

Request for Proposal for Selection of Managed Service Provider to Operationalise Toll Monitoring & Control Center with Cloud-based Data lake



RFP Reference – IHMCL/TMCC/2020/01

Date – 22 October 2020

DISCLAIMER

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

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

Information provided in this RFP to the Bidder(s) is on a wide range of matters, some of which may depend upon interpretation of law. The information given is not intended to be an exhaustive account of statutory requirements and should not be regarded as a complete or authoritative statement of law. IHMCL accepts no responsibility for the accuracy or otherwise for any interpretation or opinion on law expressed herein. IHMCL, its employees and advisors make no representation or warranty and shall have no liability to any person, including any Applicant or Bidder, under any law, statute, rules or regulations or tort, principles of restitution or unjust enrichment or otherwise for any loss, damages, cost or expense which may arise from or be incurred or suffered on account of anything contained in this RFP or otherwise, including the accuracy, adequacy, correctness, completeness or reliability of the RFP and any assessment, assumption, statement or information contained therein or deemed to form part of this RFP or arising in any way for participation in the Bidding Process.

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

IHMCL may, in its absolute discretion but without being under any obligation to do so, update, amend or supplement the information, assessment or assumptions contained in this RFP. The issue of this RFP does not imply that IHMCL is bound to select and short-list one of the Proposals for Bid Stage or to appoint the selected Bidder or Concessionaire, as the case may be, for the Project and IHMCL reserves the right to reject all or any of the Proposals or Bids without assigning any reasons whatsoever. 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 IHMCL or any other costs incurred in connection with or relating to its Proposal. All such costs and expenses will remain with the Bidder and IHMCL shall not be liable in any manner whatsoever for the same or for any other costs or other expenses incurred by an Bidder in preparation or submission of the Proposal, regardless of the conduct or outcome of the Bidding Process.

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1. NOTICE INVITING TENDER

1. Bids are invited for the below mentioned work by Indian Highways Management Company Limited (IHMCL):

Name of the Work	EMD/ Bid Security	Document Fee in form of Demand Draft (non-refundable)	Closing date and time for Online bid Submission
Request for proposal (RFP) for Selection of Service Provider for Toll Monitoring & Control Centre with Cloud-based Toll Data Lake & Analytics	INR 20,00,000/- (Rupees twenty Lakhs Only)	INR 10,000/- (Rupees Ten Thousand Only)	25 November 2020 (Upto 1500 Hrs IST)

2. The complete Bidding Documents can be viewed / downloaded from e-procurement portal <http://etenders.gov.in>. The Bids shall be liable for summarily rejection unless accompanied by the requisite EMD as indicated above. IHMCL shall not be responsible for any postal delay, or network/system failure at bidder's end, as applicable. Bids submitted after the closing date/time shall be summarily rejected.
3. IHMCL reserves the right to accept or reject any or all bids received before signing of Contract Agreement without thereby incurring any financial or other liability to the affected Bidders.

Address for communication:

Chief Operating Officer,

Indian Highways Management Company Limited (IHMCL)

2nd Floor MTNL Building

Sector 19, Dwarka

New Delhi 110 075

Phone: +91-11- 20427810; Email: tenders@ihmcl.com Website: www.ihmcl.co.in

2. DEFINITIONS AND ABBREVIATIONS

2.1. Definition

In this document, the following terms shall have respective meanings as indicated:

- i. **“Applicable Law”** means the laws, rules or regulations and any other instruments, having the force of law in Republic of India, as in force from time to time.
- ii. **“Authorized Representative”** means any person/agency authorized by IHMCL.
- iii. **“Bidder” or “Applicant”** means, an entity/company which participates in the Bid process and submits its proposal/bid pursuant to this RFP, including the Sole Bidder and each member of the Consortium.
- iv. **“Commencement date”** means the date upon which the Successful bidder receives the notice to commence the work issued by IHMCL.
- v. **“Contract”** shall mean & include RFP, Notice for Inviting Tender (NIT), the tender documents and letter of acceptance thereof and the formal agreement, to be executed between IHMCL and the Successful bidder together with the complete documents referred to therein including the conditions with appendices and any special conditions, the specifications, designs, drawings, bill of quantities with rates and amounts. All these documents taken together shall be deemed to form one Contract and shall be complementary to each other.
- vi. **“ETC”** means Electronic Toll Collection
- vii. **“NHAI”** means National Highways Authority of India
- viii. **“IHMCL”** means Indian Highways Management Company Limited.
- ix. **“Law” or “Legislation”** - shall mean any Act, notification, bye law, rules and regulations, directive, ordinance, order or instruction having the force of law enacted or issued by the Government of India or State Government or regulatory authority.
- x. **“Letter of Award (LOA)”** means the issue of a signed letter by IHMCL to Successful Bidder conveying its intention to accept the offer of Successful Bidder and awarding the work mentioning the total Contract Value.
- xi. **“Local Currency”** means the Indian Rupees.
- xii. **“MoRTH”** means Ministry of Road Transport and Highways.
- xiii. **“Party”** shall mean IHMCL or Bidder individually and “Parties” shall mean IHMCL and Bidder collectively.
- xiv. **“Personnel”** means persons hired by the Successful bidder as employees and assigned to the performance of the Services or any part thereof.
- xv. **“Purchaser” or “Authority”** means Indian Highways Management Company Limited (IHMCL), as applicable.
- xvi. **“RFID”** means Radio Frequency Identification.

- xvii. **“RFP”** shall mean this Request for Proposal dated 15 October 2020, including the written clarifications & Corrigendum/Addendum issued by IHMCL in respect of the RFP from time to time.
- xviii. **“RFID”** means Radio Frequency Identification
- xix. **“Services”** means requirements defined in this RFP including all additional services associated thereto to be delivered by the Successful Bidder.
- xx. **“Successful Bidder”** means the Service Provider (**MSP**), who, after the complete evaluation process, has been issued the Letter of Award by IHMCL.

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

2.2. Abbreviations

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3. INSTRUCTIONS TO BIDDERS

3.1. Scope of Bid

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

3.2. Eligibility/Pre-Qualification criteria

- 3.2.1. Any eligible bidder can submit their bid as a Managed Service Provider (MSP) only with due authorization from a Cloud Service Provider (CSP). Any CSP can also bid as the Managed Service Provider if it meets the eligibility & other qualifying requirements as defined in subsequent sections and provided that it does not bid as a Sole Bidder or the CSP is not proposed by any other bidder.
- 3.2.2. Multiple bidders can propose same CSP. All the required services must be provided through a single CSP only. The bidders shall not have a conflict of interest that affects the Bidding Process.
- 3.2.3. Eligibility/pre-qualification criteria for the Managed Service Provider

The eligibility/pre-qualification criteria for the Managed Service Provider shall be as listed below:

Sl #	Requirement Paramters	Eligibility Criteria	Supporting Documents to be provided
1.	Legal Entity	<p>The Bidder can be either</p> <p>a) A business entity incorporated and registered in India under the Companies Act 1956/2013 or a Limited Liability Partnership (LLP) registered under the LLP Act, 2008 and should have been in operations in India for minimum of three (3) years.</p> <p>Or,</p> <p>a) A consortium of business entities, not exceeding two members, each incorporated in India under the Companies Act, 1956/2013 or partnership firm registered under the Indian Partnership Act, 1936 or the Limited Liability Partnerships Act, 2008 ("Consortium"). The Lead member should have been in operations in India for minimum of three (3) years.</p> <p>Consortium shall allowed only in cases where one of the Consortium members is a Cloud Service Provider or its authorized partner.</p>	<ul style="list-style-type: none"> Copy of Certificate of Incorporation or Certified copy of Partnership Deed for the Bidder GST Registration certificate Letter of Authorization from a Cloud Service Provider for the authorized partner, in case of a consortium MoU in case of a Consortium as per format provided in Annexure – 10.
2.	Cloud Service Provider Authorisation	If Bidder is not a cloud service provider (i.e. does not own cloud services), then bidder shall be required to submit Manufacturer's Authorisation Form (MAF) or a certificate regarding authorization to resell services from a Cloud Service Provider (CSP). Bidder needs to be authorized by CSP to participate in the bid and provide the services required under this bid.	<ul style="list-style-type: none"> Letter of Authorization from a Cloud Service Provider.

Sl #	Requirement Parameters	Eligibility Criteria	Supporting Documents to be provided
3.	Manpower Strength	The Bidder must have strength of at least 50 full-time IT professionals (data center/networking/system administration/cloud services professionals/cloud security experts) on their payroll as on bid due date.	<ul style="list-style-type: none"> Certificate from HR head on the letter head of MSP certifying the availability of resources on their payroll as on date of submission of this bid as per the requirement
4.	Annual Turnover	The Bidder must have an average annual turnover of minimum INR 15 Crore over the last three (3) Financial Years FY 2017-18, 2018-19 and 2019-2020.	<ul style="list-style-type: none"> Relevant extracts of audited financial statements for the last three financial years FY 2017-18, FY 2018-19 and FY 2019-20 Certificate from the CA/Statutory Auditor on turnover details over the last three (3) financial years FY 2017-18, FY 2018-19 and FY 2019-20. As per format provided in Annexure 4.
5.	Networth	The Bidder should have positive net worth for last three (3) financial years (FY 2017-18, 2018-19 and 2019-2020)	Certificate from the CA/Statutory Auditor clearly specifying the net worth of the firm as on 31 March 2020. As per format provided in Annexure 4.
6.	Control Center Experience	The Bidder should have experience of implementing at least one project of centralized/integrated command control center in India during last seven years for Central/State Government departments/Law Enforcement Authorities/entities/ PSUs as on the bid due date.	<ul style="list-style-type: none"> Work order/ Contract clearly highlighting the relevant scope of work, and contract value, year of execution. Client/Authority certificate <p>In case of large orders/orders with operations & maintenance phase, the completion/self-certificate may specify successful execution and in-operation status of a part of the order meeting the requirement. The format of the self-certificate is provided in RFP at Annexure 8.</p>
7.	Data Center/Cloud Service Experience	The Bidder should have carried out projects on managing the IT infrastructure for Cloud services for at least 1 client (PSU/Central Govt/State Govt. Or private entities) of contract value at least Rs. 1 Crore in India during seven years as on the bid due date.	<ul style="list-style-type: none"> Work order/ Contract clearly highlighting the relevant scope of work, and contract value, year of execution. Client/Authority certificate <p>In case of large orders/orders with operations & maintenance phase, the completion/self-certificate may specify successful execution and in-operation status of a part of the order meeting the</p>

Sl #	Requirement Paramters	Eligibility Criteria	Supporting Documents to be provided
			requirement. The format of the self-certificate is provided in RFP at Annexure 8.
8.	Undertaking of Blacklisting	The Bidder should not be under a declaration of ineligibility / banned / blacklisted for any statutory and/or performance reasons, as on last date of submission of the Bid.	Self-certificate /Affidavit -attested by the authorized signatory
9.	Undertaking on Conflict of Interest	The Bidder or the bidder's parent / subsidiary /sister concern company should NOT be currently engaged by NHAI or IHMCL for user fee collection, tolling operations or system integrator at any NH Fee plazas across the country as on RFP release date. The successful bidder shall further undertake that it shall not be take up activities such as user fee collection, tolling operations and system integration at NH fee plazas allocated to it during the Contract Period.	Declaration & Undertaking in the Bid Cover Letter Annexure 1

3.2.4. Eligibility/pre-qualification criteria for the Cloud Service Provider

The eligibility/pre-qualification criteria for the Cloud Service Provider shall be as listed below:

SI #	Eligibility Criteria	Supporting Documents to be provided
1.	The Bidder, as a single legal entity, must be incorporated and registered in India under the Companies Act 1956/2013 or a Limited Liability Partnership (LLP) registered under the LLP Act, 2008.	<ul style="list-style-type: none"> • Copy of Certificate of Incorporation or Certified copy of Partnership Deed. • GST Registration certificate
2.	The CSP must be empanelled by Ministry of Electronics & Information Technology(MeitY), Government of India or latest Gartner's Magic Quadrants for Cloud Infrastructure as a Service or Platform as a Service.	<ul style="list-style-type: none"> • Proof of Empanelment validity by MeitY Or, • Copy of latest Gartner's Report as on bid due date.
3.	The CSP must be compliant with IT Act 2000 (including 43A) and amendments	<ul style="list-style-type: none"> • Letter from authorized signatory on the letter head of CSP mentioning the compliance
4.	The CSP must be operating in multiple Data Centres in India. The Data Centre and DRC offered by the CSP should be a minimum of Tier-III classification and should be in different seismic zones in India and data must be replicated in both the data centers for business continuity purpose.	<ul style="list-style-type: none"> • Letter from authorized signatory on the letter head of CSP mentioning the address of proposed Data centre (DC) Disaster Recovery (DR)
5.	The CSP or the Data Centre facility provider where the CSP has its Cloud should not be black listed by Private/PSU/Central Govt/State Govt. or any other Organisation or agencies in India. Also both CSP & Data Centre facility provider should not be under any legal action for indulging in corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice with any Private/PSU/Central Govt/State Govt. or any other Organization or agencies in India.	<ul style="list-style-type: none"> • Self-Certificate from authorized signatory on the letter head of CSP mentioning the compliance
6.	The Cloud Service Provider (CSP) must be certified for ISO 270017/18 for cloud services and PCI	<ul style="list-style-type: none"> • Copy of latest certification clearly mentioning the validity.

3.2.5. Additional Requirements for Bid/Proposal submitted by a Consortium

Proposal submitted by a Consortium must comply with the following additional requirements:

- (a) the number of members in the Consortium would be limited to two including the Lead Member;
- (b) Any Bidder applying individually or as consortium member shall not be entitled to submit another Proposal either individually or as a member of any other consortium, as the case may be.
- (c) the Proposal should contain the information required in respect of each member;

- (d) members of the Consortium shall nominate one member as the Lead Member;
- (e) an entity who has submitted Proposal for Project in its individual capacity or as part of a Consortium cannot participate as a member of any other Consortium;
- (f) the members of the Consortium shall execute a Power of Attorney for Lead Member of Consortium as per the format enclosed at **Appendix 6**; and
- (g) the members of the Consortium shall enter into a Memorandum of Understanding (MoU), as per the format provided under **Appendix 7** for the purpose of submission of the Proposal.

The MoU should, *inter alia*,

- i. convey the intent of the Lead Member to enter into the Contract Agreement and subsequently carry out all the responsibilities in terms of the Contract Agreement;
- ii. clearly outline the proposed roles and responsibilities of each member of the Consortium;
- iii. include a statement to the effect that all members of the Consortium shall be liable jointly and severally for the Project in accordance with the terms of the Master Service Agreement; and
- iv. clearly refer to the Project for which the arrangement is made.
- v. If awarded, each member of the Consortium shall be responsible for its respective role/expertise during project execution, and it would be deemed to have acknowledged that it was selected on the basis of the technical/financial capacity considered during the bidding phase. IHMCL may debar/blacklist all the members of the Consortium or any member of the Consortium if any of the members fail to carry out any obligation under the Contract.
- vi. The lead member should be liable for the entire scope of work and risks involved thereof (the liability should be for the entire value of the contract).
- vii. The lead member shall be sole interaction point for IHMCL, and shall represent the Consortium in all project-related meeting, correspondences, etc.
- viii. The non-lead member should be liable for the scope of work for which they are responsible along with the lead bidder; while the lead member still carries the liability for the entire scope of work.
- ix. Any change in the consortium member at a later date shall not be allowed.

- 3.2.6. For the purpose of this RFP, the net worth ("Net Worth") shall mean the aggregate value of the paid-up share capital and all reserves created out of the profits and securities premium account, after deducting the aggregate value of the accumulated losses, deferred expenditure and miscellaneous expenditure not written off, as per the audited balance sheet, but does not include reserves created out of revaluation of assets, write back of depreciation and amalgamation.
- 3.2.7. The bidder can use the experience of a company which controls, is controlled by, or is under the common control with such bidder. The 'control' means the ownership, directly or indirectly, of more than 50% (fifty per cent) of the voting shares of such bidder, as on the Bid Due Date. In such case, the bidder shall submit the following documents:
- i. A certificate from the bidder's statutory auditor/ chartered accountant certifying the relationship between the bidder and the company whose experience is being shown along with the percent of voting shares under common control.
 - ii. A letter of support, in form of undertaking, from the company whose experience is being shown as relevant experience that it will provide necessary technical and financial support to the Bidder in implementation of the project
- 3.2.8. For projects where contract value or any amount is in any currency other than Indian Rupees, than the foreign currency conversion rate available on Reserve Bank of India's portal as on the date of release of the RFP document shall be used for conversion of amount in foreign currency to Indian Rupees equivalent.
- 3.2.9. The Bidders must provide all supporting documents specified above in support of each eligibility requirement in line with the criteria stipulated in Clause 3.2 Only those Bidders who meet all the above pre-qualification criteria shall be considered for further evaluation of their Technical Proposals.
- 3.2.10. No Bidder applying individually or as a member of a Consortium, as the case may be, can be member of another Bidder. The term Bidder used herein would apply to both a single entity and a Consortium.
- 3.2.11. The following conditions shall be adhered to while submitting a Proposal
- a) Bidders should attach clearly marked and referenced continuation sheets in the event that the space provided in the prescribed forms in the Annexes is insufficient. Alternatively, Bidders may format the prescribed forms making do provision for incorporation of the requested information;
 - b) Information supplied by an Bidder (or other constituent Member if the Bidder is a Consortium) must apply to the Bidder, Member or Associate named in the Bidder and not, unless specifically requested, to other associated companies or firms;
- 3.2.12. Notwithstanding anything to the contrary contained herein, in the event that the Bid Due Date falls within three months of the closing of the latest financial year of an Bidder, it shall ignore such financial year for the purposes of its Proposal and furnish all its information and certification with reference to the 5 (five) years or 1 (one) year, as the case may be, preceding its latest financial year. For the avoidance of doubt, financial year shall, for the purposes of an Proposal hereunder, mean the accounting year followed by the Bidder in the course of its normal business.

