contract to be null and void, and in the event of such a declaration by either Party, neither Party shall have any claim against the other Party with respect hereto.

### 2.3 Commencement of Services

The SI shall begin carrying out the Services not later than the number of days after the Effective Date specified in the SC.

### 2.4 Expiration of Contract

Unless terminated earlier pursuant to Clause GC 2.9 hereof, this Contract shall expire at the end of such time period after the Effective Date as specified in the SC.

### 2.5 Entire Agreement

This Contract contains all covenants, stipulations and provisions agreed by the Parties. No agent or representative of either Party has client to make, and the Parties shall not be bound by or be liable for, any statement, representation, promise or agreement not set forth herein.

### 2.6 Modifications or Variations

Any modification or variation of the terms and conditions of this Contract, including any modification or variation of the scope of the Services, may only be made by written agreement between the Parties. Pursuant to Clause GC 7.2 here of, however, each Party shall give due consideration to any proposals for modification or variation made by the other Party.

### 2.7 Force Majeure

#### 2.7.1 Definition

- (a) For the purposes of this Contract, "Force Majeure" means an event which is beyond the reasonable control of a Party, is not foreseeable, is unavoidable, and which makes a Party's performance of its obligations hereunder impossible or so impractical as reasonably to be

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considered impossible in the circumstances, and includes, but is not limited to, war, riots, civil disorder, earthquake, fire, explosion, storm, flood or other adverse weather conditions, strikes, lockouts or other industrial action (except where such strikes, lockouts or other industrial action are within the power of the Party invoking Force Majeure to prevent), confiscation or any other action by Government agencies.

- (b) Force Majeure shall not include (i) any event which is caused by the negligence or intentional action of a Party or such Party's representatives or employees, nor (ii) any event which a diligent Party could reasonably have been expected both to take into account at the time of the conclusion of this Contract, and avoid or overcome in the carrying out of its obligations hereunder.
- (c) Force Majeure shall not include insufficiency of funds or failure to make any payment required hereunder.

### **2.7.2 No Breach of Contract**

The failure of a Party to fulfill any of its obligations hereunder shall not be considered to be a breach of, or default under, this Contract insofar as such inability arises from an event of Force Majeure, provided that the Party affected by such an event has taken all reasonable precautions, due care and reasonable alternative measures, all with the objective of carrying out the terms and conditions of this Contract.

### **2.7.3 Measures to be taken**

- (a) A Party affected by an event of Force Majeure shall continue to perform its obligations under the Contract as far as is reasonably practical and shall take all reasonable measures to minimize the consequences of any event of Force Majeure.
- (b) A Party affected by an event of Force Majeure shall notify the other Party of such event as soon as possible, and in any case not later than fourteen (14) days following the occurrence of such event, providing evidence of the nature and cause of such event, and shall similarly give written notice of the restoration of normal conditions as soon as possible.
- (c) Any period within which a Party shall, pursuant to this Contract, complete any action or task, shall be extended for a period equal to the time during which such Party was unable to perform such action as a result of Force Majeure.
- (d) During the period of their inability to perform the Services as a result of an event of Force Majeure, the SI, upon instructions by the Client, shall either:
  - (i) demobilize, in which case the SI shall be reimbursed for additional costs they reasonably and necessarily incurred, and, if required by the Client, in reactivating the

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Services; or

- (ii) continue with the Services to the extent possible, in which case the SI shall continue to be paid under the terms of this Contract and be reimbursed for additional costs reasonably and necessarily incurred.
- (iii) the client may also discuss the issue with the SI and revise the existing timelines of the project.
- (e) In the case of disagreement between the Parties as to the existence or extent of Force Majeure, the matter shall be settled according to Clause GC 8

### **2.8 (a) Suspension**

The Client may, by written notice of suspension to the SI, suspend all payments to the SI hereunder if the SI fails to perform any of its obligations under this Contract, including the carrying out of the Services, provided that such notice of suspension (i) shall specify the nature of the failure, and (ii) shall request the SI to remedy such failure within a period not exceeding sixty (60) days after receipt by the SI of such notice of suspension.

### **(b) Penalties:**

If there is a delay in achieving the milestones or submission of deliverables, penalty to the Bidder may be imposed as follows:

- 0.1 % of the payment cost for respective Deliverable(s)/Milestone(s) for the delay per week or part thereof for the delay
- The penalties shall be capped to 5% of the Invoice value for the respective Deliverable(s)/Milestone(s).
- Such deductible amount shall not be paid to the SI against the corresponding invoice raised.

### **(c) Schedule of Completion of Tasks of SI**

The total tenure of the contract will be for 6 (six) years after signing of the contract which includes 1 (one) year of implementation and 5 (five) years of maintenance and operations. The contract may be extended on mutual consent for (2) two years after expiry of tenure if performance of bidder found satisfactory.

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## 2.9 Termination

### 2.9.1 By the Client

The Client may terminate this Contract in case of the occurrence of any of the events specified in paragraphs (a) through (g) of this Clause GC 2.9.1. In such an occurrence the Client shall give a not less than sixty (60) days' written notice of termination to the SI.