3.3. Change in composition of the Consortium

- 3.3.1. Where the Bidder is a Consortium, change in the composition of a Consortium may be permitted by IHMCL during the Bid Stage, only where:
- a) the Proposal for such change is made no later than 15 (fifteen) days prior to the Bid Due Date;
 - b) the Lead Member continues to be the Lead Member of the Consortium;
 - c) the substitute is at least equal, in terms of Technical Capacity, to the Consortium Member who is sought to be substituted and the modified Consortium shall continue to meet the short-listing criteria for Bidders; and
 - d) the new Member(s) expressly adopt(s) the Proposal already made on behalf of the Consortium as if it were a party to it originally, and is not an Bidder/Member/Associate of any other Consortium bidding for this Project.
- 3.3.2. Approval for change in the composition of a Consortium shall be at the sole discretion of IHMCL and must be approved by IHMCL in writing.
- 3.3.3. The modified/ reconstituted Consortium shall submit a revised Jt. Bidding Agreement before the Bid Due Date.
- 3.3.4. Notwithstanding anything to the contrary contained in clause 3.2, a Bidder may, within 10 (ten) days after the Bid Due Date, remove from its Consortium any Member who suffers from a Conflict of Interest, and such removal shall be deemed to cure the Conflict of Interest arising in respect thereof.

3.4. Number of Proposals and costs thereof

- 3.4.1. No Bidder shall submit more than one Proposal for the Project. A Bidder applying individually or as a member of a Consortium shall not be entitled to submit another Proposal either individually or as a member of any Consortium, as the case may be.
- 3.4.2. The Bidders shall be responsible for all of the costs associated with the preparation of their Proposals and their participation in the Bid Process. IHMCL will not be responsible or in any way liable for such costs, regardless of the conduct or outcome of the Bidding Process.

3.5. Power of Attorney

- 3.5.1. The Bidder should submit a notarized Power of Attorney in the format provided at Annexure 5 and Annexure 6 or Letter of Authorization authorizing the signatory of the Bid to sign the Bid and all related documents. It is clarified that Bidders may submit equivalent documents (for example, delegation of power, board resolution copy), in lieu of this document, as applicable.

3.6. Content of RFP

- 3.6.1. The RFP should be read in conjunction with any addenda or clarifications issued subsequent to publication of RFP.

- 3.6.2. Bidders are advised to study the RFP carefully. Submission of the Bid will be deemed to have been done after careful study and examination of all instructions, eligibility norms, terms and requirement specifications in the RFP with full understanding of its implications. Bids not complying with all the stipulations and requirements as set forth in this RFP are liable to be rejected at the sole discretion of IHMCL. Failure to furnish all information required in the RFP or submission of a bid not substantially responsive to the RFP in all respects will be at the Bidder's risk and may result in the rejection of the bid.

3.7. Site visit and verification of information

- 3.7.1. Bidders are encouraged to submit their respective Bid after visiting the Project site and ascertaining for themselves the site conditions, location, surroundings, climate, availability of power, etc. and any other matter considered relevant by them. The costs of visiting the site or sites shall be at the Bidder's own expense.
- 3.7.2. The Bidder shall be deemed to have examined the site or sites and obtain for itself, at its own responsibility and risk, all information that may be necessary for preparing the bid and entering into the Contract.

3.8. Acknowledgement by Bidder

- 3.8.1. It shall be deemed that by submitting the Proposal, the Bidder has:
- a) made a complete and careful examination of the RFP;
 - b) received all relevant information requested from IHMCL;
 - c) accepted the risk of inadequacy, error or mistake in the information provided in the RFP or furnished by or on behalf of IHMCL relating to any of the matters referred to in Clause 3.7 above; and
 - d) Agreed to be bound by the undertakings provided by it under and in terms hereof.
- 3.8.2. IHMCL shall not be liable for any omission, mistake or error in respect of any of the above or on account of any matter or thing arising out of or concerning or relating to the RFP or the Bidding Process, including any error or mistake therein or in any information or data given by IHMCL.

3.9. Right to accept or reject any or all Proposals/ Bids

- 3.9.1. Notwithstanding anything contained in this RFP, IHMCL reserves the right to accept or reject any Proposal and to annul the Bidding Process and reject all Proposals/ Bids, at any time without any liability or any obligation for such acceptance, rejection or annulment, and without assigning any reasons therefor. In the event that IHMCL rejects or annuls all the Bids, it may, in its discretion, invite all eligible Bidders to submit fresh Bids hereunder.
- 3.9.2. IHMCL reserves the right to reject any Proposal and/ or Bid if:
- a) at any time, a material misrepresentation is made or uncovered, or
 - b) the Bidder does not provide, within the time specified by IHMCL, the supplemental information sought by IHMCL for evaluation of the Proposal.

- 3.9.3. If the Applicant/Bidder is a Consortium, then the entire Consortium may be disqualified/ rejected. If such disqualification/ rejection occurs after the Bids have been opened and the Lowest/Successful Bidder gets disqualified/ rejected, then IHMCL reserves the right to:
- a) invite the remaining Bidders to match the Lowest/Successful Bidder in ascending order sequence; or
 - b) take any such measure as may be deemed fit in the sole discretion of IHMCL, including annulment of the Bidding Process.
- 3.9.4. In case it is found during the evaluation or at any time before signing of the Concession Agreement or after its execution and during the period of subsistence thereof, including the concession thereby granted by IHMCL, that one or more of the conditions have not been met by the Bidder, or the Bidder has made material misrepresentation or has given any materially incorrect or false information, the Bidder shall be disqualified forthwith if not yet appointed as the Concessionaire either by issue of the LOA or entering into of the Concession Agreement, and if the Bidder/SPV has already been issued the LOA or has entered into the Concession Agreement, as the case may be, the same shall, notwithstanding anything to the contrary contained therein or in this RFP, be liable to be terminated, by a communication in writing by IHMCL to the Bidder, without IHMCL being liable in any manner whatsoever to the Bidder and without prejudice to any other right or remedy which IHMCL may have under this RFP, the Bidding Documents, the Concession Agreement or under applicable law.
- 3.9.5. IHMCL reserves the right to verify all statements, information and documents submitted by the Bidder in response to the RFP. Any such verification or lack of such verification by IHMCL shall not relieve the Bidder of its obligations or liabilities hereunder nor will it affect any rights of IHMCL thereunder.

3.10. **Clarifications**

- 3.10.1. Bidders requiring any clarification on the RFP may notify IHMCL by e-mail (tenders@ihmcl.com). They should send in their queries in .xlsx format before the date specified in the schedule of Bidding Process. The responses will be sent by published on e-tender portal.
- 3.10.2. IHMCL shall endeavor to respond to the questions raised or clarifications sought by the Bidders. However, IHMCL reserves the right not to respond to any question or provide any clarification, in its sole discretion, and nothing in this Clause shall be taken or read as compelling or requiring IHMCL to respond to any question or to provide any clarification.
- 3.10.3. IHMCL may also on its own motion, if deemed necessary, issue interpretations and clarifications to all Bidders. All clarifications and interpretations issued by IHMCL shall be deemed to be part of the RFP. Verbal clarifications and information given by Authority or its employees or representatives shall not in any way or manner be binding on IHMCL.
- 3.10.4. To facilitate evaluation of Proposals, IHMCL may, at its sole discretion, seek clarifications from any Bidder regarding its Proposal. Such clarification(s) shall be provided within the time specified by IHMCL for this purpose. Any request for clarification(s) and all clarification(s) in response thereto shall be in writing.

3.11. **Amendment of RFP**

- 3.11.1. At any time prior to the deadline for submission of Proposal, IHMCL may, for any reason, whether at its own initiative or in response to clarifications requested by an Bidder, modify the RFP by the issuance of Addenda.
- 3.11.2. Any Addendum thus issued will be published on e-procurement portal.
- 3.11.3. In order to afford the Bidders a reasonable time for taking an Addendum into account, or for any other reason, IHMCL may, in its sole discretion, extend the Bid Due Date.

3.12. Language

- 3.12.1. The Proposal and all related correspondence and documents in relation to the Bidding Process shall be in English language. Supporting documents and printed literature furnished by the Bidder with the Proposal may be in any other language provided that they are accompanied by translations of all the pertinent passages in the English language, duly authenticated and certified by the Bidder. Supporting materials, which are not translated into English, may not be considered. For the purpose of interpretation and evaluation of the Proposal, the English language translation shall prevail.

3.13. Bid Validity

- a) Bids shall remain valid for a period of 180 days from the Bid due date. Any Bid valid for a shorter period shall be rejected as non-responsive. IHMCL has sole discretion to extend the period beyond 180 days.
- b) In exceptional circumstances, IHMCL may solicit Bidder's consent to an extension of the period of validity. The request and the responses thereto shall be made in writing; however, no modification to such bid shall be permitted.

3.14. Bid Security

- a) The Bidder shall furnish, as part of the Bid, Earnest Money Deposit (EMD) /Bid Security for an amount INR 20,00,000/- (Rupees Twenty Lakhs Only). The Successful Bidder's EMD will be returned, without any interest, upon the Successful Bidder signing the Contract and furnishing the Performance Security in accordance with the provisions thereof. IHMCL may, at the Successful Bidder's option, adjust the amount of EMD in the amount of Performance Security to be provided by him in accordance with the provisions of the Contract.
- b) The Earnest Money shall be in the form of a demand draft / pay order/ bank guarantee drawn in favor of "Indian Highways Management Company Limited." Drawn on any Scheduled bank payable at New Delhi.
- c) Any bid not accompanied by an acceptable Earnest Money Deposit and Document Fee shall be rejected by IHMCL as non-responsive.
- d) The Earnest Money Deposit of unsuccessful bidders will be returned upon written request from the unsuccessful bidder, after expiry of the period of Bid Validity prescribed by IHMCL or Signing of Contract Agreement between IHMCL and successful bidder.
- e) The Earnest Money Deposit of the Successful Bidder will be discharged when the Successful Bidder has furnished the required Performance Security and signed the Contract Agreement.

- f) The Bid Security / Earnest Money will be forfeited:
- i. if the Bidder withdraws or modifies the Bid during the period of Bid validity;
 - ii. if the Bidder does not accept the correction of the bid price, pursuant to clause pertaining to imbalance bid;
 - iii. in the case of a Successful Bidder, if the Bidder fails within the specified time limit to -
 - iv. sign the Contract; and/or
 - v. Furnish the required Performance Security; or
 - vi. if the Bidder is found to be engaged in corrupt or fraudulent practices.

3.15. Alternative Proposals by Bidders

- 3.15.1. Bidder shall submit only one bid/offer for this RFP that fully complies with the requirement of the RFP including conditions of Contract. Conditional offer or alternate offer will not be considered further in the process of tender evaluation.

3.16. Submission, Format and signing of Proposal

- 3.16.1. All documents including Tender document Fee, EMD, Power of Attorney, relevant annexures, eligibility documents etc. need to be submitted on e-tender portal. The Bidder shall submit the scanned copy of the original documents as mentioned in the RFP along with the bid on or before due date of submission. Evaluation of bids shall be carried out with the available scanned copy of original document submitted by bidder on e-portal as per RFP requirement. However, the successful bidder has to submit the original documents physically with IHMCL before the issue of LOA. There shall be no physical submission of Proposal.
- 3.16.2. The Bidder shall provide all the information sought under this RFP. IHMCL will evaluate only those Proposals that are received in the required formats and complete in all respects. Incomplete and /or conditional Proposals shall be liable to rejection.
- 3.16.3. The Proposal/Bid Documents uploaded on e-tender portal shall be typed or written in indelible ink and signed by the authorized signatory of the Bidder who shall also initial each page. In case of printed and published documents, only the cover shall be initialed. All the alterations, omissions, additions or any other amendments made to the Proposal shall be initialed by the person(s) signing the Proposal.

3.17. Deadline for Submission of Bid

- a) Complete Bid documents as specified in the RFP must be uploaded as specified on or before the date and time specified under "Key Dates". In the event of the specified date for the submission of Bids being declared a Non-working day for IHMCL, the Bids will be received up to the specified time on the next working day.
- b) IHMCL may, at its discretion, extend the deadline for submission of Bids by issuing an amendment in which case all rights and obligations of IHMCL and the Bidders previously subject to the original deadline will thereafter be subject to the deadline extended.
- c) Offer by fax / e-mail will not be accepted and shall be treated as void ab-initio.

3.18. Late Proposals

- 3.18.1. Bids received after the deadline shall not be considered and shall be rejected. No representation or communication would be entertained in this regard from any Bidder. Modifications/ substitution/ withdrawal of Proposals.

3.19. Modifications/ substitution/ withdrawal of Proposals

- 3.19.1. The Bidder may modify, substitute or withdraw its Proposal after submission, provided that written notice of the modification, substitution or withdrawal is received by IHMCL prior to the Bid Due Date. No Proposal shall be modified, substituted or withdrawn by the Bidder on or after the Bid Due Date.
- 3.19.2. Any alteration/ modification in the Proposal or additional information supplied subsequent to the Bid Due Date, unless the same has been expressly sought for by IHMCL, shall be disregarded.

3.20. Opening and Evaluation of Proposals

- 3.20.1. IHMCL shall open the Proposals as per Key Timelines mentioned in RFP, at the place specified in RFP and in the presence of the Bidders who choose to attend.
- 3.20.2. Proposals for which a notice of withdrawal has been submitted in accordance with Clause 3.19 shall not be opened.
- 3.20.3. IHMCL will subsequently examine and evaluate Proposals in accordance with the provisions set out in this RFP.
- 3.20.4. Bidders are advised that selection of Bidders will be entirely at the discretion of IHMCL. Bidders will be deemed to have understood and agreed that no explanation or justification on any aspect of the Bidding Process or selection will be given.
- 3.20.5. Any information contained in the Proposal shall not in any way be construed as binding on IHMCL, its agents, successors or assigns, but shall be binding against the Bidder if the Project is subsequently awarded to it on the basis of such information.
- 3.20.6. IHMCL reserves the right not to proceed with the Bidding Process at any time without notice or liability and to reject any or all Proposal(s) without assigning any reasons.
- 3.20.7. If any information furnished by the Bidder is found to be incomplete, or contained in formats other than those specified herein, IHMCL may, in its sole discretion, exclude the relevant project from computation of the Eligible Score of the Bidder.
- 3.20.8. In the event that an Bidder claims credit for an Eligible Project, and such claim is determined by IHMCL as incorrect or erroneous, IHMCL shall reject such claim and exclude the same from computation of the Eligible Score, and may also, while computing the aggregate Experience Score of the Bidder, make a further deduction equivalent to the claim rejected hereunder. Where any information is found to be patently false or amounting to a material representation, IHMCL reserves the right to reject the Proposal and/ or Bid.

3.21. Examination and Evaluation of Bids

- a) Opening of Bids will be done through online process only.

- b) IHMCL shall open Technical Bids as per schedule specified in Key Dates, in the presence of the authorized representatives of the Bidders, who choose to attend. IHMCL will examine and evaluate the Bids in accordance with the provisions of this RFP.
- c) During evaluation and comparison of bids, IHMCL may, at his discretion, ask the bidder for clarifications on the bid. The request for clarification shall be given in writing via email, asking the Bidder to respond by a specified date, and also mentioning therein that, if the Bidder does not comply or respond by the date, his tender will be liable to be rejected. No post bid clarification at the initiative of the bidder shall be entertained. The shortfall information/ documents shall be sought only in case of historical documents which pre-existed at the time of the bid opening and which have not undergone change since then.

3.21.1. Phase - 1: Pre-Qualification Stage: -

- a) The Technical Bids will be evaluated by an Evaluation Committee. The Bidder shall have to fulfil all the Eligibility Criteria as specified in the RFP. Following documents shall be evaluated as per part of Pre-Qualification stage: - Tender Document Fee, EMD/Bid Security, PoA and other Eligibility Documents and Annexures.
- b) The Bidder shall have to submit all the required documents as per various formats provided in Annexures. These documents will be scrutinized in this phase of evaluation. Those Bidders who do not fulfil the terms and conditions of Eligibility Criteria as specified in this tender will not be eligible for further evaluation.
- c) Evaluation of Technical Bids by the Evaluation Committee shall not be questioned by any of the Bidders. IHMCL may ask Bidder(s) for additional information, visit to Bidder's site and/ or arrange discussions with their professional, technical faculties to verify claims made in Technical Bid documentation from the Bidder on the already submitted Technical Proposal at any point of time before opening of the Financial Proposal.
- d) Based upon the evaluation of these documents and the conditions specified in the RFP, IHMCL shall announce the names of the Bidders who have qualified for Phase-2 Technical Qualification. It is hereby clarified that Technical Qualification evaluation of only such Bidders who are declared qualified as stated herein shall be performed.