- (a) If the SI fails to remedy a failure in the performance of its obligations hereunder, as specified in a notice of suspension pursuant to Clause GC 2.8 hereinabove, within sixty (60) days of receipt of such notice of suspension or within such further period as the Client may have subsequently approved in writing.
- (b) If the SI becomes insolvent or bankrupt or enter into any agreements with their creditors for relief of debt or take advantage of any law for the benefit of debtors or go into liquidation or receivership whether compulsory or voluntary.
- (c) If the SI fails to comply with any final decision reached as a result of arbitration proceedings pursuant to Clause GC 8 hereof.
- (d) If the SI, in the judgment of the Client, has engaged in corrupt or fraudulent practices in competing for or in executing this Contract.
- (e) If the SI submits to the Client a false statement which has a material effect on the rights, obligations or interests of the Client.
- (f) If, as the result of Force Majeure, the SI is unable to perform a material portion of the Services for a period of not less than sixty (60) days.

### 2.9.2 By the SI

The SI may terminate this Contract, by not less than sixty (60) days' written notice to the Client, in case of the occurrence of any of the events specified in paragraphs (a) through (d) of this Clause GC 2.9.2.

- (a) If the Client fails to pay any money due to the SI pursuant to this Contract and not subject to dispute pursuant to Clause GC 8 hereof within thirty (30) days after receiving written notice from the SI that such payment is overdue.
- (b) If, as the result of Force Majeure, the SI is unable to perform a material portion of the Services for a period of not less than sixty (60) days.
- (c) If the Client fails to comply with any final decision reached as a result of arbitration pursuant to Clause GC 8 hereof.

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- (d) If the Client is in material breach of its obligations pursuant to this Contract and has not remedied the same within forty-five (60) days (or such longer period as the SI may have subsequently approved in writing) following the receipt by the Client of the SI's notice specifying such breach.

### **2.9.3 Cessation of Rights and Obligations**

Upon termination of this Contract pursuant to Clauses GC 2.2 or GC 2.9 hereof, or upon expiration of this Contract pursuant to Clause GC 2.4 hereof, all rights and obligations of the Parties hereunder shall cease, except (i) such rights and obligations as may have accrued on the date of termination or expiration, (ii) the obligation of confidentiality set forth in Clause GC 3.3 hereof, (iii) the SI's obligation to permit inspection, copying and auditing of their accounts and records set forth in Clause GC 3.6 hereof, and (iv) any right which a Party may have under the Applicable Law.

### **2.9.4 Cessation of Services**

Upon termination of this Contract by notice of either Party to the other pursuant to Clauses GC 2.9.1 or GC 2.9.2 hereof, the SI shall, immediately upon dispatch or receipt of such notice, take all necessary steps to bring the Services to a close in a prompt and orderly manner and shall make every reasonable effort to keep expenditures for this purpose to a minimum. With respect to documents prepared by the SI and equipment and materials furnished by the Client, the SI shall proceed as provided, respectively.

### **2.9.5 Payment upon Termination**

Upon termination of this Contract pursuant to Clauses GC 2.9.1 or GC 2.9.2 hereof, the Client shall make the following payments to the SI:

- (a) Remuneration pursuant to Clause GC 6 hereof for Services satisfactorily performed prior to the effective date of termination, and reimbursable expenditures pursuant to Clause GC 6 hereof for expenditures actually incurred prior to the effective date of termination; and
- (b) Except in the case of termination pursuant to paragraphs (a) through (e) of Clause GC 2.9.1 hereof, reimbursement of any reasonable cost incidental to the prompt and orderly termination of this Contract including the cost of the return travel of the Personnel and their eligible dependents.

### **2.9.6 Disputes about Events of Termination**

If either Party disputes whether an event specified in paragraphs (a) through (f) of Clause GC 2.9.1 or in Clause GC 2.9.2 hereof has occurred, such Party may, within forty-five (45) days after receipt of notice of termination from the other Party, refer the matter to Clause GC 8 hereof, and this Contract shall not be terminated on account of such event except in

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accordance with the terms of any resulting arbitral award.

## 6. OBLIGATIONS OF THE SI

### 3.1 General

#### 3.1.1 Standard of Performance

The SI shall perform the Services and carry out their obligations hereunder with all due diligence, efficiency and economy, in accordance with generally accepted professional standards and practices, and shall observe sound management practices, and employ appropriate technology and safe and effective equipment, machinery, materials and methods. The SI shall always act, in respect of any matter relating to this Contract or to the Services, as faithful assist to the Client, and shall at all times support and safeguard the Client's legitimate interests in any dealings with Third Parties.

#### 3.1.2 Law Governing Services

The SI shall perform the Services in accordance with the Applicable Law and shall take all practicable steps to ensure that any Personnel of the SI, comply with the Applicable Law. The Client shall notify the SI in writing of relevant local customs, and the SI shall, after such notification, respect such customs.

### 3.2 Conflict of Interests

The SI shall hold the Client's interests paramount, without any consideration for future work, and strictly avoid conflict with other assignments or their own corporate interests.

#### 3.2.1 SI Not to Benefit from Commissions Discounts, etc.

- (a) The payment of the SI pursuant to Clause GC 6 hereof shall constitute the SI's only payment in connection with this Contract and, subject to Clause GC 3.2.2 hereof, the SI shall not accept for its own benefit any trade commission, discount or similar payment in connection with activities pursuant to this Contract or in the discharge of its obligations hereunder, and the SI shall use its best efforts to ensure that the Personnel similarly shall not receive any such additional payment.
- (b) Furthermore, if the SI, as part of the Services, has the responsibility of advising the Client on the procurement of goods, works or services, the SI shall comply with the Bank's applicable procurement guidelines, and shall at all times exercise such responsibility in the best interest of the Client. Any discounts or commissions obtained by the SI in the exercise of such procurement responsibility shall be for the account of the Client.

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### **3.2.2 SI and Affiliates Not to Engage in Certain Activities**

The SI agrees that, during the term of this Contract and after its termination, the SI and any entity affiliated with the SI, shall be disqualified from providing goods, works or services resulting from or directly related to the SI's Services for the preparation or implementation of the project.

### **3.2.3 Prohibition of Conflicting Activities**

The SI shall not engage, and shall cause their Personnel not to engage, either directly or indirectly, in any business or professional activities that would conflict with the activities assigned to them under this Contract.

### **1.3 Confidentiality**

Except with the prior written consent of the Client, the SI and the Personnel shall not at any time communicate to any person or entity any confidential information acquired in the course of the Services, nor shall the SI and the Personnel make public the recommendations formulated in the course of, or as a result of, the Services.

### **3.4 Liability of the SI**

Subject to additional provisions, if any, set forth in the SC, the SI's liability under this Contract shall be provided by the Applicable Law.

### **3.5 Insurance to be taken out by the SI**

The SI (i) shall take out and maintain, at their own cost but on terms and conditions approved by the Client, insurance against the risks, and for the coverage's specified in the SC, if any, and (ii) at the Client's request, shall provide evidence to the Client showing that such insurance has been taken out and maintained and that the current premiums therefore have been paid.

### **3.6 SI's Actions Requiring Client's Prior Approval**

The SI shall obtain the Client's prior approval in writing before taking any of the following actions:

- (a) Any change or addition to the Personnel.
- (b) Any other action that may be specified in the SC.

### **3.7 Reporting Obligations**

The SI shall submit to the Client the reports and documents as needed, in the form, in the

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numbers, and within the time periods mutually agreed.

### **3. Documents Prepared by the SI to be the Property of the Client**

All plans, drawings, specifications, designs, reports, other documents and software prepared by the SI for the Client under this Contract shall become and remain the property of the Client, and the SI shall, not later than upon termination or expiration of this Contract, deliver all such documents to the Client, together with a detailed inventory thereof. The SI may retain a copy of such documents and software, and use such software for their own use. Other restrictions about the future use of these documents and software, if any, shall be specified in the SC.

#### **3.9 Equipment, Vehicles and Materials Furnished by the Client**

Equipment or materials purchased/provided by the Client to the SI and used either for the Project use shall remain the property of the Client and the same shall be returned to the Client at the end of the Contract.

#### **3.10 Equipment and Materials Provided by the SI**

Equipment or materials brought into the Government's country by the SI and the Personnel and used either for the Project or personal use shall remain the property of the SI or the Personnel concerned, as applicable.

## **4. SI' PERSONNEL**

### **4.1 General**

The SI shall employ and provide such qualified and experienced Personnel as are required to carry out the Services.

### **4.2 Description of Personnel**

- (a) The title, agreed job description, minimum qualification and estimated period of engagement in the carrying out of the Services of each of the SI's Key Personnel are described in the RFP.
- (b) If required to comply with the provisions of Clause GC 3.1.1 hereof, adjustments with respect to the estimated periods of engagement of Key Personnel may be made by the SI by written notice to the Client.
- (c) If additional work is required beyond the scope of the Services specified herein, the estimated periods of engagement of Key Personnel may be increased by agreement in writing between the Client and the SI.

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#### 4.3 Approval of Personnel

The Key Personnel which the SI proposes to use in the carrying out of the Services, the SI shall submit to the Client for review and approval a copy of their Curricula Vitae (CVs). If the Client does not object in writing (stating the reasons for the objection) within twenty-one (21) days from the date of receipt of such CVs, such Personnel shall be deemed to have been approved by the Client.

#### 4.4 Working Hours, Overtime, Leave, Etc.

- (a) Working hours and holidays for Key Personnel are as per the client's policy and applicable law.
- (b) Any taking of leave by Personnel shall be subject to the prior approval by the SI who shall ensure that absence for leave purposes will not delay the progress and adequate supervision of the Services.

#### 4.5 Removal and/or Replacement of Personnel

- (a) Except as the Client may otherwise agree, no changes shall be made in the Personnel. If, for any reason beyond the reasonable control of the SI, it becomes necessary to replace any of the Personnel, the SI shall forthwith provide as a replacement a person of equivalent or better qualifications.
- (b) If the Client (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 SI shall, at the Client's written request specifying the grounds therefore, forthwith provide as a replacement a person with qualifications and experience acceptable to the Client.

### 5. OBLIGATIONS OF THE CLIENT

#### 5.1 Assistance and Exemptions

Unless otherwise specified in the SC, the Client shall use its best efforts to ensure that the Client shall provide the SI and Personnel permissions and such other documents as shall be necessary to enable the SI or Personnel to perform the Services.

#### 5.2 Access to Land

The Client warrants that the SI shall have, free of charge, unimpeded access to all land in the Client's office in respect of which access is required for the performance of the Services. The Client will be responsible for any damage to such land or any property thereon resulting from such access and will

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indemnify the SI and each of the Personnel in respect of liability for any such damage, unless such damage is caused by the default or negligence of the SI or the Personnel, or either of them.

### 5.3 Changes in the Applicable Law Related to Taxes and Duties

If, after the date of this Contract, there is any change in the Applicable Law with respect to taxes and duties which increases or decreases the cost incurred by the SI in performing the Services, then the remuneration and reimbursable expenses otherwise payable to the SI under this Contract shall be increased or decreased accordingly by agreement between the Parties hereto.