3.21.2. Phase - 2: Technical Qualification: -

The Technical Proposals of the Bidders shall be evaluated based on the Technical Evaluation Framework as listed in the Table below:

Section #	Evaluation Criteria	Total Marks
A	Sole bidder/Lead Member Profile	25
B	Relevant Project Experience	50
C	Approach & Methodology	25
Overall Technical Score Total		100

3.21.3. Evaluation Parameters for Technical Proposal

The Technical evaluation of the bids shall be carried out as per criteria provided below:

Sl. #	Technical Evaluation Criteria	Maximum Marks	Supporting Document required
A.	Sole bidder/Lead Member Profile	25	
A1	<p>Average annual turnover of the Sole Bidder or Lead member, in case of Consortium, during the last three (03) financial years, over the last three (3) Financial Years FY 2017-18, 2018-19 and 2019-2020.</p> <p>Marks shall be allotted as given below:</p> <ul style="list-style-type: none"> • >INR 25 crore = 20 marks • >INR 20 crore and up to INR 25 Crore = 15 marks • >= INR 15 crore and up to INR 20 Crore = 10 marks <p>For the purpose of this criterion, annual turnover of only the bidding entity will be considered. Annual turnover of any parent, subsidiary, associated or other related entity will not be considered.</p>	20	<ul style="list-style-type: none"> • Relevant extracts of audited financial statements for the last three financial years FY 2017-18, FY 2018-19 and FY 2019-20 • Certificate from the CA/Statutory Auditor on turnover details over the last three (3) financial years FY 2017-18, FY 2018-19 and FY 2019-20. As per format provided in Annexure 4.
A2	<p>The Sole Bidder or Lead member, in case of Consortium should have a valid ISO 27001 certificate as on the bid due date.</p> <p>Marks shall be allotted as given below:</p> <ul style="list-style-type: none"> • Valid certificate = 5 marks • No valid certificate = 0 mark 	5	<ul style="list-style-type: none"> • Copy of a valid Certificate
B.	Relevant Project Experience	50	
B1	<p>The Sole Bidder and/or any Consortium member (in case of Consortium) should have experience of implementing project(s) of centralized/integrated command control center in India during last seven years for Central/State Government departments/Law Enforcement Authorities/entities/ PSUs as on the bid due date.</p> <p>Marks shall be allotted as given below:</p> <ul style="list-style-type: none"> • 3 or more projects = 30 marks • 2 projects = 20 marks • 1 project = 10 marks 	30	<ul style="list-style-type: none"> • Work order/ Contract clearly highlighting the relevant scope of work, and contract value, year of execution. • Client/Authority certificate <p>In case of large orders/orders with operations & maintenance phase, the completion/self-certificate may specify successful execution and in-operation status of a part of the order meeting the</p>

Sl. #	Technical Evaluation Criteria	Maximum Marks	Supporting Document required
			requirement. The format of the self-certificate is provided in RFP at Annexure 8.
B2	<p>The Sole Bidder and/or any Consortium member (in case of Consortium) should have carried out projects on managing the IT infrastructure for Data Centre /Cloud services for Central Govt/State Govt./PSU/Private or any other Organisation or agencies of contract value at least Rs. 1 Crore in India during seven years as on the bid due date.</p> <p>Marks shall be allotted as given below:</p> <ul style="list-style-type: none"> 2 projects or more projects = 10 marks 1 project = 8 marks 	10	<ul style="list-style-type: none"> Work order/ Contract clearly highlighting the relevant scope of work, and contract value, year of execution. Client/Authority certificate <p>In case of large orders/orders with operations & maintenance phase, the completion/self-certificate may specify successful execution and in-operation status of a part of the order meeting the requirement. The format of the self-certificate is provided in RFP at Annexure 8.</p>
B3	<p>The Sole Bidder and/or any Consortium member (in case of Consortium) should have experience of implementation project on Business Intelligence (BI) and cloud-based data Analytics tools for Central Govt/State Govt./PSU/Private or any other Organisation or agencies of contract value at least Rs. 50 lakhs in India during seven years as on the bid due date.</p> <p>Marks shall be allotted as given below:</p> <ul style="list-style-type: none"> 2 projects or more projects = 10 marks 1 project = 8 marks 	10	<ul style="list-style-type: none"> Work order/ Contract clearly highlighting the relevant scope of work, and contract value, year of execution. Client/Authority certificate <p>In case of large orders/orders with operations & maintenance phase, the completion/self-certificate may specify successful execution and in-operation status of a part of the order meeting the requirement. The format of the self-certificate is provided in RFP at Annexure 8.</p>
C	<p>Solution Proposed & Approach & Methodology</p> <ul style="list-style-type: none"> Technology Solution along with proposed cloud-based business Intelligence and data analytics tool – 20 marks, break up as provided below - <ul style="list-style-type: none"> Overall Technical Solution & Approach & Methodology – 10 marks 	25	Assessment to be based on Proposal Submitted & Presentation made by Bidder before the Tender Evaluation Committee.

Sl. #	Technical Evaluation Criteria	Maximum Marks	Supporting Document required
	<ul style="list-style-type: none">○ If the BI Analytics solution offered is in the latest Gartner Magic Quadrant for Analytics and Business Intelligence Platforms – 5 marks○ If the Data warehousing solution is in the latest Gartner Magic Quadrant for data management solutions for analytics – 5 marks○ Work Break Down Schedule, project Plan, etc. – 5 marks		

3.21.4. The Minimum technical score to qualify for Financial Proposal evaluation (ST) is **70 marks out of total 100 marks**.

3.21.5. Project Manager Criteria

- a) The MSP shall provide adequate number of personnel, each responsible for a specific role within the project. The profile of the Project manager shall be as below -

Sl. #	Position	Minimum qualifications
1	Project Manager	<ul style="list-style-type: none"> Education: Full Time B. Tech/B.E. from a reputed institute Experience: Minimum 5 years of experience in handling large IT projects and Cloud Infra Management as a project manager and at least one project on command control or data analytics
2	BI Analyst	<ul style="list-style-type: none"> Education: Full Time B. Tech/B.E. or, MCA or MBA from a reputed institute Experience: Minimum 3 years of experience in data analytics and use of the proposed BI tool proposed by the Bidder.

- a) The CV of the Proposed Project Manager shall be included in the Proposal. However, it shall be considered for evaluation or marking purpose.

3.21.6. Phase – 3: Financial Bid Evaluation:

- a) Post completion of the evaluation in Phase 1 and Phase 2, IHMCL will open the Financial bids of qualified bidders on the date and time prescribed. Prior to evaluation of the bids, IHMCL shall determine as to whether each bid is responsive to the requirements of this RFP document and secured the minimum technical score as mentioned in RFP. A bid will be declared non-responsive in case:
- If the Authorized Signatory holding Power of Attorney and Signatory are not the same;
 - If a bidder submits a conditional bid or makes changes in the terms and conditions given in this RFP document;
 - If the financial bid is not submitted in the format prescribed in the RFP document;
 - If any requisite document/ certificate is not in the prescribed format the same shall not be considered while evaluating the Bids and the same may lead to Bid being declared as non-responsive; and
 - The bid contains any pre-condition, assumption or qualification.
 - Failure to comply with all the requirements of RFP document by a Bidder;
- b) It is hereby clarified that Financial Bids of only such Bidders who are declared qualified as stated herein shall be opened.
- c) The Financial Bid Evaluation will be based on the “Total Price” quoted by the Bidder which would be inclusive of all levies and taxes like Excise Duty, Custom Duty, packing, forwarding, freight and insurance, Octroi/Entry Tax, etc. or as applicable taxes, but exclusive of GST. Bidders shall quote for the entire scope of contract on an overall responsibility basis such that the total bid price covers

Bidder's all obligations mentioned in or to be reasonably inferred from the bidding documents in respect of providing the product/services.

- d) If there is a discrepancy between words & figures, the amount in words shall prevail. If the Bidder does not accept the correction of errors, its Bid shall be rejected and the EMD will be forfeited.
- e) The Bidder who has quoted the least Total Financial Bid in zone shall be given a Financial Score of 100 marks. The Financial Scores of Bidders shall be computed as follows:

$$\text{SF (Financial Score of a Bidder)} = 100 \times [\text{Lowest Total Financial Bid quoted (in INR)} / \text{Total Financial Bid quoted by the Bidder (in INR)}]$$

f) Composite Score: -

Combined evaluation of Technical and Financial Proposals. Proposals will finally be ranked according to their combined technical (ST) and Financial (SF) scores using the weights indicated below:

$$S = ST \times 50\% + SF \times 50\%$$

where,

S= Composite Score

ST= Technical Score out of 100

SF= Financial Score

- g) The IHMCL shall determine if the financial bids are complete and without computational errors. The financial quotes shall have to be provided on e-tender portal only.

3.22. Award Criteria

- a) Subject to Clause 3.21, the IHMCL will award the Contract to the Bidder whose Bid has been determined to be responsive to the Tender documents and who has scored highest composite score.
- b) Prior to the expiration of the Bid validity, the IHMCL will notify the successful bidder that his Bid has been accepted. IHMCL will mention the contract value in the Letter of Award (LOA).
- c) The Contract Agreement will incorporate all agreements between the IHMCL and the successful Bidder. It will be signed by the IHMCL and the successful Bidder after the performance security is furnished. IHMCL will issue notice to commence the work after signing of contract.
- d) Upon furnishing of the Performance Security by the successful Bidder, IHMCL will promptly notify the other Bidders that their Bids have been unsuccessful. EMDs of unsuccessful bidders will be returned back to them after signing of contract agreement with the successful bidder.
- e) In the event that two or more Bidders quote the same Composite Score, IHMCL may
 - i. Declare the Bidder with higher technical score as the Preferred Bidder; or,
 - ii. Take any such measure as may be deemed fit at its sole discretion, including annulment of the bidding process.

3.23. Confidentiality

- 3.23.1. Information relating to the examination, clarification, evaluation, and recommendation for the Bidders shall not be disclosed to any person who is not officially concerned with the process or is not a retained professional advisor advising IHMCL in relation to, or matters arising out of, or concerning the Bidding Process. IHMCL will treat all information, submitted as part of Proposal, in confidence and will require all those who have access to such material to treat the same in confidence. IHMCL may not divulge any such information unless it is directed to do so by any statutory entity that has the power under law to require its disclosure or is to enforce or assert any right or privilege of the statutory entity and/ or IHMCL or as may be required by law or in connection with any legal process.

3.24. Tests of responsiveness

- 3.24.1. Prior to evaluation of Proposals, IHMCL shall determine whether each Proposal is responsive to the requirements of the RFP. A Proposal shall be considered responsive only if:
- a) If the Authorized Signatory holding Power of Attorney and Signatory are not the same
 - b) If a bidder submits a conditional bid or makes changes in the terms and conditions given in this RFP document
 - c) Failure to comply with all the requirements of RFP document by a bidder
 - d) If the financial bid is not submitted in the formats prescribed in the RFP document
 - e) If any requisite document/ certificate is not in the prescribed format the same shall not be considered while evaluating the Bids and the same may lead to Bid being declared as non-responsive.
- and
- f) The bid contains any pre-condition, assumption or qualification
 - g) it is not non-responsive in terms hereof.

3.24.2. IHMCL reserves the right to reject any Proposal which is non-responsive and no request for alteration, modification, substitution or withdrawal shall be entertained by IHMCL in respect of such Proposal.

3.24.3. Any entity (the Bidder, its Member or Associate was, either by itself or as member of a Consortium) which has been barred by the Central Government, or any entity controlled by it, from participating in any project by any govt. organization or PSU and the bar subsists as on the date of Proposal, or has been declared by IHMCL as non-performer/blacklisted would not be eligible to submit an Proposal, either individually or as member of a Consortium.

3.25. Imbalanced Bid

3.25.1. If the Bid of the Successful Bidder is seriously imbalanced in relation to IHMCL's estimate of the cost of work to be performed under the Contract, IHMCL may require the Bidder to produce detailed price analysis for any or all items of the Services/Bill of Quantities, to demonstrate the internal consistency of the proposed System/Proposal. After evaluation of the price analyses, IHMCL may require that the amount of the Performance Security set forth in the RFP be increased and an additional Performance Security may be obtained at the expense of the Successful Bidder to a level sufficient to protect IHMCL against financial loss in the event of default of the Successful Bidder under the Contract. The amount of the additional increased Performance Security shall be equal to the seriously imbalanced amount, which shall be final, binding and conclusive on the Bidder.

3.26. Submission of Bids

- a) The Bidders will be requested to submit a Bid in the form and manner to be set out in the Bidding Documents.
- b) IHMCL is likely to provide a comparatively short time span for submission of the Bids for the Project. The Bidders are therefore advised to visit the site and familiarize themselves with the Project by the time of submission of the Proposal. No extension of time is likely to be considered for submission of Bids pursuant to invitation that may be issued by IHMCL.

3.27. Proprietary data

3.27.1. All documents and other information supplied by IHMCL or submitted by an Bidder to IHMCL shall remain or become the property of IHMCL. Bidders are to treat all information as strictly confidential and shall not use it for any purpose other than for preparation and submission of their Proposal. IHMCL will not return any Proposal or any information provided along therewith.

3.28. Correspondence with the Bidder

3.28.1. Save and except as provided in this RFP, IHMCL shall not entertain any correspondence with any Bidder in relation to the acceptance or rejection of any Proposal.

3.29. Notification of Award of Contract

- a) Prior to the expiration of the Bid validity, IHMCL will notify the Successful Bidder that his Bid has been accepted. IHMCL will mention the contract value in the LOA.
- b) The Contract will incorporate all agreements between IHMCL and the Successful Bidder. It will be signed by IHMCL and the Successful Bidder after the performance security is furnished by the

Successful Bidder. IHMCL will issue notice to commence the work after signing of Contract Agreement or submission of Performance Security as the case maybe.

- c) Upon furnishing of the Performance Security by the Successful Bidder, IHMCL will promptly notify the other Bidders that their Bids have been unsuccessful. EMDs of unsuccessful Bidders will be returned back to them after signing of Contract with the Successful Bidder or after the expiry of the validity period of the Bids, whichever is earlier.

3.30. **Signing of Contract**

- 3.30.1. IHMCL shall ask the Successful Bidder to furnish the Performance Guarantee and also to execute the Contract Agreement.

3.31. **Performance Security**

- a) Within 15 (Fifteen) days of the receipt of the Letter of Award, the Successful Bidder shall submit an irrevocable and unconditional Bank guarantee issued in the name of IHMCL for an amount equal to **10% of the Total Price quoted by the Successful Bidder**, issued by a Bank described under this RFP which shall be verified at any branch located in the National Capital territory of Delhi and through SFMS mode as performance security for the due performance of its obligations under the Contract.
- b) The aforesaid Bank Guarantee shall be as per the format given in format provided in this RFP and will be valid for a period of 180 days after the expiry of Contract period and shall also have a minimum claim period of 1 year. Format for submission of Performance Bank Guarantee is placed at Annexure 7.

3.32. **Bank Guarantee (BG)**

- a) The Bank Guarantee in the name of IHMCL issued by the following banks would only be accepted:
 -
 - i. Any Nationalized Bank
 - ii. Any Scheduled Commercial Bank approved by RBI having a net worth of not less than Rs. 500 crores as per the latest Audited Balance Sheet of the Bank. In the case of a Foreign Bank (issued by a branch in India), the net worth in respect of the Indian operations shall only be taken into account
 - iii. III. A Foreign Bank (issued by a branch outside India) with a counter guarantee from any Indian Nationalized Bank.
 - iv. Export Import Bank of India
- b) The acceptance of the Bank Guarantees shall also be subject to the following conditions: -
 - i. The capital adequacy of the Bank shall not be less than the norms prescribed by RBI
 - ii. The bank guarantee issued by a Cooperative Bank shall not be accepted.

3.33. **Corrupt or Fraudulent Practices**

- a) IHMCL will reject a proposal for award and appropriate the EMD or the Performance Security, as the case may be, if it determines that the Bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question.
- b) IHMCL will declare the Bidder ineligible, either indefinitely or for a stated period of time, to be awarded a contract by IHMCL if it at any time determines that the Bidder has engaged in corrupt or fraudulent practices in competing for the contract, or during execution.
- c) "Corrupt practice" means the offering, giving, receiving, or soliciting of anything of value to influence the action of a public official or employee of IHMCL in the procurement process or in Contract execution.
- d) "Fraudulent Practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of IHMCL and includes collusive practice among Bidders (prior to or after bid submission) designed to establish bid process at artificial non-competitive levels and to deprive IHMCL of the benefits of free and open competition.