### 5.4 Services, Facilities and Property of the Client

- (a) The Client shall make available to the SI and the Personnel, for the purposes of the Services and free of any charge, the services, facilities and property at the times and in the manner required.
- (b) In case that such services, facilities and property shall not be made available to the SI Parties shall agree on (i) any time extension that it may be appropriate to grant to the SI for the performance of the Services, (ii) the manner in which the SI shall procure any such services, facilities and property from other sources, and (iii) the additional payments, if any, to be made to the SI.

### 5.5 Payment

The Service Provider can raise claim on milestone or calendar month basis according to the number of manpower engaged in the project. The department will release the payment to the service provider within 15 days of their claim after acceptance of monthly deliverables. All claims will be submitted to following address:

The  
ACEO-cum Special Secretary RWD  
RWD, BRRDA Bhawan,  
Near Haj Bhawan, Kranti Marg (Harding Road)  
Patna-800015, Bihar  
Email- [aceobrrda1@gmail.com](mailto:aceobrrda1@gmail.com) / [secy-reo-bih@nic.in](mailto:secy-reo-bih@nic.in)

### 5.6 Counterpart Personnel

- (a) The Client shall make available to the SI free of charge such professional and support counterpart personnel, to be nominated by the Client with the SI's advice, if specified in Appendix F.
- (b) If counterpart personnel are not provided by the Client to the SI as and when specified in Appendix F, the Client and the SI shall agree on (i) how the affected part of the Services shall be carried out, and (ii) the additional payments, if any, to be made by the Client to the SI as a

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result there of pursuant to Clause GC 6.1(c) hereof.

(c) Professional and support counterpart personnel, excluding Client's liaison personnel, shall work under the exclusive direction of the SI. If any member of the counterpart personnel fails to perform adequately any work assigned to such member by the SI that is consistent with the position occupied by such member, the SI may request their placement of such member, and the Client shall not unreasonably refuse to act upon such request.

## 6. PAYMENTS TO THE SI

### 6.1 Payment Terms

The Bidder can raise claim on task completion and/ or calendar month basis according to the number of manpower engaged in the project as the case may be. The department will release the payment to the SI within 15 days of their submission of Tax Invoices.

The SI shall be eligible for payment as per the milestones as a percentage of the implementation cost and Operations and maintenance cost as per the payment schedule given below:

Sl. No.	Milestones	Payment
<b>I</b>	<b>Implementation of Digital Project and Asset Management Information System (DPAMIS) and Artificial Intelligence Based Intelligent Rural Road Maintenance and Monitoring System (IRRMMS) – (One Time Cost Component-X)</b>	
<b>A</b>	<b>Digital Project and Asset Management Information System (DPAMIS) and Artificial Intelligence Based Intelligent Rural Road Maintenance and Monitoring System (IRRMMS) Software as per Requirement Specifications</b>	<b>% age of Cost</b>
11	Submission and Acceptance of SRS of <b>DPAMIS</b>	25%
12	Software Design and Approval of Design Document (SDD)- <b>DPAMIS</b>	25%
13	Development and Deployment of DPAMIS application for Phase I (Alpha Version)	25%
14	Development of Application (Final Version), Deployment in Data Center and Offer for UAT of <b>DPAMIS</b>	20%
15	Completion of UAT and Go-Live of <b>DPAMIS</b>	5%

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16	Submission and Acceptance of SRS of IRRMMS	25%
<b>Sl. No.</b>	<b>Milestones</b>	<b>Payment</b>
17	Software Design and Approval of Design Document (SDD)- IRRMMS	25%
18	Development and Deployment of IRRMMS application for Phase I (Alpha Version)	25%
19	Development of Application (Final Version), Deployment in Data Center and Offer for UAT of IRRMMS	20%
20	Completion of UAT and Go-Live of IRRMMS	5%
<b>B</b>	<b>Control &amp; Command Centre &amp; Data Centre- IT Hardware and Systems Software for Data Centre with 5 years of on-site Warranty and Maintenance</b>	<b>% age of Cost</b>
4	Delivery of All IT Infrastructure (Hardware and Software) as per the Financial Proposal	90% of Respective Delivery
5	Completion of Installation, Configuration, and Commissioning of Supplied Hardware and Software and offer for FAT	5%
6	Completion of FAT for Data Centre and Go-Live	5%
	<b>Operational Resources, Leasing, Subscription, Operations and Maintenance Cost During Implementation</b>	<b>% age of Cost</b>
C	Operation Resources During Implementation. The Billing will be as per actual deployment during the given month.	100% Monthly basis upon completion of the calendar month
D	Lease and Subscription Costs During Implementation	100% Monthly basis upon completion of the calendar month
E	Operation and Maintenance Cost During Implementation. Billing will be as per actual running/ utilization/ services delivered during the given month.	100% Monthly basis upon completion of the calendar month
<b>II</b>	<b>Post Implementation- Maintenance and Operationalization of Digital Project and Asset</b>	<b>% age of Cost</b>

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Management Information System (DPAMIS) and Artificial Intelligence Based Intelligent Rural Road Maintenance and Monitoring System (IRRMMS)- Year 1 to Year 5		
4	Operational Resources The Billing will be as per actual deployment during the given month.	100% Monthly basis upon completion of the calendar month
5	Lease and Subscription Costs During Implementation	100% Monthly basis upon completion of the calendar month
6	Operations and Maintenance Costs Billing will be as per actual running/ utilization/ services delivered during the given month.	100% Monthly basis upon completion of the calendar month

Notes:

- g) The Invoice for the Operational Resources shall be raised as per the actual deployment during the calendar month.
- h) If the number of resources increased / decreased beyond those specified in the contract, during the contract period, then such payment will be calculated on the basis of contract rates of such resource position and period for which they are deployed.
- i) The Invoice for vehicle running cost shall be raise as per the actual distance (in km) travelled for project implementation during the month as per GPS Tracking Report.
- j) The Invoice for cost of survey of roads for GIS Mapping using Mobile Application for DPAMIS shall be raise as per the actual distance (in km) travelled during the month.
- k) Payment due shall be made after deducting applicable taxes.
- l) GST/ any other applicable taxes shall be paid at actuals/ as per prevailing rates at the time of invoicing.
- m) All the payments will be made to the Bank Account of the S.I. In case of the Consortium, the payments will be made to the bank account of the Prime SI.

## 6.2 Mobilization advance

Mobilization advance of 10% of Cost of Implementation (for equipment only) i.e. One Time Cost Component- X, can be given against Bank Guarantee. This Bank Guarantee will be over and above the performance Guarantee.

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### 6.3 Currency of Payment:

Payments to the SI shall be made in INR.

### 6.4 Mode of Billing and Payment

Billing and payments in respect of the Services shall be made as follows:

- (a) As soon as practicable and not later than Fifteen (15) days after the end of each calendar month during the period of Services, or after the end of each milestone otherwise indicated, the SI shall submit to the client, in duplicate, itemized statements if any, accompanied by copies of invoices of the amounts payable.
- (b) The Client shall pay the SI statements within fifteen (15) days after the receipt by the Client of such statements with supporting documents. Only such portion of a statement that is not satisfactorily supported may be withheld from payment. Should any discrepancy be found to exist between actual payment and costs authorized to be incurred by the SI, the Client may add or subtract the difference from any subsequent payments. Interest at the annual rate specified in the SC shall become payable as from the above due date on any amount due by, but not paid on, such due date.
- (c) All payments under this Contract shall be made to the accounts of the SI.

## 7. FAIRNESS AND GOOD FAITH

### 7.1 Good Faith

The Parties undertake to act in good faith with respect to each other's rights under this Contract and to adopt all reasonable measures to ensure the realization of the objectives of this Contract.

### 7.2 Operation of the Contract

The Parties recognize that it is impractical in this Contract to provide for every contingency which may arise during the life of the Contract, and the Parties hereby agree that it is their intention that this Contract shall operate fairly as between them, and without detriment to the interest of either of them, and that, if during the term of this Contract either Party believes that this Contract is operating unfairly, the Parties will use their best efforts to agree on such action as may be necessary to remove the cause or causes of such unfairness, but no failure to agree on any action pursuant to this Clause shall give rise to a dispute subject to arbitration in accordance with Clause GC 8 hereof.

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## 8. SETTLEMENT OF DISPUTES

### 8.1 Amicable Settlement

If either Party objects to any action or inaction of the other Party, the objecting Party may file a written Notice of Dispute to the other Party providing in detail the basis of the dispute. The Party receiving the Notice of Dispute will consider it and respond in writing within 30 days after receipt. If that Party fails to respond within 30 days, or the dispute cannot be amicably settled within 30 days following the response of that Party, Clause GC 8.2 shall apply.

### 8.2 Dispute Resolution

If any dispute of any kind whatsoever arises between client and the SI in connection with or arising out of the contract, including without prejudice to the generality of the foregoing, any question regarding its existence, validity or termination, the parties shall seek to resolve any such dispute or difference by mutual consultation. If the parties fail to resolve such a dispute or difference by mutual consultation an appeal may be filed to the Secretary, Rural Works Department, Government of Bihar. The Secretary of RWD shall afford an opportunity to the System Integrator to be heard, if the Secretary of RWD so desires. The Secretary of RWD shall give his/her decision within 30 days of receipt of the System Integrator's written appeal. If the System Integrator is dissatisfied with this decision, the System Integrator shall within a period of 30 days from receipt of the decision, give notice for initiation of the Arbitration proceedings as per the Contract given hereunder.

Any dispute or difference whatsoever arising between the parties to this Contract out of or relating to the meaning, scope, operation or effect of this Contract or the validity of the breach thereof, which cannot be resolved, shall be referred to a sole Arbitrator to be appointed by mutual consent of both the parties herein. If the parties cannot agree on the appointment of the Arbitrator within a period of one month from the notification by one party to the other of existence of such dispute, then the provisions of the Arbitration and Conciliation Act, 1996 will be applicable and the award made there under shall be final and binding upon the parties hereto, subject to legal remedies available under the law. Such differences shall be deemed to be a submission to arbitration under the Indian Arbitration and Conciliation Act, 1996, or of any modifications, Rules or re-enactments thereof. The Arbitration proceedings will be held at Patna, Bihar,

If still unresolved then all legal disputes are subject to the jurisdiction of courts at Patna.