3.34. **Conflict of Interest**

- 3.34.1. A Bidder shall not have a conflict of interest that may affect the Selection Process or the Solution delivery (the "Conflict of Interest"). Any Bidder found to have a Conflict of Interest shall be disqualified. In the event of disqualification, the Purchaser shall forfeit and appropriate the EMD, if available, as mutually agreed genuine pre-estimated compensation and damages payable to the Purchaser for, inter alia, the time, cost and effort of the Purchaser including consideration of such Bidder's Proposal, without prejudice to any other right or remedy that may be available to the Purchaser hereunder or otherwise.
- 3.34.2. The Purchaser requires that the MSP provides solutions which at all times hold the Purchaser's interests paramount, avoid conflicts with other assignments or its own interests, and act without any consideration for future work. The MSP shall not accept or engage in any assignment that would be in conflict with its prior or current obligations to other clients, or that may place it in a position of not being able to carry out the assignment in the best interests of the Purchaser.
- 3.34.3. Without limiting the generality of the above, a Bidder shall be deemed to have a Conflict of Interest affecting the Selection Process, if:
 - a) the Bidder, its consortium member (the "Member") or Associates (or any constituent thereof) and any other Bidder, its consortium member or Associate (or any constituent thereof) have common controlling shareholders or other ownership interest; provided that this disqualification shall not apply in cases where the direct or indirect shareholding or ownership interest of an Bidder, its Member or Associate (or any shareholder thereof having a shareholding of more than 5 per cent of the paid up and subscribed share capital of such Bidder, Member or Associate, as the case may be) in the other Bidder, its consortium member or Associate is less than 5% (five per cent) of the subscribed and paid up equity share capital thereof. For the purposes of this Clause, indirect shareholding held through one or more intermediate persons shall be computed as follows:

- where any intermediary controlled by a person through management control or otherwise, the entire shareholding held by such controlled intermediary in any other person (the “Subject Person”) shall be taken into account for computing the shareholding of such controlling person in the Subject Person; where a person does not exercise control over an intermediary, which has shareholding in the Subject Person, the computation of indirect shareholding of such person in the Subject Person shall be undertaken on
- a proportionate basis; provided, however, that no such shareholding shall be reckoned under this Sub-clause if the shareholding of such person in the intermediary is less than 26% (twenty six per cent) of the subscribed and paid up equity shareholding of such intermediary; or

3.35. **Miscellaneous**

- a) The Bidding Process shall be governed by, and construed in accordance with, the laws of India and the Courts at New Delhi shall have exclusive jurisdiction over all disputes arising under, pursuant to and/ or in connection with the Bidding Process.
- b) IHMCL, in its sole discretion and without incurring any obligation or liability, reserves the right, at any time, to;
 - i. suspend and/ or cancel the Bidding Process and/ or amend and/ or supplement the Bidding Process or modify the dates or other terms and conditions relating thereto;
 - ii. consult with any Bidder in order to receive clarification or further information;
 - iii. retain any information and/ or evidence submitted to IHMCL by, on behalf of, and/ or in relation to any Bidder; and/ or
 - iv. independently verify, disqualify, reject and/ or accept any or all submissions or other information and/ or evidence submitted by or on behalf of any Bidder.
- c) It shall be deemed that by submitting the Bid, the Bidder agrees and releases IHMCL, its employees, agents and advisers, irrevocably, unconditionally, fully and finally from any and all liability for claims, losses, damages, costs, expenses or liabilities in any way related to or arising from the exercise of any rights and/ or performance of any obligations hereunder, pursuant hereto and/ or in connection with the Bidding Process and waives, to the fullest extent permitted by applicable laws, any and all rights and/ or claims it may have in this respect, whether actual or contingent, whether present or in future.
- d) If the Bidder has committed a transgression under this RFP such as to put its reliability or credibility into question, IHMCL shall be entitled to blacklist and debar such Bidder for any future tenders/contract award process in its sole and absolute discretion.
- e) Bidders are encouraged to include Micro, Small and Medium Enterprises (MSMEs) in the delivery of the project. Bidders should earmark a minimum of 20% of the total contract for procuring goods and services from MSMEs. The MSME partner should be registered under the Micro Small Medium Enterprise Act, 2006. The procurement through MSMEs should be in line with Order dated 23rd March 2014 or any latest Order/Directions regarding procurement policy for Micro and Small Enterprises (MSMEs).

- f) Compliance to be ensured w.r.t. Office Memorandum of Department of Expenditure, dated 23 July 2020, and any related clarifications, subsequent guidelines issued by Department of Expenditure, as applicable, regarding insertion of Rule 144 (xi) in the General Financial Rules (GFRs), 2017. Bidder may visit website of Department of Expenditure (<https://doe.gov.in/>) for more details on the said Office Memorandum.
- g) Compliance to be ensured w.r.t. Public Procurement (Preference to Make in India) Order 2017 – Notification of Telecom Products, Services or Works” (in short DoT PPP MII notification, 2018) dated 29th August issued by Department of Telecommunications.

Bidder may visit website of Department of Telecom (<https://dot.gov.in> > Investment Promotion > Telecom Equipment Manufacturing) for more details on the said notification.

4. PREPARATION AND SUBMISSION OF PROPOSAL

- a) Bid must be submitted online only at <http://etenders.gov.in> during the validity of registration with the e-Tendering Portal being managed by National Informatics Centre (NIC), i.e. <http://etenders.gov.in>. To participate in e-tendering, the intending participants shall register themselves in the website of URL.
- b) Bidders/Applicants are advised to go through the FAQs, guidelines, instructions, manuals, policies, system setting procedures etc. as provided in the e-Procurement portal.
- c) Tender form and relevant documents will not be sold /issued manually from offices.
- d) Bidders are required to upload scanned copies of Bid Security, proof of online payment of cost Bidding Documents, Power of Attorney and other relevant document on the e-procurement portal.
- e) All documents including Application Fee, EMD, Power of Attorney, relevant annexures, eligibility documents etc. need to be submitted on e-tender portal. The Bidder shall submit the scanned copy of the original documents as mentioned in the RFP along with the bid on or before due date of submission. Evaluation of bids shall be carried out with the available scanned copy of original document submitted by bidder as per RFP requirement. However, the successful bidder has to submit the original documents physically with IHMCL before the issue of LOA.
- f) The date and time for online submission as mentioned in the section RFP document shall be strictly followed in all cases. The bidder/Applicants should ensure that their tender is submitted online before the expiry of the scheduled date and time. No delay on account of any cause will be entertained. Tender(s) not submitted online will not be entertained.
- g) If for any reason, any interested bidder fails to complete any online stages during the complete tender cycle, IHMCL shall not be responsible for that and any grievance regarding that shall not be entertained.

4.1. KEY DATES

Sl. No.	Event Description	Date
1.	Invitation of RFP	22 October 2020
2.	Last date for receiving queries	02 November 2020
3.	Pre-Bid meeting ¹	04 November 2020
4.	Bid Due Date	25 November 2020 (Up to 15:00 Hrs IST)
5.	Opening of Technical Bids	26 November 2020 (16:00 Hrs IST)
6.	Declaration eligible / qualified Bidders	Within 20 days from Bid Due Date
7.	Opening of Financial Bid	Within 30 days from Bid Due Date
8.	Letter of Award (LOA)	Within 60 days of Bid Due Date
9.	Validity of Bid	180 days from Bid Due Date
10.	Signing of Agreement	Within 45 days of award of LOA

¹ In case of a VC – Meeting details shall be sent to those email IDs from whom queries have been received by due date. Interested bidders may ask for meeting details one day prior to the pre-bid meeting.

5. CONDITIONS OF CONTRACT

5.1. Conditions of Contract

- 5.1.1. These Conditions shall supplement or amend the other parts of the Bidding Documents and whenever there is a conflict; provision herein shall prevail over those in the other parts of the Bidding Documents.

5.2. Governing Language

- 5.2.1. All correspondence and other documents to be exchanged by the parties shall be written in the English language. The version written in English language shall govern its interpretation.

5.3. Applicable Law

- 5.3.1. Appropriate laws as in force in Republic of India shall apply.

5.4. Interpretation

- 5.4.1. In interpreting these Conditions of Contract, singular also means plural, male also means female or neuter, and the other way around. Headings have no significance. Words have their normal meaning under the language of the Contract unless specifically defined.
- 5.4.2. The Bidders are expected to examine all terms and instructions included in the RFP Document. During preparation of the technical proposal, the bidders shall make their own assessment of staff to undertake the assignment.

5.5. Right to vary Quantity and amend Project Scope

5.5.1. Vary Quantity

- 5.5.1.1. **At the time of award of contract or during the Contract Period, the quantity of goods, works, scope or services originally specified in the bidding documents may be changed by IHMCL by a written order to the MSP. It shall be without any change in the unit prices or other terms and conditions of the Bid and the bidding documents.**
- 5.5.1.2. **If IHMCL does not procure any line item(s) as specified in the Bill of Materials for procurement or procures less than the quantity specified in the RFP Document due to change in circumstances, the MSP shall not be entitled for any claim or compensation except otherwise provided in the bidding document.**
- 5.5.1.3. **Repeat orders for extra items or additional quantities may be placed on the rates and conditions given in the contract. Delivery or completion period may also be proportionally increased on mutually agreed terms.**
- 5.5.1.4. **IHMCL may choose to procure additional material for any of the line item specified in Bill of Materials of the quantities per line item during the Contract Period. The MSP shall hold the same prices quoted herewith.**
- 5.5.1.5. **Payment for additional quantities for line items shall be made on pro-rata basis as per unit rates mentioned in the bid. The unit rates quoted by MSP shall be valid for at least three years from the date of Contract signing. Thereafter, the unit rates may be escalated up to 10% on year on year basis on mutually agreed terms.**

5.5.1.6. **At the time of procurement, the MSP may propose product with same or higher specification. The right to choose the vendor/OEM for additional quantities at any point during the Contract Duration rests with IHMCL.**

5.5.2. Project Scope Amendment

5.5.2.1. **IHMCL retains the right to amend the Project Scope without assigning any reason at any time during the Contract Period. IHMCL makes no commitments, express or implied, that the full scope of work as described in this RFP will be commissioned.**

5.5.2.2. **IHMCL, may at any time, at its sole discretion defer the implementation of certain components of the project as per its requirements. Appropriate time extensions (but no cost extensions) shall be provided in case of delay owing to deferment by IHMCL.**

5.6. **Payment Terms**

5.6.1. Payments will be made in Indian Rupees only.

5.6.2. The MSP shall submit invoice to IHMCL on a quarterly basis.

5.6.3. Within 60 days of receiving invoice from the MSP, IHMCL shall release payment to the MSP after deduction of penalty/damage, if any.

5.6.4. **Payments for Cloud for Cloud Services (Ref. – Clause 7.11.2)**

- a) The payment for Cloud services shall commence after successful “Operationalization of cloud services” to IHMCL.

“Operationalization of Cloud services” for this purpose shall mean as below –

- i. Replication of all **ETC data** from NPCI into cloud (as per cluse 6.2.2.1)
 - ii. Installation & configuration of BI & Data Analytics tool for analysis of **ETC data** (as per cluse 6.2.2.2)
- b) Quarterly Payment to be based on the actual usage / consumption of the services and as per the **“Unit Price per Quarter”** under Clause 7.11.12
- c) Total quarterly Payment to be linked to the compliance with the SLA metrics and the actual payment is the payment due to the MSP after any SLA related deductions. The MSP shall submit all supporting documents/reports etc. as required to validate the work.

5.6.5. **Payments for Control Center Infra, TMCC Application & Others (Ref. – Clause 7.11.3)**

- a) The payment for Control Center Infra, TMCC Application & Others shall commence after successful “Go-Live of Control Center”.

“Go-Live of Control Center” for this purpose shall mean as below –

- i. Installation & Commissioning of all BOQ items provided in 7.11.3 as per requirement
 - ii. Development & Deployment of TMCC Application for monitoring of ETC data from NPCI and TMS data from 100 Live toll plazas.
- b) The payment shall be released as below –
 - i. For CAPEX –
 - 10% as Mobilization Advance after Contract Signing and submission of a Bank guarantee of equal value. (The BG shall be returned after Go-Live of Control Center)
 - Remaining 90% after **“Go-Live of Control Center”**
 - ii. For OPEX (including AMC) –
 - In equal quarterly installment after **“Go-Live of Control Center”**. The installment shall be calculated on the basis of 20 quarters and shall be paid only for the remaining quarters after the Go-Live of Control Center.
- c) Total quarterly Payment to be linked to the compliance with the SLA metrics and the actual payment is the payment due to the MSP after any SLA related deductions. The MSP shall submit all supporting documents/reports etc. as required to validate the work.

5.7. Prices

- 5.7.1. GST as applicable, which will be levied on the goods and services invoiced by the Successful bidder to IHMCL, will be reimbursed on actual basis.
- 5.7.2. IHMCL reserves the right to ask the Successful bidder to submit proof of payment against any of the taxes, duties, levies indicated.
- 5.7.3. All payments shall be made subject to adjustment of applicable damages.
- 5.7.4. No amount or cost shall be payable for holding discussion, as considered necessary by IHMCL, for any purpose with IHMCL's Officials at IHMCL's Head Office or elsewhere, prior, during or after the conduct of an assignment.
- 5.7.5. Quoted Value by the bidder shall be excluding GST and fixed for the entire Contract period.

5.8. Start of Assignment

- 5.8.1. Successful bidder shall commence installation/ takeover of fee plazas for operationalizing ITS equipment as the case may be from the date of signing of contract agreement or date of issuance of instruction for commencement notice issued by IHMCL.
- 5.8.2. The Successful bidder shall have sufficient teams to complete the assignment and submit the deliverables as per scope of work defined in RFP. Non-fulfillment of this requirement or delay in submission of reports would attract penalties.

5.9. Damages

- 5.9.1. As defined in Section 6 of this RFP.

5.10. Contract Period

- 5.10.1. The Contract Period for the Project shall be Five (05) years from date of signing of Contract Agreement.
- 5.10.2. The period of Contract duration may be further extendable up to additional 2 years on annual basis at the sole discretion of IHMCL on the same terms and conditions as defined in RFP.

5.11. Insurance

- 5.11.1. The Successful bidder shall effect and maintain at its own cost, during the Contract period, such insurances for such maximum sums as may be required under the Applicable Laws, and such insurances as may be necessary or prudent in accordance with Good Industry Practice to cover third party claims, theft, accidental damage, vandalism, fire, flood, and Force Majeure events.

5.12. Force Majeure

- 5.12.1. Neither party shall be responsible to the other for any delay or failure in performance of its obligations due to any occurrence of a Force Majeure event which is beyond the control of any of the Parties, including, but without limited to, fire, flood, explosion, acts of God or any governmental body, public disorder, riots, embargoes, or strikes, acts of military authority, epidemics, pandemics, strikes, lockouts or other labour disputes, insurrections, civil commotion, war, enemy actions.

- 5.12.2. If a Force Majeure arises, the Successful bidder shall promptly notify IHMCL in writing of such condition and the cause thereof. Unless otherwise directed by IHMCL, the Successful bidder shall continue to perform his obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event. The Parties shall be excused from performance of their respective obligations in whole or part as long as such Force Majeure event continues to prevent or delay such performance by the Parties. However, in case such Force Majeure event lasts for a continuous period of 60 days, either Party may terminate the Contract.

5.13. Indemnification

- 5.13.1. The Successful Bidder shall indemnify, defend, save and hold harmless, IHMCL, NHAI and MoRTH and their officers, employees, servants, and agents (hereinafter referred to as the "IHMCL Indemnified Persons") against any direct loss, damage, claims, cost and expense of whatever kind and nature (including without limitation, legal fees, claims and expenses incurred in connection with any suit, action or proceeding or any claim asserted, as such fees and expenses are incurred), joint or several, that arise out of or are based upon any order passed by any statutory authority including Courts, tribunals or other judicial/quasi-judicial authorities, on account of breach of the Successful Bidder's obligations under this Contract or any other related agreement or otherwise, any fraud or negligence attributable to the Successful bidder or its Agents under contract or tort or on any other ground whatsoever, all eventualities of theft, dacoity, robbery, etc., except to the extent that any such suits, proceedings, actions, demands and claims has arisen due to any breach or default of this Contract on the part of IHMCL Indemnified Persons.
- 5.13.2. The Successful Bidder shall indemnify IHMCL Indemnified Persons from all legal obligations in respect of professionals deployed by the Successful Bidder. IHMCL Indemnified Persons shall also stand absolved of any liability on account of death or injury sustained by the Successful Bidder's workmen, staff/employees during the performance of their work and also for any damages or compensation due to any dispute between the Successful Bidder and its workmen, staff/employees.

- 5.13.3. In addition to the aforesaid, the Successful bidder shall fully indemnify, hold harmless and defend IHMCL Indemnified Persons from and against any and all direct loss, damage, cost and expense of whatever kind and nature (including, without limitation, legal fees and other expenses incurred in connection with any suit, action or proceeding or any claim asserted, as such fees and expenses are incurred), joint or several, that arise out of, or are based upon any demands, claims, suits or proceedings arising out of claims of infringement of any domestic or foreign patent rights, copyrights or other intellectual property, proprietary or confidentiality rights with respect to any materials, information, design or process used by the Successful Bidder or by its Agents in performing the Successful bidder's obligations or in any way incorporated in or related to this Contract. If in any such suit, action, claim or proceedings, a temporary restraint order or preliminary injunction is granted, the Successful bidder shall make every reasonable effort, by giving a bond (of the type and value as required) or otherwise, to secure the revocation or suspension of the injunction or restraint order and continue to perform its obligations hereunder. If the Successful bidder is unable to secure such revocation within a reasonable time, it shall, at its own expense, and without impairing the Specifications and Standards, shall rectify such defaults and shall also be liable for damages to IHMCL for the corresponding loss during the interim period on this account.
- 5.13.4. The provisions of Clause 5.13 shall survive Termination.
- 5.13.5. The remedies provided under Clause 5.13 are not exclusive and shall not limit any rights or remedies that may otherwise be available to IHMCL Indemnified Persons at law or in equity.

5.14. **Termination**

- 5.14.1. **ON EXPIRY OF THE CONTRACT:** Subject to the condition mentioned under Clause Contract Period 5.10, the Agreement shall be deemed to have been automatically terminated on the expiry of the Contract Period unless IHMCL has exercised its option to further renew the Contract Period in accordance with the provisions, if any, of the Contract.
- 5.14.2. **ON ACCOUNT OF FORCE MAJEURE:** Either Party shall have the right to terminate the Contract on account of Force Majeure, as set forth in Clause 5.12.
- 5.14.3. **ON BREACH OF CONTRACT:** IHMCL may terminate the Contract if the Successful bidder causes a **Fundamental Breach** of the Contract. **Fundamental Breach** of Contract includes, but shall not be limited to, the following:
- a) The Successful bidder fails to carry out any obligation under the Contract.
 - b) The Successful bidder submits the IHMCL a statement which has a material effect on the rights, obligations, or interests of the IHMCL and which the Successful Bidder knows to be false.
 - c) The Successful bidder without reasonable excuse fails to commence the work in accordance with relevant clauses.
 - d) Has failed to furnish the required securities or extension thereof in terms of the Contract.
 - e) The Successful bidder stops work and the stoppage has not been authorized by IHMCL;
 - f) The Successful bidder at any time during the term of the Contract becomes insolvent or winds up its business or makes a voluntary assignment of its assets for the benefit of its creditors.

- g) If the Successful bidder, in the judgment of the Employer, has engaged in the corrupt or fraudulent practice in competing for or in executing the Contract.
- h) Repeated occurrence of any SLA parameter as mentioned in Section 6.5 of this RFP.
- i) ON BREACH OF CONTRACT: Notwithstanding anything stated in this Agreement, in the event that any of the defaults ("Fundamental Breach") specified below shall have occurred, IHMCL shall provide a 30 days' notice period to the Successful Bidder [hereinafter referred to as "Cure Period Notice").
- j) If the Successful Bidder fails to cure the default within the Cure Period, the Successful Bidder shall be deemed to be in default of this Agreement [the "MSP's Default"), unless the default has occurred solely as due to Force Majeure or for reasons not attributable to the Successful Bidder. The Cure Period under this Clause shall be calculated from the date of issuance of the notice to the Successful Bidder or when the default comes into the knowledge of the Service Provider, whichever is earlier.

5.14.4. The Successful bidder sub-contracts any assignment under this Agreement without written approval of IHMCL.

5.14.5. Any other fundamental breaches as specified in the RFP.

5.14.6. Notwithstanding the above, IHMCL may terminate the Contract in its sole discretion by giving 30 days prior notice without assigning any reason. In the event of such a termination, compensation to the successful bidder shall be calculated based on the Termination Payment clause.

5.14.7. Upon Termination (except on account of expiry of Term of this Agreement, Force Majeure or under clause 5.14.6 above), IHMCL shall be entitled at the sole discretion to:

- a) appropriate the entire Performance Security or part thereof as Damages; and
- b) Debar/Blacklist the Successful bidder from participating in any other project/assignment/work of IHMCL for a period as determined by IHMCL in its sole discretion.

5.14.8. Without prejudice to any other rights or remedies which IHMCL may have under this Agreement, upon occurrence of MSP's Default, IHMCL shall be entitled to terminate this Agreement by issuing a Termination Notice to the MSP; provided that before issuing the Termination Notice, the IHMCL shall by a notice inform the MSP of its intention to issue such Termination Notice and grant 15 (fifteen) days to the MSP to make a representation, and may after the expiry of such 15 (fifteen) days, whether or not it is in receipt of such representation, issue the Termination Notice.

5.15. Appropriation of Performance Security

5.15.1. Upon failure of the Successful bidder to commence the services, for any reason whatsoever, within the period set forth in this Contract or the extended period thereunder, IHMCL shall, without prejudice to its other rights and remedies hereunder or in law, be entitled to levy Damages as per Clause 5.9 hereinabove.

- 5.15.2. IHMCL shall, without prejudice to its other rights and remedies hereunder or in law, be entitled to en-cash and appropriate the relevant amounts from the Performance Security as Damages or any other amounts payable to IHMCL under this Contract as and when such Damages or other amounts become due and payable. Upon such encashment and appropriation from the Performance Security, the Successful bidder shall, within 10 days thereof, replenish, in case of partial appropriation, to its original level of the amount guaranteed under the Performance Security, and in case of appropriation of the entire Performance Security, provide a fresh Performance Security, as the case may be failing which IHMCL shall be entitled to terminate this Agreement in accordance with clause 5.14 hereof.

5.16. Change Control Note (CCN)

- 5.16.1. This applies to and describes the procedure to be followed in the event of any proposed change to contract, site Implementation, and Service levels. Such change shall include, but shall not be limited to, changes in the scope of services provided by MSP and changes to the terms of payment.
- 5.16.2. Change requests in respect of the contract, the site implementation, or the Service levels shall emanate from the Parties' representative who shall be responsible for obtaining approval for the change and who shall act as its sponsor throughout the Change Control Process and shall complete Part A of the CCN (Annexure 18). CCNs shall be presented to the other Party's representative who shall acknowledge receipt by signature of the authorized representative of the Purchaser.
- 5.16.3. MSP and Authority while preparing the CCN, shall consider the change in the context of whether the change is beyond the scope of Services including ancillary and concomitant services required
- 5.16.4. The CCN shall be applicable for the items which are beyond the stated/implied scope of work as per the RFP document.

5.17. Insurance

5.17.1. Insurance during the Contract Period

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

- (a) Hardware delivered and installed to the extent possible at the replacement value with IHMCL as beneficiary.
- (b) MSP's all risk insurance with IHMCL as co-beneficiary;
- (c) Comprehensive third party liability insurance with the IHMCL as co-beneficiary;
- (d) Workmen's compensation insurance with the IHMCL as co-beneficiary;
- (e) Any other insurance that may be necessary to protect the MSP, its employees and the Project against loss, damage or destruction at replacement value including all Force Majeure Events that are insurable and not otherwise covered in items (a) to (d) with IHMCL as beneficiary/co-beneficiary;

5.17.2. Evidence of Insurance Cover

- (a) The MSP shall, from time to time, provide to IHMCL copies of all insurance policies (or appropriate endorsements, certifications or other satisfactory evidence of insurance) obtained by it in accordance with Contract Agreement.
- (b) If MSP shall fail to effect and keep in force the insurance for which it is responsible pursuant hereto, IHMCL shall have the option to take or keep in force any such insurance, and pay such premium and recover all costs thereof from Service Provider or to forfeit deposit/ Performance guarantee from the MSP and pay or restoration for the same.

5.17.3. Application of Insurance Proceeds

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

5.17.4. Validity of Insurance Cover

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

5.18. **Miscellaneous**

5.18.1. Standard of Performance

- 5.18.2. The Successful bidder shall undertake to perform the services with the highest standards of professional and ethical competence and integrity which are, amongst others, ESSENCE of this assignment. Keeping in view the sensitivity involved in such assignments, the personnel deployed should maintain confidentiality/integrity at all times and should work in a professional manner to protect the interest of IHMCL. The firm shall promptly replace any personnel deployed under this contract that IHMCL considered unsatisfactory.

5.18.3. Representations and Warranties of the Parties

- a) The Parties represents and warrants to the each other that:

- i. it is duly organized and validly existing under the applicable laws, and has full power and authority to execute and perform its obligations under this Contract and to carry out the Scope of Work/transactions contemplated herein this Contract and nothing material has been concealed by the Successful bidder;
- ii. it has taken all necessary corporate and other actions under applicable laws to authorize the execution and delivery of this Contract and to validly exercise its rights and perform its obligations under this Contract;
- iii. this Contract constitutes its legal, valid and binding obligation, enforceable against it in accordance with the terms hereof, and its obligations under this Contract will be legally valid, binding and enforceable obligations against it in accordance with the terms hereof;
- iv. the information furnished in the Bid and as updated on or before the date of this Contract is true and accurate in all respects as on the date of this Contract;
- v. the execution, delivery and performance of this Contract will not conflict with, result in the breach of, constitute a default under, or accelerate performance required by any of the terms of its Memorandum and Articles of Association [or those of any member of the Consortium] or any Applicable Laws or any covenant, contract, agreement, arrangement, understanding, decree or order to which it is a party or by which it or any of its properties or assets is bound or affected;
- vi. there are no actions, suits, proceedings, or investigations pending or, to its knowledge, threatened against it at law or in equity before any court or before any other judicial, quasi-judicial or other authority, the outcome of which may result in the breach of this Contract or which individually or in the aggregate may result in any material impairment of its ability to perform any of its obligations under this Contract;

5.18.4. Waiver of immunity

a) Each Party unconditionally and irrevocably:

- i. agrees that the execution, delivery and performance by it of this Contract constitute commercial acts done and performed for commercial purpose;
- ii. agrees that, should any proceedings be brought against it or its assets, property or revenues in any jurisdiction in relation to this Contract or any transaction contemplated by this Contract, no immunity (whether by reason of sovereignty or otherwise) from such proceedings shall be claimed by or on behalf of the Party with respect to its assets;)
- iii. waives any right of immunity which it or its assets, property or revenues now has, may acquire in the future or which may be attributed to it in any jurisdiction; and
- iv. consents generally in respect of the enforcement of any judgment or award against it in any such proceedings to the giving of any relief or the issue of any process in any jurisdiction in connection with such proceedings (including the making, enforcement or execution against it or in respect of any assets, property or revenues whatsoever irrespective of their use or intended use of any order or judgment that may be made or given in connection therewith).

5.18.5. Waiver

- a) Waiver, including partial or conditional waiver, by either Party of any default by the other Party in the observance and performance of any provision of or obligations under this Contract:
 - i. shall not operate or be construed as a waiver of any other or subsequent default hereof or of other provisions of or obligations under this Contract;
 - ii. shall not be effective unless it is in writing and executed by a duly authorized representative of the Party; and
 - iii. shall not affect the validity or enforceability of this Contract in any manner.
- b) Neither the failure by either Party to insist on any occasion upon the performance of the terms, conditions and provisions of this Contract or any obligation there under nor time or other indulgence granted by a Party to the other Party shall be treated or deemed as waiver of such breach or acceptance of any variation or the relinquishment of any such right hereunder.

5.18.6. Liability for review of Documents

- a) Except to the extent expressly provided in this Contract:
 - i. no review, comment or approval by IHMCL, any document submitted by the Successful bidder nor any observation or inspection of the Services performed by the Successful bidder nor the failure to review, approve, comment, observe or inspect hereunder shall relieve or absolve the Successful bidder from its obligations, duties and liabilities under this Contract, the Applicable Laws and applicable permits; and
 - ii. IHMCL shall not be liable to the Successful bidder by reason of any review, comment, approval, observation or inspection referred to in Sub-clause (a) above.

5.18.7. Exclusion of implied warranties etc.

5.18.8. This Contract expressly excludes any warranty, condition or other undertaking implied at law or by custom or otherwise arising out of any other agreement between the Parties or any representation by either Party not contained in a binding legal agreement executed by both Parties.

5.18.9. Survival

- a) Termination shall:
 - i. not relieve the Successful bidder or IHMCL, as the case may be, of any obligations hereunder which expressly or by implication survive Termination hereof; and
 - ii. except as otherwise provided in any provision of this Contract expressly limiting the liability of either Party, not relieve either Party of any obligations or liabilities for loss or damage to the other Party arising out of or caused by acts or omissions of such Party prior to the effectiveness of such Termination or arising out of such Termination.
- b) All obligations surviving Termination shall only survive for a period of 3 (three) years following the date of such Termination.

5.18.10. Entire Agreement

This Contract, the RFP and the Sections hereto together constitute a complete and exclusive statement of the terms of the agreement between the Parties on the subject hereof and no amendment or modification hereto shall be valid and effective unless such modification or amendment is agreed to in writing by the Parties and duly executed by persons especially empowered in this behalf by the respective Parties. All prior written or oral understandings, offers or other communications of every kind pertaining to this Contract are abrogated and withdrawn. For the avoidance of doubt, the Parties hereto agree that any obligations of the Successful bidder arising from the Request for Proposals shall be deemed to form part of this Contract and treated as such.

5.18.11. Severability

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

5.18.12. No partnership

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

5.18.13. Third parties

This Contract is intended solely for the benefit of the Parties and their respective successors and permitted assigns and nothing in this Contract shall be construed to create any duty to, standard of care with reference to, or any liability to, any person not a Party to this Contract.

5.18.14. Successors and assigns

This Contract shall be binding upon and inure to the benefit of the Parties and their respective successors and permitted assigns.

5.18.15. Dispute resolution procedure

- i. Any dispute, difference or controversy of whatever nature howsoever arising under or out of or in relation to this Agreement (including its interpretation) between the Parties, and so notified in writing by either Party to the other Party (the “**Dispute**”) shall, in the first instance, be attempted to be resolved amicably .

- ii. The Parties agree to use their best efforts for resolving all Disputes arising under or in respect of this Agreement promptly, equitably and in good faith. In the first instance, the Dispute shall be referred to the Chairman of the IHMCL and the Chairman of the Board of Directors (or equivalent) of the Successful Bidder or their nominees for amicable settlement, and upon such reference, the said persons shall meet no later than 7 (seven) business days from the date of reference to discuss and attempt to amicably resolve the Dispute. If such meeting does not take place within the 7 (seven) business day period or the Dispute is not amicably settled within 15 (fifteen) days of the meeting or such longer period as may be mutually agreed by the Parties, either Party may refer the Dispute to arbitration.
- iii. Any Dispute which is not resolved amicably shall be finally settled by arbitration to be conducted in accordance with the rules of arbitration of the Society For Affordable Redressal Of Disputes (SAROD).
- iv. The venue of such arbitration shall be Delhi.
- v. The rights and obligations of the Parties shall remain in full force and effect, pending the Award in any arbitration proceedings hereunder. The parties unconditionally acknowledge and agree that notwithstanding any dispute between them, each Party shall proceed with the performance of its respective obligations, pending resolution of Dispute in accordance with the procedure agreed herein.

5.18.16. Compensation for Breach

a) Compensation for default by the Successful Bidder

- i. In the event of the Successful Bidder being in breach of this Contract, unless such default or delay is on account of Force Majeure, the Selected Bidder shall pay to IHMCL, by way of compensation, all direct costs suffered or incurred by the IHMCL as a consequence of such breach, within 30 days of receipt of the demand from the IHMCL.
- ii. Without limiting generality of the Clause 5.18.16 (i), the Successful Bidder shall pay to IHMCL by way of compensation, all direct costs suffered or incurred by IHMCL incurred as a result of any and all losses, claims, damages and liabilities (including, without limitation, legal fees and other expenses incurred in connection with any suit, action or proceeding or any claim asserted, as such fees and expenses are incurred), joint or several, that arise out of , or based upon:
 - a) any untrue statement or misrepresentation of a material fact provided by the Successful Bidder or an omission to state a material fact required to be communicated.
 - b) any non-performance or breach of the roles, responsibilities, representations, warranties, undertakings, and declarations contained herein by the Successful Bidder or its directors, employees, personnel or representatives, as the case may be.
 - c) Negligence, fraud or misconduct of the Successful Bidder or any of its employees, agents, affiliates or advisors.

5.18.17. Limitation of Liability

- 5.18.17.1. The Successful Bidder's liability under this Contract shall be determined as per Applicable law. The Successful Bidder shall be liable to IHMCL for loss or damage occurred or caused or likely to occur on account of any act of omission on the part of the Successful Bidder its affiliates, subsidiaries, stockholders, subcontractors, suppliers, directors, officers, employees, assigns and agents, including loss caused to IHMCL on account of defect in goods or deficiency in services on the part of Successful Bidder or his agents or any person / persons claiming through or under said Successful Bidder.
- 5.18.17.2. Notwithstanding anything stated herein above, the liability for MSP shall NOT exceed ten times the value of Performance Bank Guarantee amount.
- 5.18.17.3. This limitation of liability shall not affect MSP's liability, if any, for direct loss or damage to Third Parties caused by MSP or any person or company acting on behalf of MSP in carrying out the Services. The MSP is advised to take necessary measures, such as insurance, etc. to cover any direct loss or damages to third party impacted by the services of MSP.