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# Special Conditions of Contract

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### III. Special Conditions of Contract

Number of GC Clause	Amendments of, and Supplements to, Clauses in the General Conditions of Contract
{1.1(a)}	{The words "in the Government's country" are amended to read "in INDIA"}
1.4	The language/s is English
1.6	<p>The addresses are</p> <p>Client :</p> <p>Office of Chief Engineer-4 Government of Bihar, 5th Floor, Vishveshwarya Bhawan, Bailey Road, Patna-800015. Ph. 0612-2233198, e-mail : ce4@gmail.com Attention : Chief Engineer-4 Facsimile : Ph. 0612-2233198, Fax : 0612-2233199 Email: <a href="mailto:ce4@gmail.com">ce4@gmail.com</a></p>
1.7	The Authorized Representatives are for the Client: Chief Engineer-4, RWD for the SI.
1.8	For SI:
1.9	<p>"Limitation of the SI' Liability towards the Client</p> <p>(a) Except in case of gross negligence or willful misconduct on the part of the SI or on the part of any person or firm acting on behalf of the SI in carrying out the Services, the SI, with respect to damage caused by the SI to the Client's property, shall not be liable to the Client:</p> <p>(i) for any indirect or consequential loss or damage; and</p> <p>(ii) for any direct loss or damage that exceeds (A) the total payments for Professional Fees and Reimbursable Expenditures made or expected to be made to the SI hereunder, or</p> <p>(b) This limitation of liability shall not affect the SI' liability, if any, for damage to Third Parties caused by the SI or any person or firm acting on behalf of the SI in carrying out the Services'</p>
1.10	<p>The risks and the coverage shall be as follows</p> <p>(a) insurance against loss of or damage to (i) equipment purchased</p>

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	in whole or in part with funds provided under this Contract. (ii) the SI's property used in the performance of the Services.
1.11	The SI shall not use these documents and software for purposes unrelated to this Contract without the prior written approval of the Client
1.11.1	The ceiling in local currency is: NOT APPLICABLE

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**APPENDIX - FORM OF PERFORMANCE BANK GUARANTEE  
APPLICABLE EQUIVALENT TO 5% OF THE IMPLEMENTATION COST  
(Bank Guarantee)**

*[The bank, as requested by the successful Bidder, shall fill in this form in accordance with the instructions indicated]*

**Beneficiary:** *[insert name and Address of Purchaser]*

**Date:** *[Insert date of issue]*

**PERFORMANCE GUARANTEE No.:** *[Insert guarantee reference number]*

**Guarantor:** *[Insert name and address of place of issue, unless indicated in the letterhead]*

We have been informed that *[insert name of Supplier, which in the case of a joint venture shall be the name of the joint venture]* (hereinafter called "the Bidder") has entered into Contract No. *[insert reference number of the contract]* dated *[insert date]* with the Beneficiary. for the supply of *[insert name of contract and brief description of Goods and related Services]* (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.

At the request of the Bidder, we as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of *[insert amount in figures]*(                    ) *[insert amount in words]*, such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Bidder is in breach of its obligation(s) under the Contract, without the Beneficiary needing to prove or to show grounds for your demand or the sum specified therein.

This guarantee shall expire, no later than the .... Day of ....., 2..., and any demand for payment under it must be received by us at this office indicated above on or before that date.

The Guarantor also agrees that the Beneficiary at its option shall be entitled to enforce this Guarantee against the Guarantor as a principal debtor, in the first instance without proceeding against the Bidder and notwithstanding any security or other guarantee that the Beneficiary may have in relation to the bidders liabilities.

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[signature (S)]

*Note: All italicized text is for use in preparing this form and shall be deleted from the final product.*

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## APPENDIX-TECHNICAL SPECIFICATIONS

### 1. ANALYTICS SERVERS HARDWARE (AI Servers)

S NO.	COMPONENT	SPECIFICATIONS
1	Form factor	Rack Mountable - 4U
2	CPU	2 x Intel Xeon 6448Y 32C/64T, upto 4.1 Ghz
3	GPU	8 x NVIDIA A100, NV Linked, 80GB VRAM per GPU
4	Memory	2048 GB DDR5 RDIMM, 4800MT/s, ECC
5	Internal Storage- OS	2 x 3.48 TB M.2 NVMe SSD or Higher
6	Internal Storage- Data Drive	2 x 15.36 TB U.2 NVMe SSD, 1 DWPD
7	RAID Controller	C3, RAID 1, 5
8	Network Interface	2 x 10 GbE, 1 IPMI dedicated, 1 x 100 GbE NVidia ConnectX-5 EN
9	Power Supply Redundant	Dual, Hot plug redundant power supply
10	Software Subscription	5 year NVidia AI Enterprise
11	Operating System Support	Linux
12	Service Warranty	Hardware and System Support- 5 years Extended

### 2. REPORTING SERVER HARDWARE (WebUI Servers)

S NO.	COMPONENT	SPECIFICATIONS
1	Form factor	Rack Mountable
2	CPU	2 x Intel® Xeon® Silver 4316 2.3G, 20C/40T, 10.4GT/s, 30M Cache, Turbo, HT (150W) DDR4-2666
3	Memory	4 x 32 GB DDR5 RDIMM, 4800MT/s, ECC
4	Internal Storage- OS	2 x 1.9 TB SSD or Higher
5	RAID Controller	RAID 1, 5

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6	Network Interface	Dual Port 10GbE
7	Power Supply Redundant	Dual, Hot-Plug, Power Supply Fully Redundant
8	Operating System Support	Linux/ Windows
9	Warranty	Hardware and System Support – 5 Years onsite