5.18.18. Intellectual Property Rights

The Successful Bidder agrees that work done by the Successful Bidder including but not limited to all information, reports, studies, flow charts, diagrams, drawings, technical specifications, estimates, design calculations, patents, trademarks, service marks, logos, get-up, trade names, internet domain names, blue prints, copyrights and other intangible and tangible material of any nature whatsoever produced by or as a result of any of the Services rendered by the Successful Bidder shall be the sole and exclusive property of the IHMCL. In furtherance thereof, the Successful Bidder agrees to grant, assign, transfer to IHMCL all rights, title and interest of any kind, in and to any work produced out of the Services rendered hereunder. The Successful Bidder shall not be entitled to make use of any of the work produced by the Successful Bidder while rendering Services in terms of this Contract save and except as may be expressly permitted in writing by IHMCL or as provided herein.

5.18.19. Notices

- a) Any notice or other communication to be given by any Party to the other Party under or in connection with the matters contemplated by this Contract shall be in writing and shall:
- i. in the case of the Successful bidder, be given by facsimile or e-mail and by letter delivered by hand to the address given and marked for attention of the person set out below or to such other person as the Successful bidder may from time to time designate by notice to IHMCL; provided that notices or other communications to be given to an address outside Delhi may, if they are subsequently confirmed by sending a copy thereof by registered acknowledgement due, air mail or by courier, be sent by facsimile or e-mail to the number as the Successful bidder may from time to time designate by notice to IHMCL;

- ii. in the case of IHMCL, be given by facsimile or e-mail and by letter delivered by hand and be addressed to the [•] of IHMCL with a copy delivered to IHMCL Representative or such other person as IHMCL may from time to time designate by notice to the Successful bidder; provided that if the Successful bidder does not have an office in Delhi it may send such notice by facsimile or e-mail and by registered acknowledgement due, air mail or by courier; and
- iii. any notice or communication by a Party to the other Party given in accordance herewith shall be deemed to have been delivered when in the normal course of post it ought to have been delivered and in all other cases, it shall be deemed to have been delivered on the actual date and time of delivery; provided that in the case of facsimile or e-mail, it shall be deemed to have been delivered on the working day following the date of its delivery

5.18.20. Sub-Contracting

5.18.20.1. The Successful bidder shall not sub-contract any assignment (excluding minimum permissible civil work with written intimation to IHMCL) to a third party.

5.18.20.2. However, following non-core activities may be sub-contracted with written intimation to IHMCL: -

- Minimum permissible civil & site preparation work.
- Deployment of manpower at toll plaza to operate the ETC system
- L3 & L4 support of equipment from OEMs

5.18.20.3. However, successful bidder shall remain solely responsible for all sub-contracted works under this Agreement.

5.18.21. Confidentiality of the Assignment/Findings

The Successful Bidder shall not, during the term of assignment and within two years after its expiration, disclose any propriety or confidential information relating to the services, this assignment or IHMCL's business or operations without prior written consent of IHMCL.

5.18.22. Modification

Modification of the terms and conditions of this Contract, including any modification of the scope of the Services, may only be made by written agreement between the Parties as the case may be, has been obtained.

5.18.23. Language

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

6. Terms of Reference

6.1. Project Background

- 6.1.1. Phase I of Nation-wide Electronic Toll Collection (NETC) Program was launched in 2014 with ICICI bank operating at approx. 340 NH fee plazas. Subsequently, in phase II, in order to enable inter-operability, Multiple-Issuer-Multiple-Acquirer model was adopted in December 2016. In phase II, National Payments Corporation of India (NPCI) is functioning as the Central Clearing House (CCH). Currently, 27 banks (including Public and Private sector banks) are certified as issuer Banks to issue FASTag to road users and 10 acquirer banks are certified to process transactions at fee plazas.
- 6.1.2. NPCI has been engaged by IHMCL to provide Clearing & Settlement House services for NETC programme since 2016. As in August 2020, over 1,83,61,390 no. of FASTags have been issued by various banks. The cumulative number of FASTag transactions successfully processed till date is 12,718.52 Lakhs and the cumulative toll collection via FASTag is Rs. 26,488.52 Cr.
- 6.1.3. Since inception of the FASTag Programme, NPCI has been maintaining the ETC Global Clearing & Settlement System (EGCS) and NETC Mapper which comprise all the FASTag transaction details settled/processed daily and FASTag Vehicle tag details.
- 6.1.4. As on date, more than 700 toll plazas are live on FASTag programme which includes toll plazas along NH, NH and MoRTH toll plazas.
- 6.1.5. The Electronic Toll Collection (ETC) infrastructure comprising ETC readers, TMS software, Servers, Internet connectivity, WIM, etc. at user fee plazas are supplied, installed, tested, commissioning and managed by different System Integrators (SI) across over 590 NH fee plazas.
- 6.1.6. A system Integrator (SI) is an important stakeholder in NETC programme, and some operational roles of System Integrators are as follows: -
- Capturing and processing ETC (FASTag) transactions and other mode of transactions through ETC system
 - Capture violation transactions and wrong class transaction with picture image
 - Facilitate toll collection agency with automation of transaction processing, revenue settlement, minimizing fraud transaction etc.
 - Installation, Commissioning and Integration of ETC equipment's in Fee Plaza
- 6.1.7. In present ecosystem, SI is managing the ETC equipment at fee plazas and the payment terms in the Contract Agreement does not provision for any incentive of SI to improve the functioning or performance of ETC ecosystem at plaza. As on date, over 15 different System Integrators have been engaged by different entities such as NHAI, IHMCL, Concessionaire etc. to provide services.

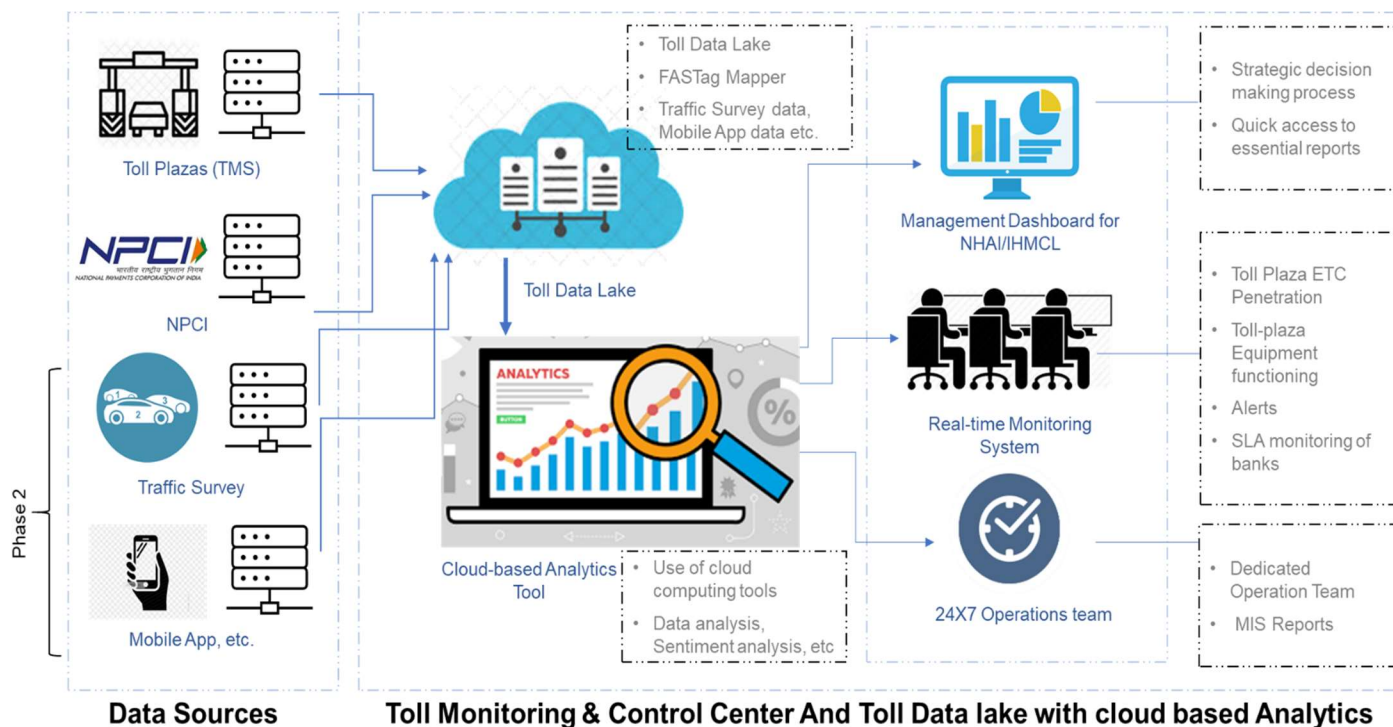
6.2. Scope Overview

6.2.1. Architecture of Toll Monitoring & Control Center (TMCC)

The key features of the proposed TMCC shall is as below –

- **Toll Data lake** – shall set up **enterprise data consolidation** and serve as the repository for all data related to toll collection, FASTag mapper, TMS data from toll plazas, etc. In phase 2, the storage can be extended to Traffic Survey data, Mobile App, TIS etc.
- **Cloud-based data analytics tool** – shall provide applications/tools to process and carry out various analyses of high-volume data by using cloud computing tools.
- **Central Real-time monitoring system** –shall capture the real-time data feeds from various toll plazas, NETC System and assist in time remote monitoring of toll collection and health status of critical equipment at fee plazas.
- **Management Dashboard** – shall provide instant access to critical as well as consolidated data to NHAI/IHMCL for efficient decision making and directions.
- **24X7 Operations team** – shall be staffed with adequate manpower to keep a close watch on the performance of toll plazas and prepare various MIS reports.

A broad architecture of TMCC is presented in the figure below –



IHMCL is looking for the following objectives to be derived by opting for Cloud Services for managing Toll Monitoring & Control Center (TMCC). Following are some key objectives:

- Successful migration of all on-Premises/other public cloud data/applications over to Cloud
- Achieving Higher Availability (uptime of 99.99%)

- iii. Cost Optimization: Aggregation of IT infrastructure (Hardware, Storage and Networking) and management resources at reduced price.
- iv. Optimal utilization of resources to meet individual peak loads
- v. Higher Security
- vi. Standardization of systems: Auto-scalability, Faster implementation cycle time and Stable and predictable physical and technical environment
- vii. Reduced administrative burden for IHMCL by avoiding necessity of procurement, vendor management etc.
- viii. Cost based on actual usage, thus leading to reduced cost of infrastructure creation, monitoring, management for IHMCL
- ix. Efficient and effective management of information security issues across cloud environment.

6.2.2. Detailed Scope of Work

6.2.2.1. Data Lake for Toll data and other project data

IHMCL intends to onboard an MSP for providing Cloud Services for the entire project duration. The project envisages to **acquire** electronic toll collection data from NPCI and all toll plazas and build & constantly update **central toll data repository** with IHMCL/NHAI on daily basis. There shall be a mechanism to **enable data replication** (near real-time or batch) from NPCI to IHMCL/NHAI as well as toll plazas.

In addition to toll data **other data sets** like traffic survey, mobile App data etc. can be managed in central data repository.

- a) The MSP shall provide cloud services to store all data pertaining to Toll data collection, from various Toll plazas and NPCI Data Center in 1st Phase. In 2nd phase, other project data such as Traffic Survey, My FASTag App, etc. shall also be required to be stored as per requirement of IHMCL.

The estimated data size is provided as below –

Project Data	Estimated data size
NPCI – Overall DB size Production + Archival (ETC transaction data since inception, NETC Mapper data vehicle/FASTag details data, etc. as on bid release date)	3.08 TB
Incremental size of DB per day	6 GB (Can increase based on the volume)
Average data size per day per plaza, including the following – <ul style="list-style-type: none"> • Toll Transaction Size • Equipment health status per equipment (per minute) record • Event details (per 5 minutes) record As on Aug 2020, there are 594 NH Toll plazas.	28 MB per toll plaza
Traffic Survey Project data	1.5 TB
Incremental size of data for Traffic Survey per day	200 MB
Other project (Mobile app, etc.) – Lumpsum	0.5 TB

- b) The MSP shall be responsible for provisioning the underlying system software, infrastructure, bandwidth, and cloud services for deployment/migration, and hosting of the applications. While the minimum required compute, storage is provided in the RFP, it is expected that compute, storage, and bandwidth requirements may be auto-scaled (additional capacity based on the demand and auto-scaling rules) over the period of the contract. The application must be architected and designed to leverage the cloud characteristics such as rapid elasticity and handle transient and hardware failures without downtime.
- c) The MSP will be responsible for adequately sizing the necessary compute, memory, and storage required, building the redundancy into the architecture (including storage) and load balancing to meet the service levels mentioned in the RFP. While the initial sizing & provisioning of the underlying infrastructure (including the system software and bandwidth) may be carried out for the first year; subsequently, it is expected that the MSP, based on the growth in the user load (peak and non-peak periods; year-on-year increase), will scale up or scale down the compute, memory, storage, and bandwidth requirements to support the scalability and performance requirements of the solution and meet the SLAs.
- d) The DR needs to be provisioned in cloud as well, meeting all the service requirements as per defined parameters for RTO and RPO. In case of failure, automated processes should move customer data traffic away from the affected area. Applications should be deployed in such a way that that in the event of a data centre failure, there is sufficient capacity to enable traffic to be load balanced to the remaining sites. The Cloud Service Provider should provide adequate bandwidth between the Data Centre Facilities to provide business continuity.
- e) The MSP shall be responsible for provisioning of adequate Internet Bandwidth and connectivity to fetch data from NPCI through leased line connectivity.
- f) The Cloud infrastructure and IHMCL data must be maintained ONLY at the location of the identified Cloud hosting site. Data can only be moved to other site in case of any emergency with prior approval of IHMCL. IHMCL data shall be not be shared with any other entity or entities without prior written approval from IHMCL.

g) Maintenance & Support of implemented Cloud

The MSP shall be responsible for providing 24*7*365 days support for IHMCL Cloud infrastructure from the Date of Go-Live / Operational Acceptance for entire duration of the Contract.

The maintenance and support will include following activities -

- i. Compliance process to the defined international standards and security guidelines such as ISO 27001, ISO 20000:1, for maintaining operations of cloud and ensuring privacy of IHMCL data.
- ii. Ensuring Uptime and utilization of the cloud resources as per SLA's defined in this RFP.
- iii. In the event of a disaster at DC site, activation of services from the DR site is the responsibility of Bidder. The MSP shall develop appropriate policy, checklists in line with ISO 27001 & ISO 20000 framework for failover. The bidder needs to ensure that the data is replicated in 2 different seismic zones and in case of failure, bidder should be able to restore the complete system in another data center.

- iv. The MSP shall conduct vulnerability and penetration test (from a third-party testing agency which may be CERT-IN empaneled) on the Cloud facility every year and reports should be shared with IHMCL. The MSP needs to update the system in response to any adverse findings in the report, without any additional cost to IHMCL.
- v. Upgrades - Any required version/Software /Hardware upgrades, patch management etc. at the Cloud Site will be supported by the MSP for the entire contract period at no extra cost to IHMCL.
- vi. Bidder is required to provision additional VM's when the utilization exceeds 80%. This shall be rule based in auto scaling mode. System shall be efficient enough to fall back to lowest configuration during the no load durations.
- vii. On expiration / termination of the contract, MSP to handover complete data in the desired format to IHMCL which can be easily accessible and retrievable.

h) Provisioning Cloud services for additional quantities at proposed rate

- i. Based on future requirements, IHMCL may purchase additional quantities of cloud services covered in this RFP.
- ii. The rates offered for cloud services must be valid for entire contract/project duration.
- iii. No variation in these quoted rates shall be allowed during this period.
- iv. IHMCL will have liberty to order additional cloud service items, at the rates offered in the commercial bid.
- v. IHMCL reserves the right to scale down and scale up the IT infrastructure. The payment would be made only on the actual usage of the IT infrastructure as per the rates provided by the Bidder in their Commercials.

6.2.2.2. Business Intelligence & Data Analytics Tool

- a) The MSP shall provide user licenses/subscriptions/analytics platform for Business Intelligence & Data Analytics Tool for analysing the data from the Data lake in order to build data insight analytical platform to understand toll data new data insights.
- b) Installation and configuration of the tool on the Cloud. This includes installation and configuration of any software, hardware or other components that are required for the functioning of the tool.
- c) Setting up of Admin-user and End-User accounts., as required. The number of user should be scalable upto 500 users (both end users and creators).
- d) Tool usage training for 4-5 people for Admin-users at IHMCL premises for initial period of 3 months.
- e) MIS Reports - Bidder shall submit the reports on a regular basis in a mutually decided format. The Bidder shall workout the formats for the MIS reports and get these approved by the IHMCL after awarded the contract.
- f) The Bidder shall provide a full-time onsite support of a BI Expert (of at least 5 years' experience in BI and Data analysis) at IHMCL office premises to assist in using the BI tool as per requirement of IHMCL throughout the contract period.