### 3. DATABASE SERVER HARDWARE

S NO.	COMPONENT	SPECIFICATIONS
1	Form factor	Rack Mountable
2	CPU	2 x Intel® Xeon® Silver 4316 2.3G, 20C/40T, 10.4GT/s, 30M Cache, Turbo, HT (150W) DDR4-2666
3	Memory	4 x 32 GB DDR5 RDIMM, 4800MT/s, ECC
4	Internal Storage- OS	2 x 1.9 TB SSD or Higher
5	RAID Controller	RAID 1, 5
6	Network Interface	Dual Port 10GbE
7	Power Supply Redundant	Dual, Hot-Plug, Power Supply Fully Redundant
8	Operating System Support	Linux/ Windows
9	Warranty	Hardware and System Support – 5 Years onsite

### 4. GATEWAY SERVER HARDWARE (Load Balancer)

S NO.	COMPONENT	SPECIFICATIONS
1	Form factor	Rack Mountable
2	CPU	2 x Intel® Xeon® Silver 4316 2.3G, 20C/40T, 10.4GT/s, 30M Cache, Turbo, HT (150W) DDR4-2666
3	Memory	4 x 32 GB DDR5 RDIMM, 4800MT/s, ECC
4	Internal Storage- OS	2 x 1.9 TB SSD or Higher
5	RAID Controller	RAID 1, 5

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6	Network Interface	Dual Port 10GbE
7	Power Supply Redundant	Dual, Hot-Plug, Power Supply Fully Redundant
8	Operating System Support	Linux/ Windows
9	Warranty	Hardware and System Support – 5 Years onsite

**5. SERVER (APPLICATION/ PORTAL/GIS/GPS)**

S NO.	COMPONENT	SPECIFICATIONS
1	Form factor	Rack Mountable- 2U
2	Processors	Processors: 2 or more Intel Xeon G-6248R (3.0. Ghz, 24-Core) Processor or higher
3	Memory	512 GB (8 X 64 GB) DDR4
4	Internal Storage	memory 2x 1.6TB SAS MU SFF SC SSD or higher
5	RAID controller	Hardware RAID controller for latest or higher RAID levels (RAID levels 0,1,0+1,5) with 1 GB or higher cache.
6	Network Interface	2 X 1G. 2 x10G
7	Power Supply Redundant	Hot plug redundant power supply
8	Management	Integrated Remote Management port for monitoring, alerting, troubleshooting (via secure web GUI, telnet), Remote virtual media, OS deployment etc. Dedicated RJ45 Interface for Management
9	Operating System Certifications & Virtualization Software Support	Microsoft Windows Server, Linux Virtualization Software
10	Rack Mount Kit	Should provide rack mounting kit and Rails to mount the Server on Rack.
11	Warranty	4 years on-site

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### 6. MANAGEMENT SERVERS

S NO.	COMPONENT	SPECIFICATIONS
1	Form factor	Rack Mountable
2	CPU	2 x Intel® Xeon® Silver 4316 2.3G, 20C/40T, 10.4GT/s, 30M Cache, Turbo, HT (150W) DDR4-2666
3	Memory	4 x 32 GB DDR5 RDIMM, 4800MT/s, ECC
4	Internal Storage- OS	2 x 1.9 TB SSD or Higher
5	RAID Controller	RAID 1, 5
6	Network Interface	Dual Port 10GbE
7	Power Supply Redundant	Dual, Hot-Plug, Power Supply Fully Redundant
8	Operating System Support	Linux/ Windows
9	Warranty	Hardware and System Support – 5 Years onsite

### 7. STORAGE SAN SPECIFICATIONS

S NO.	COMPONENT	SPECIFICATIONS
1	Form factor	2U rack height
2	Capacity	Minimum 12 TB SFF usable capacity
3	Drives	SFF SAS/MDL SAS/SSD
3	Host interface	16 Gb/8 Gb Fibre Channel 4-ports per controller or 1 GbE/10GbE iSCSI 4-ports per controller included
4	Cache	Minimum of 16GB Cache and 1.6TB FLASH CACHE
5	RAID levels	Should support RAID 1, 5, 6, 10
6	Compatible operating systems	Microsoft Windows Server, Linux
7	Warranty	5 years on-site

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### 8. AI STORAGE PLATFORM SPECIFICATIONS- FOR AI SERVERS

S NO.	COMPONENT	SPECIFICATIONS
1	Form factor	2U rack height
2	Capacity	Minimum 12 TB SFF usable capacity
3	Drives	SFF SAS/MDL SAS/SSD
3	Host interface	16 Gb/8 Gb Fibre Channel 4-ports per controller or 1 GbE/10GbE iSCSI 4-ports per controller included
4	Cache	Minimum of 16GB Cache and 1.6TB FLASH CACHE
5	RAID levels	Should support RAID 1, 5, 6, 10
6	Compatible operating systems	Microsoft Windows Server, Linux
7	Warranty	5 years on-site

### 9. NETWORK FIREWALL

S NO.	COMPONENT	SPECIFICATIONS
1	Type	NGFW
2	Features	Layer 3 - Layer 4,NAT,VPN,Application Visibility and Control (AVC),Use Identity, Next Generation Intrusion Prevention System (IPS),Zero Day Protection / Advance Malware protection, Web Security Essentials / URL Filtering
3	Traffic handled	TCP, UDP, HTTP/ TCP, TCP/UDP
4	Hardware Architecture	The appliance-based security platform should be capable of providing Next Gen Web Protection, Application Control, IPS, DOS, SSL/TLS Inspection & zero-day protection in a single appliance.
5	Warranty	5 years on-site