6.2.2.3. Real-time Monitoring System

- a) Among the key responsibilities of the MSP is the real-time monitoring of the following target systems.
- i. Toll Management systems (TMS)
 - ii. NPCI NETC system including the EGCS
 - a. NETC Mapper
 - iii. Traffic Survey systems
 - iv. IHMCL/ NHAH Mobile Apps
 - v. Any other relevant system identified by IHMCL

In Phase 1, real-time monitoring of 700 TMS systems(deployed by various System Integrators), the NPCI NETC system (incl. EGCS) and the NETC Mapper shall be implemented.

b) Development & deployment of Real time monitoring software application

- i. MSP shall develop the software application to fetch all the requisite toll-related data from various TMS deployed at toll plazas on a near-real time basis. For this purpose, the MSP shall provide a requirement document for data sharing through API and co-ordinate with various System Integrators for necessary integration.
 - ii. The software application shall provide the uptime and health status of critical equipment installed at toll plazas for each lane. Critical equipment/items are RFID reader, AVCC, camera, Lane controller, boom barrier, TMS software and server.
- c) The MSP's personnel at the TMCC shall perform the following broad roles related to real-time monitoring
- i. Monitoring 24 X 7 the TMS systems' performance by promptly responding to the above events and warnings including
 - a. Acknowledging the warning / alarm on the TMCC workstation related to TMS performance, TMS events, TMS equipment health status, TMS connectivity and NETC system (incl EGCS and the Mapper) status and connectivity.
 - b. Contacting the corresponding toll plaza on a dedicated audio communication link to inform and enquire about the above warning / status as well as promptly obtain the missed data records via a re-transmission process. A similar action shall be taken with respect to any such issues detected with respect to the NPCI NETC system and the Mapper
 - c. Logging the above actions on the TMCC workstation
 - ii. Generating reports related to Toll Plaza and NETC system performance including results of Data analytics
 - iii. Implementing any other workflow as required by IHMCL

The detailed requirements of the Real-time Monitoring software with respect to real-time monitoring are provided in the Section 8.3 of the RFP.

6.2.2.4. **Setting up of Control Center Infrastructure**

- a) The Control Center shall be housed within IHMCL/NHAI HQ office premises or any other location as finalised by IHMCL. The exact site location shall be provided during the project implementation phase. The Control Center shall have at least 10 workstations with a video wall viewing facility in the initial phase, depending on the future requirements of IHMCL/NHAI the number/quantity may be increased.
- b) The MSP shall design, supply, install and maintain Control Centre comprising of following, but not limited to:
 - (i) Video Wall & controller system
 - (ii) Monitoring Workstations with 3 Monitors for TCC with UPS
 - (iii) Network Printers (MFC) and Local Printer
 - (iv) Networking equipments such as LAN Switch -48 Ports and cables etc.
- c) The MSP shall provide the required infrastructure as provided in Annexure-13 (Indicative Bill of Material)
- d) The works will include Design, Supply, Installation, Testing, Commissioning, Configuration, System Integration, Operations and Maintenance, including Annual Maintenance Cost of Control Centre at location provided by IHMCL.
- e) The MSP shall be responsible for supplying the application and licenses of related software products and installing the same so as to meet Control Centre requirements.
- f) The MSP will design, supply, install and commission following: -
 - The network and backbone connectivity for Control Centre.
 - Infrastructure including Hardware and Application Software at Control Centre.
- g) The MSP shall arrange to provide necessary furniture, chair, cooling arrangement etc. at Control Centre. The cost for utility bill payment and fuel cost of DG as required shall be borne by IHMCL, however, MSP shall be responsible for recurring charges related with refilling of printer cartridges, repair, and replacement of all Control Centre equipments etc.
- h) The equipment at Control Center shall use the locally available mains power supply (from the electricity utility) as the primary source. The existing UPS power at location shall be made available.
- i) IHMCL may get the audit done through a third party appointed by it to ascertain adherence to the terms and conditions as well as compliance to Service Level Agreement Conditions. The MSP shall provide full access to the systems and equipment and ensure successful conduct of audit.

- j) The MSP shall take adequate insurance cover for control center IT equipment supplied during the period of service contract, to safeguard against any damage/ theft/ fire/ vandalism or any Force Majeure event, etc.
- k) The MSP shall be required for maintaining uptime of all the software/equipments as defined in SLA.
- l) The MSP shall be required to promptly respond to the alerts, issues generated from the system.
- m) The MSP shall be required to coordinate with NHAI PIU/ Toll Plaza staff for quick resolution of issues.
- n) The MSP shall maintain the system logs, issues and downtime of equipments.
- o) The MSP shall ensure provision of required cooling arrangements, cabling and rodent repellent etc. required for proper functioning of system.
- p) In case IHMCL has not considered any component/service which is necessary for the project requirement, the same needs to be brought by the MSP at no additional cost to IHMCL.

6.2.2.5. Operation team

- a) The MSP shall deploy a team of experienced and skilled professionals with relevant experience during the development and operational phase. The Agency shall deploy resources as below
 - Project Manager – As per criteria defined in Clause 3.21.5
 - BI Analyst - As per criteria defined in Clause 3.21.5
- b) In addition to above resources, the MSP is required to provide suitable manpower of 10-15 personnel as per requirement of IHMCL to monitor the data feeds at TMCC and support IHMCL/NHAI. The number of manpower may be increased or decreased as per requirement of IHMCL.
- c) The exact role of these personnel and their responsibilities would be defined and monitored by IHMCL. The MSP shall be required to provide such manpower meeting following requirements:
 - i. All such manpower shall be minimum graduate pass
 - ii. All such manpower shall be without any criminal background / record.
 - iii. MSP reserves the right to carry out background check of the personnel proposed on the Project for verification of criminal record, at the beginning of deployment or during deployment.
 - iv. MSP shall have to replace any person, if not found suitable for the job.
 - v. All the manpower shall be adequately trained on the working of TMCC.
- d) An indicative list of activities to be carried out by the Operation team is as below –
 - Real-time monitoring of Toll collection data from NPCI and various Toll plazas
 - Monitoring and tracking of SLA of ETC equipment as reported from various TMS data of toll plazas in co-ordination with toll plazas and follow ups on call and email.

- Need based call to toll plazas in case of any prolonged lane down time at a toll plaza
- Preparation and submission of various MIS report as per requirement of IHMCL.

6.2.2.6. **Other**

- a) MSP to ensure that for TMCC staff/team has an identity card etc.
- b) MSP will pay the charges related to Electric Meter (if installed new) and recurring electricity charges. These charges will be then reimbursed by IHMCL.
- c) MSP will implement the attendance system for the attendance of Project team proposed in this document. The MSP will share the attendance report with the IHMCL at the end of the month.
- d) The MSP has to procure Insurance of all TMCC equipment/system during the Contract Period of the project at its own cost to safeguard the equipment/systems from all elements of risk and disruptions.
- e) MSP shall be responsible to file an FIR in nearest Traffic Police Station for any theft or physical damage of product under TMCC Project (including cable & accessories) due to any unforeseen reason. The MSP shall have to submit the copy of FIR to IHMCL within 7 days from the date of filing the FIR.

6.2.2.7. **Project Handover**

The MSP shall provide proper transfer of technology to IHMCL post Contract Period. The MSP shall carry out project hand-over of the system at the end of contractual period along with all documentation required to operate and maintain the system MSP will supply to the IHMCL the following before the expiry of the contract:

- 1) Information relating to the current services rendered and data relating to the performance of the services; Entire documentation relating to various components of the Project, any other data and confidential information related to the Project;
- 2) All other information (including but not limited to documents, records and agreements) relating to the products & services related to the project to enable IHMCL and its nominated agencies, or its replacing MSP to carry out due diligence in order to transition the provision of the Project Services to IHMCL or its nominated agencies, or its replacing MSP (as the case may be).

6.3. **IHMCL's Responsibility**

- a) IHMCL shall observe, undertake, comply with and perform, in addition to and not in derogation of its obligations elsewhere set out in this Agreement, the obligations set forth in this Article:
- b) To release payments to MSP in accordance with the Agreement
- c) To reasonably cooperate with the MSP to enable it to render its services in terms of the Agreement.

- d) IHMCL shall facilitate in co-ordination with concerned Nodal Officer, NHAI of toll plazas to ensure smooth hand over of fee plazas from existing service provider to the Successful Bidder.

6.4. Successful bidder's Responsibility

The Successful bidder shall observe, undertake, comply with and perform, in addition to and not in derogation of its obligations elsewhere set out in this Agreement, the obligations set forth in this clause:

- a) To perform the Scope of Work as set out in Section 6, for Operation & Maintenance of ETC system at the allocated fee plazas;
- b) To be responsible for compliance with Applicable Laws;
- c) To procure, as required, the appropriate proprietary rights, licenses, agreements and permissions for, inter alia, materials, methods, processes, software, operating systems, designs, trademarks, documents and systems used or incorporated into the ETC system.
- d) To provide Performance Security in the form of Bank Guarantee to IHMCL, in accordance with relevant section of RFP;
- e) To carry out its obligations hereunder with all due diligence, efficiency and economy, in accordance with generally accepted professional techniques and practices, and to observe sound management practices, and employ appropriate advanced technology and safe and effective equipment, machinery, materials and methods;
- f) To keep sufficient accessories, spares, parts, etc., while discharging Scope of Work;
- g) To provide onsite support for the complete system;
- h) To provide necessary information and reports including those pertaining to problems relating to HETC System to IHMCL and the entities authorized by IHMCL;
- i) To be responsible and liable for the security of the overall HETC System as mentioned in RFP while the same are in possession and/or custody of successful bidder for repair and maintenance. The MSP shall bear the costs of repair or replacement of all HETC System in such cases;
- j) To reasonably cooperate with IHMCL and other stakeholders concerned in relation to the matters covered under this Agreement; and
- k) To be responsible for safety and security of its equipment and staff;
- l) To deploy adequate number of resources with qualifications and skills commensurate to the job requirement;
- m) To maintain adequate insurance covers to safeguards its interest regarding any loss/damage/theft to its equipment and or personal during conduct of the assignment;
- n) Indemnify IHMCL against any damage/loss of property or personal of the agency during conduct of assignment.
- o) Sign the Non-Disclosure Agreement (NDA) with IHMCL.

6.5. Service Levels (SLA)/ Damages

6.5.1. General

- 6.5.1.1. The MSP shall be responsible for adhering to the minimum SLA standards while performing its Scope of Work, failing which it shall be liable for deduction of penalty/damage from its payment as specified in this RFP. The Successful bidder needs to adhere with SLA as defined below, in case of failure in meeting SLA, penalty shall be imposed as applicable.**
- 6.5.1.2. As the Toll Monitoring & Control Center shall be a 24 X 7 working system, system reliability is of paramount importance. The typical availability requirements (including scheduled maintenance) of the TMCC shall be 99.5% with a scheduled downtime of maximum 10.8 hours over a 3 months' period.**
- 6.5.1.3. As the reliability of the related hardware are clearly known the bidder shall ensure that all strategies, actions in design, development, testing and deployment of the TMCC hardware and software shall ensure the meeting the above availability requirements. Specifically, the bidder shall focus on**
- Error prevention
 - Fault detection and removal
 - Measurements to maximize reliability, specifically measures that support the first two activities
- 6.5.1.4. The SLA will be monitored and penalty / default charges computed on monthly basis.**
- 1) Default Charges for a month will be capped at ten percent (10%) of the total payable amount for the given month.
 - 2) In case, IHMCL so desires, the SLAs may be reviewed on yearly basis and may be amended based on mutual agreement. Till such time, any revision is mutually agreed, the existing SLAs will continue to be in force.
 - 3) SLA will be excluded in case of incidents/instances not attributable to the MSP.
- 6.5.1.5. The MSP has to submit all the reports pertaining to SLA Review process within 7 working days after end of the month.**

6.5.2. Overall Cloud Solution and Application availability

Definition	Availability of Overall Cloud Solution and Application able to perform its intended functions as per scope defined in the RFP.
Service Level Requirement	The average availability of the Field equipment should be at least $\geq 99.95\%$ in a month.
Measurement of Service Level Parameter	$\{[(\text{Actual Uptime} + \text{Scheduled Downtime}) / \text{Total No. of Working Hours in a Month}] \times 100\}$ <p>Per occurrence. This will be calculated monthly</p>
SLA Exclusion	Excludes Scheduled downtime, subject to agreed schedule
Default Charge for non-achievement of Service Level Requirement	<p>If the MSP is not able to meet the above defined service level requirement, then any deviation from the same would attract a default charge as per the following:</p> <ul style="list-style-type: none"> $\geq 99.90\%$ & $< 99.95\%$: 10% of monthly charges of cloud services $\geq 99.75\%$ & $< 99.90\%$: 15% of monthly charges of cloud services $\geq 99.25\%$ & $< 99.75\%$: 20% of monthly charges of cloud services <p>Subsequently, for every 0.5% drop in SLA criteria: 10% of monthly charges of cloud services limited to Overall monthly charges.</p>

6.5.3. Real-time monitoring software (TMCC Application) - Data Acquisition promptness

The data shall be automatically acquired by the TMCC in real time / 'near' real time without a break throughout the Contract period. 'Near' real time shall mean a maximum time gap (between the time stamp when the transaction/ health status/ event was generated in the TMS and the time stamp when it was received at the TMCC backend) of 10 minutes not more than 5 times a day.

Definition	All data shall be promptly acquired by the TMCC from the TMS and NETC systems
Service Level Requirement	The maximum time gap allowed between the time stamp when the transaction/ health status/ event was generated in the TMS and the time stamp when it was received at the TMCC backend can be 10 minutes for maximum 5 times a day.
Measurement of Service Level Parameter	A measuring tool provided by the MSP and approved by IHMCL, shall be used every day to evaluate the above performance. This tool will use the date and time stamps of the TMS transaction/event / health

	status and compare with the date and time stamp at which it was received in the TMCC, to determine the performance of this service level parameter. Measured on a daily basis.
SLA Exclusion	Scheduled Downtime for maintenance, subject to a previously agreed schedule Toll Plaza internet communication has failed completely or it intermittent
Default Charge for non-achievement of Service Level Requirement	Rs 1000/- per day per instance of breach

6.5.4. Data completeness Real-time monitoring software (TMCC Application)

The TMCC system shall acquire all data receivable from all the TMS systems and the NETC system. In case any data record was missed out due to any reasons like communication failure etc, the TMCC shall automatically raise a warning or alarm as described in Section of the RFP, on which the MSP's TMCC operators, after acknowledgement, shall take action to contact the concerned toll plaza and obtain the missing record(s) via re-transmission.

Thus at the end of a day all receivable data shall be available in the TMCC data repository.

Definition	Completeness of Acquired data from TMS and NETC system
Service Level Requirement	100 % of all receivable data should be available in the TMCC database on a daily basis.
Measurement of Service Level Parameter	An appropriate data completeness tool, approved by IHMCL, shall be used by the MSP to demonstrate 100 % data completeness in the TMCC database. The tool shall be executed/run by the MSP every day at around 6.00 AM to evaluate and demonstrate the data completeness of the immediately previous 24 hour period that ended at midnight.
SLA Exclusion	a) Scheduled Downtime for maintenance, subject to a previously agreed schedule b) Toll Plaza internet communication has failed completely
Default Charge for non-achievement of Service Level Requirement	Rs 50/- per each missing data record

6.5.5. Response to Warnings and Alarms

The MSP's operator's shall immediately handle all Warnings / Alarms that are automatically generated by the TMCC system in response to conditions like communication failure, events, equipment health status etc. The broad process for handling Warnings and Alarms is provided in Section 6.2.2.3 of this RFP

Definition	Response to Warnings and Alarms
Service Level Requirement	<ol style="list-style-type: none"> 1. Each Warning / Alarm shall be acknowledged on the Workstation within 10 seconds of its appearance on the respective operator workstation. 2. The respective entities (Toll plaza / NPCI) shall be contacted via the dedicated audio communication link within 5 minutes of the warning / alarm and action shall be taken to obtain the missed record
Measurement of Service Level Parameter	<ol style="list-style-type: none"> 1. Both the generation of warnings / alarms and their acknowledgement by the operator are automatically time-stamped by the TMCC system. 2. The use of the audio communication link is also automatically time-stamped by the TMCC system.
SLA Exclusion	<ol style="list-style-type: none"> 1. Scheduled Downtime for maintenance, subject to a previously agreed schedule
Default Charge for non-achievement of Service Level Requirement	Rs 50/- for every inadequate response with respect to a) Prompt acknowledgement of warnings / alarms and b) Prompt contact of the entity (e.g. Toll plaza) to report the problem and obtain the missing data.

6.5.6. Others

- a) SLA exclusion - Any scheduled and approved preventive maintenance activity by the MSP and has an approval of IHMCL. Such scheduled and approved preventive maintenance activities shall preferably be carried out during night time (11 PM to 5 AM) and shall not exceed two instances in a quarter and each instance shall not exceed 4 hours.
- b) In case IHMCL is of the view that the delay is due to reasons beyond the control of the Successful bidder, suitable extension of time may be granted to the Successful bidder with or without imposing any Damages on such Successful bidder in the absolute discretion of IHMCL.
- c) Damages shall be payable by the Successful bidder within 5 days of imposition thereof by IHMCL, failing which the same shall be deducted from the payments to be made to the Service Successful bidder or from the Performance Security as deemed appropriate by IHMCL.
- d) The Damages payable, as set forth in this Contract, are mutually agreed genuine pre-estimated loss and damage likely to be suffered and incurred by the Party entitled to receive the same and are not by way of penalty (the "Damages").
- e) The decision of Competent Authority of IHMCL will be final and binding in case of the penalty to be imposed upon the bidder.