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## 10. DESKTOP COMPUTERS

S NO.	COMPONENT	SPECIFICATIONS
1	Form Factor	Tower/Micro Tower/Mini Tower
2	Chipset	Intel H470 Chipset or equivalent
3	Processor	Intel® Core™ i5-12500 (up to 4.6 GHz with Intel® Turbo Boost Technology, 18 MB L3 cache. 6 cores. 12 threads) or later
4	Memory	16 GB DDR4-2666 Mhz, or higher Memory expandability up to 64 GB
5	Storage	1 TB 7200RPM HDD, SMART IV or equivalent OR 512 GB NVMe SSD
6	Graphics	Intel® UHD Graphics 630 or later
7	Audio	Integrated audio controller with internal speaker of at least 2W
8	Operating System	Microsoft Windows 11 Prof
9	Networking	Integrated 10/100/1000 Ethernet Controller Integrated 802.11ac Wi-Fi® and Bluetooth® 4.2
10	Ports	Video: 1 HDMI 1.4, 1VGA USB: Minimum of 2- USB 2.0, 2 USB 3.2
11	Keyboard	USB Wired Keyboard
12	Mouse	USB Optical Wired Mouse
13	Display	19.5" or higher with Minimum resolution of 1920X1080, with VGA, HDMI Display Ports
14	Manageability	Integrated utility to enables hardware level testing outside the operating system & Drivers should be available on OEM Website for download
15	Warranty	5 years on-site

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## 11. DESKTOP COMPUTERS FOR CONTROL CENTER OPERATORS- AI DATA MONITORING

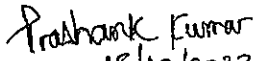
S NO.	COMPONENT	SPECIFICATIONS
1	Form Factor	Tower/Micro Tower/Mini Tower
2	Chipset	Intel H470 Chipset or equivalent
3	Processor	Intel® Core™ i5-12500 (up to 4.6 GHz with Intel® Turbo Boost Technology, 18 MB L3 cache. 6 cores. 12 threads) or later
4	Memory	16 GB DDR4-2666 Mhz, or higher Memory expandability up to 64 GB
5	Storage	1 TB 7200RPM HDD, SMART IV or equivalent OR 512 GB NVMe SSD
6	Graphics	Intel® UHD Graphics 630 or later
7	Audio	Integrated audio controller with internal speaker of at least 2W
8	Operating System	Microsoft Windows 11 Prof
9	Networking	Integrated 10/100/1000 Ethernet Controller Integrated 802.11ac Wi-Fi® and Bluetooth® 4.2
10	Ports	Video: 1 HDMI 1.4, 1VGA USB: Minimum of 2- USB 2.0, 2 USB 3.2
11	Keyboard	USB Wired Keyboard
12	Mouse	USB Optical Wired Mouse
13	Display	19.5" or higher with Minimum resolution of 1920X1080, with VGA, HDMI Display Ports
14	Manageability	Integrated utility to enables hardware level testing outside the operating system & Drivers should be available on OEM Website for download
15	Warranty	5 years on-site

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## 12. VIDEO WALL FOR CONTROL COMMAND CENTER

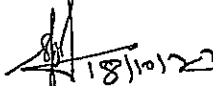
S NO.	COMPONENT	SPECIFICATIONS
1	Configuration	Seamless Video Wall of Cubes. Each cube size to be 55" or more (55" Inches diagonally) with completed configuration of (4cubes x 2 cubes) with covered base. All cubes have to be of the exactly same size, configuration and model wise mandatorily. The wall to be installed in curved fashion with all required support system like Controller/ stand for Cubes/ Interface/ connecting Cables.
2	Video Wall Controller	Processor; Intel Xeon Quad Core or Higher Memory; 32 GB DDR3/4 RAM Expandable upto 64 GB Hard Disk: 500 GB SSD SATA upgradation- Raid 1 configuration
3	Wall Management Software	<ul style="list-style-type: none"> <li>- Any Source on Any Display</li> <li>- Source Overlapping</li> <li>- PIP and POP</li> <li>- Auto Source Detection</li> <li>- Ticker Scrolling Text</li> <li>- Unlimited Layout</li> <li>- Upto 16 Layout can be Controlled by Crestron/ AMX devices</li> <li>- Multi Videowall Supports</li> <li>- Scheduling of Layout</li> <li>- Support Control by Web Browser</li> <li>- Support 4K Resolution Based Image on</li> </ul>

The Technical Vetting of Request of Proposal (RFP) has been done by Indian Institute of Technology, Patna (IIT Patna) on 16<sup>th</sup> October, 2023 and all comments received by IIT Patna have been incorporated in the RFP. The departmentally constituted committee here gives technical approval for this Vetted RFP.

  
18/10/2023  
(Prashank Kumar)

Assistant Engineer-cum-ITNO, RWD

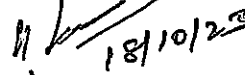
  
18/10/2023  
(Gopal Krishna Thakur)  
Executive Engineer, RWD

  
18/10/2023  
(Sriprakash)

Chief Engineer-02, RWD


  
18/10/2023  
(Nirmal Kumar)


Chief Engineer-03, RWD

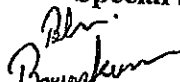
  
18/10/2023  
(Khalikujjma)  
Chief Engineer-01, RWD

  
18/10/2023  
(Bhagwat Ram)

Chief Engineer-04 (HQ), RWD

  
18/10/2023  
(Amrendra Kumar Sinha)  
Engineer-in-Chief, RWD

  
18/10/2023  
(Sanjay Dubey)  
Special Secretary, RWD

  
Bannu