6.6. Project Timelines

The MSP will be responsible for the implementation of the project within the timelines as indicated in the table below.

SI #	Project Milestones	Timelines
1.	Signing of Contract	T
2.	Submission of Detailed Project Plan document	T + 2 weeks
3.	Real-Time Monitoring System	T₁ = T + 3 months
3.1.	Submission of Software Requirement Specifications (SRS) of TMCC Application	T + 4 weeks
3.2.	Approval of SRS document of Real-time Monitoring software (TMCC Application) by IHMCL	T + 6 weeks
3.3.	Design, Development, Deployment of TMCC applications at Control Center	T + 12 weeks
4.	Integration of TMCC Application and NPCI for data storage and data acquisition	T + 3 months
5.	Integration of TMCC Application with Toll Management Softwares of various Toll Plazas <ul style="list-style-type: none"> First 100 NH fee plazas – within T + 4 months Up to 300 more NH fee plazas – Within T + 5 months All remaining NH fee plazas (approx. 570) – within T + 6 months 	T + 6 months
6.	Setting up of Cloud Infra & configuration of analytic tool	T + 4 months
7.	Setting up of all requisite infra at Control Center as per BOM.	T + 4 months
8.	Commencement of O & M after integration at first 100 toll plazas	T + 4 months

Where “T” is the date of Signing of Contract between IHMCL and MSP.

6.7. Payment Terms & Schedule

S. No.	Scope of Work	Timelines	Payment
1.	i. Setting up of Cloud Infra & configuration of analytic tool ii. Setting up of all requisite infra at Control Center as per BOM iii. Integration of TMCC Application and NPCI for data storage and data acquisition iv. Integration of TMCC Application with Toll Management Softwares of First 100 NH fee plazas	T + 4 Months	100 % of total CAPEX cost of hardware and software items delivered.
2.	Integration of TMCC Application with Toll Management Softwares with remaining number of NH fee plazas	T + 6 months	Pro-rata cost for integration
3.	Operation & Maintenance Charges – Every month	T + 6 months onwards till contract expiry	Monthly O&M charges

6.8. Indicative Bill of Materials

The proposed Indicative Bill of Materials for the Project is as below:

Sl. #	Line Item/Description	Unit	Quantity
A	Cloud Data Lake and BI & Data Analytics Tool		
1.	Dedicated non-shared 2 vCPUs(1 core) (RAM per core as per OEM specs if not a managed service)	Per hour for 2 vCPU	2
2.	Storage for Data warehouse(Geo redundant)	Per GB per month	6000
3.	Analytics platform/service 2 vCPUs(1 core) (RAM per core as per OEM specs if not a managed service)	Per hour for 2 vCPU	2
4.	Compute – Virtual Machine – with 2 vCPU(1 core) RAM 15 GB / Core or more, Intel® Xeon Platinum series 8000 or better with Linux. (Flexibility to make/chose the compute shape of IHMCL choice)	Per hour for 2 vCPU	16
5.	Managed Database – with 2 vCPU(1 core) RAM 15 GB / Core or more, Intel® Xeon Platinum series 8000 or better with Linux. (Flexibility to make/chose the compute shape of IHMCL choice)	Per hour for 2 vCPU	16
6.	Object Storage (Database Backup)	Gigabyte Storage Capacity Per Month	5000
7.	Database Backup-Archive Storage	Gigabyte Storage Capacity Per Month	3000
8.	Block Volume Storage (SSD) with minimum 60 IOPS/GB	Per GB per month	1000

Sl. #	Line Item/Description	Unit	Quantity
9.	Load balancer with minimum 400 Mbps with 10 TB data processing and 50 rules	Per hour	1
10.	Network egress (Out) (<i>Network ingress should be free and unlimited</i>)	Per GB	10000
11.	DDoS Protection Service	per hour	1
12.	Identity cloud service	Per user	1000
13.	Web Application Firewall, 1 million request/month	1,000,000 Incoming Requests/Month	1
14.	<Any other line items, as proposed by the Bidder as per its Technical Solution>		
B	Control Center Infra, TMCC Application & Operations Team		
15.	Design, Development & Deployment & O & M of TMCC Applications for Real-time Monitoring system	LS	1
16.	Video Wall Cube	Cube	8
17.	Video Wall Controller & Application	No.	1
18.	Monitoring Workstations with 3 Monitors for TCC with UPS	No.	10
19.	Network Printers (MFC)	No.	2
20.	Local Printer	No.	2
21.	IP EPABX system, as required	Set	1
22.	I.P Phones, as required	No.	15
23.	Site Infra work (Flooring, False Ceiling, Partitioning Work, Office Workstations, Furniture and Fixtures, electrical cabling, etc.)	LS	1
24.	Electrical Cabling & Necessary Illumination Devices	LS	1
25.	Fire Safety System with alarms	LS	1
26.	Access Control System (RFID/Proximity based, for all staff)	LS	1
27.	Air Conditioning as per requirement	LS	1
28.	DG Set as per requirement	No.	1
29.	Rodent Repellent system	No.	1
30.	Connectivity with NPCI Data Center via leased line	LS	1
31.	Networking infra as may be required as per proposed solution of bidder	LS	1
32.	Control Center Operation Team manpower	per person	10
33.	Project Manager & BI analyst	per person	2

Sl. #	Line Item/Description	Unit	Quantity
34.	API Integration with Toll Information System (TIS) Application - One time (or any other external Application as required by IHMCL during Contract duration)	LS	1
35.	<Any other line items, as proposed by the Bidder as per its Technical Solution>	LS	

7. ANNEXURE

7.1. Annexure 1: Bid Covering Letter

(In the letterhead of the Bidder)

To

Chief Operating Officer

Indian Highways Management Co. Ltd. (IHMCL)

2nd Floor, MTNL Building,

Sector 19, Dwarka

New Delhi 110 075

Subject: Request for proposal (RFP) for Selection of Service Provider for Toll Monitoring & Control Centre with Cloud-based Toll Data Lake & Analytics

Ref. No. RFP. No. _____ dated _____ -

Dear Sir,

1. I/We, the undersigned, have carefully examined the contents of the document including amendments/ addendums (if any) thereof and undertake to fully comply and abide by the terms and conditions specified therein and hereby submit our application. Our application is unconditional and unqualified.
2. I/We undertake that, in competing for (and, if the award is made to us), for executing the above contract, we will strictly observe the laws against fraud and corruption in force in India.
3. I/We understand that:
 - a. this Bid/Proposal, if found incomplete in any respect and/ or if found with conditional compliance or not accompanied with the requisite application fee and/ or prescribed supporting document shall be summarily rejected.
 - b. if at any time, any averments made or information furnished as part of this application is found incorrect, then the application will be rejected
 - c. IHMCL is not bound to accept any/ all Bid (s) it will receive.
4. I/We declare that:
 - a) We do not have any conflict of interest in accordance clause 3.2.3 (Sl. No 9) and we or the our parent / subsidiary /sister concern company are NOT currently engaged by NHAI for user fee collection, tolling operations or system integrator at any NH Fee plazas across the country as on RFP release date. We further undertake that we shall not be take up activities such as user fee collection, tolling operations and system integration at NH fee plazas allocated to it during the Contract Period.
 - b) I/We understand that you may cancel the Bidding Process at any time and that you are neither bound to accept any Proposal that you may receive nor to invite the Bidders to submit Proposals

for Selection of Service Provider for Toll Monitoring & Control Centre with Cloud-based Toll Data Lake & Analytics, without incurring any liability to the Bidders, in accordance with relevant clause of the RFP Document

- c) We undertake that in case, due to any change in facts or circumstances during the Bidding Process, we become liable to be disqualified in terms of the provisions of disqualification, we shall intimate IHMCL of the same immediately.
 - d) We agree and understand that the Proposal is subject to the provisions of the Bidding Documents. In no case, we shall have any claim or right of whatsoever nature if the contract is not awarded to us or our Proposal is not opened.
 - e) We undertake that none of the hardware/software/other component being proposed by us infringes on any patent or intellectual property rights as per the applicable laws.
 - f) **I/We have not been declared ineligible** by IHMCL, NHAI or Ministry of Road Transport & Highways, Government of India or any other agency for indulging in corrupt or fraudulent practices. I/We also confirm that I/We have not been *declared as non-performing or debarred* by NHAI or Ministry of Road Transport & Highways, Government of India.
 - g) **I/We haven't been blacklisted by a Central/ State Government institution/ Public Sector Undertaking/ Autonomous body** and there has been *no litigation* with any Government Department/ PSU/ Autonomous body on account of similar services.
5. I/We declare that our bid is valid for 180 days.

Name

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

7.2. Annexure 2: Brief Information about the Bidder(s)

(To be prepared on letterhead of the Bidder)

Subject: Selection of _____

1. Bidder Details

- a. Name of Bidder:
- b. Year of establishment:
- c. Registered Address:
- d. Constitution of the Bidder entity e.g. Government enterprise, private limited company, limited company, etc.

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

- (a) Authorized Person with Complete postal address:
- (b) Fixed telephone number
- (c) Mobile number
- (d) E-mail address
- (e) Official Bank (for returning EMD)
- (f) Bank Account Name, Number, IFSC Code (for returning EMD)

3. Name of the CA/Statutory Auditor certifying the documents along with his/ her Membership number, if applicable:

4. Bidder details (Please include details for each Consortium Member, if applicable)

Required Info	Documentary Evidence Attached (Yes/No, along with page no.)
Field of business	
Registration Status	
Qualifying Projects – value, client, key features	
Average Turnover	

Is Bidder debarred by any Government entity (Yes/No)	
------------------------------------------------------	--

5. Financial details/projects meeting the qualifying criteria

Name

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

7.3. **Annexure 3: Undertaking**

Subject: Selection of Bidder for _____

1. I, the undersigned, do hereby certify that all the statements made in the required attachments are true and correct.
2. The undersigned also hereby certifies that neither our Company/firm M/s _____ have abandoned any work of National Highways Authority of India/IHMCL nor any contract awarded to us for such works have been rescinded, during last five years prior to the date of this bid.
3. The undersigned hereby authorize(s) and request(s) any bank, person, firm or corporation to furnish pertinent information deemed necessary and requested by IHMCL to verify this statement or regarding my (our) competence and general reputation.
4. The undersigned understands and agrees that IHMCL may ask for further qualifying information, and agrees to furnish any such information at the request of IHMCL.
5. We confirm that we have not been blacklisted /debarred by any central/state Government department/organization or Quasi Government agencies of PSU.
6. We confirm that no criminal proceeding is pending against our company/firm or any of its Directors/ Partners in any court of law.
7. We also confirm that we have not been convicted by any court of law for any of the offences under any Indian laws
8. I/We confirm that we do not have a conflict of interest with the toll fee operators/contractors on the concerned toll plaza site as mentioned in eligibility criteria of RFP nor shall we undertake tolling operations during the period of Contract Agreement.

(Signed by an Authorized Officer of the bidder)

Title of Officer

Name of bidder

DATE

7.4. Annexure 4: Bidder's Annual Turnover

RFP Ref _____ (Date)

From,

(Name & Address of the Bidder)

To,

Chief Operating Officer,

Indian Highways Management Co. Ltd.

2nd Floor, MTNL Building, Sector –19, Dwarka

New Delhi 110 075

Subject: -----

Dear Sir/Madam,

We hereby certify that the average annual turnover of M/s. _____ (name of the bidder) for the last three financial years (ending 31st March 2020) is as given below:

Annual Turnover for the last 3 Financial Years (FYs) in Indian Rupees (INR)			
FY 2019-20	FY 2018-19	FY 2017-18	Average

Annual Net worth for the last 3 Financial Years (FYs) in Indian Rupees (INR)			
FY 2019-20	FY 2018-19	FY 2017-18	Positive /Negative as on 31 st March 2020

Yours Sincerely,

(Signature of CA/Statutory Auditor)

Name of the CA/Statutory Auditor:

Name of the CA/Statutory Auditor Firm:

Seal:

7.5. Annexure 5: Power of Attorney/Letter of Authorization

Know all men by these presents, we, M/s (name of Firm/ Company and address of the registered office) do hereby constitute, nominate, appoint and authorize Mr./ Ms..... son/daughter/wife of..... and presently residing at, who is presently employed with us and holding the position of as our true and lawful attorney (hereinafter referred to as the “**Authorized Signatory or Attorney**”) to do in our name and on our behalf, all such acts, deeds and things as are necessary or required in connection with or incidental to submission of our quotation for empanelment as the agency for -----, proposed by Indian Highways Management Co. Ltd., including but not limited to signing and submission of all applications, proposals and other documents and writings, and providing information/ responses to IHMCL, representing us in all matters before IHMCL, signing and execution of all contracts and undertakings consequent to acceptance of our proposal and generally dealing with IHMCL in all matters in connection with or relating to or arising out of our proposal for the said assignment and/or upon award thereof to us.

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

IN WITNESS WHEREOF WE,THE ABOVE-NAMED PRINCIPAL HAVE PURSUANT TO THE RESOLUTION DATED OF THE BOARD OF DIRECTORS IN THAT BEHALF CAUSED ITS COMMON SEAL, EXECUTED THIS

POWER OF ATTORNEY ON THIS DAY OF, 2020

For

(Signature, name, designation and address)

Witnesses:

1.

2.

Notarized

Accepted

.....

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

Notes:

*The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executants(s) and when it is so required the same should be under common seal affixed in accordance with the required procedure. **The Power***

of Attorney should be executed on a non-judicial stamp paper of appropriate denomination and should be registered or duly notarized by a notary public.

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

For a Power of Attorney executed and issued overseas, the document will also have to be legalized by the Indian Embassy and notarized in the jurisdiction where the Power of Attorney is being issued. However, Bidders from countries that have signed The Hague Legislation Convention 1961 need not get their Power of Attorney legalized by the Indian Embassy if it carries a conforming Apostles certificate.

7.6. Annexure 6: Power of Attorney for Lead member

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

Power of Attorney

Whereas Indian Highways Management Company Ltd. (IHMCL), has invited Proposals from eligible entities for Selection of Service Provider for Toll Monitoring & Control Centre with Cloud-based Toll Data Lake & Analytics the “Project”,

Whereas, the members of the Consortium are interested in bidding for the Project and implementing the Project in accordance with the terms and conditions of the Request for Proposal (RFP) Document and other connected documents in respect of the Project, and

Whereas, it is necessary under the RFP Document for the members of the Consortium to designate the Lead Member with all necessary power and authority to do for and on behalf of the Consortium, all acts, deeds and things as may be necessary in connection with the Consortium’s bid for the Project who, acting jointly, would have all necessary power and authority to do all acts, deeds and things on behalf of the Consortium, as may be necessary in connection the Consortium’s bid for the Project.

NOW THIS POWER OF ATTORNEY WITNESSETH THAT;

We, M/s. (Lead Member) and M/s (the respective names and addresses of the registered office) do hereby designate M/s. being one of the members of the Consortium, as the Lead Member of the Consortium, to do on behalf of the Consortium, all or any of the acts, deeds or things necessary or incidental to the Consortium’s bid for the Project, including submission of Proposal, participating in conferences/meetings, responding to queries, submission of information/ documents and generally to represent the Consortium in all its dealings with IHMCL, any other Government Agency or any person, in connection with the Project until culmination of the process of bidding and thereafter till the Agreement is entered into with IHMCL.

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

Dated this theDay of2020

.....

(Executants)

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

Notes:

The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and when it is so required the same should be under common seal affixed in accordance with the required procedure.

7.7. Annexure 7: Format for Performance Bank Guarantee

To,
Chief Operating Officer,
Indian Highways Management Company Ltd
2nd Floor, MTNL Building,
Sector-19, Dwarka,
New Delhi – 110075, India

WHEREAS _____[Name and address of Agency]
(hereinafter called “the Service Provider”) has decided to apply to IHMCL for providing services, in
pursuance of IHMCL letter of work award No. _____ dated dd/mm/yyyy for “**Request for Proposal
(RFP) For Selection of Service Provider for Toll Monitoring & Control Centre with Cloud-based
Toll Data Lake & Analytics**”

” (hereinafter called the “Contract”).

1. AND WHEREAS it has been stipulated by IHMCL in the said letter that the Service
Provider shall furnish a Bank Guarantee for the sum specified therein as security for
compliance with his obligations in accordance with the terms & conditions of the
Contract Agreement.

2. AND WHEREAS we have agreed to give the Service Provider such a Bank Guarantee:

3. NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to
you, on behalf of the Service Provider up to a total of `/- (Rupees
.....) only, such sum

being payable in the types and proportions of currencies in which the Contract Price is
payable, and we undertake to pay you, upon your first written demand and without cavil or
argument, any sum or sums within the limits of `/- as aforesaid without your needing
to prove or to show grounds or reasons for your demand for the sum specified therein.

4. We hereby waive the necessity of your demanding the said debt from the Service Provider
before presenting us with the demand.

5. We further agree that no change or addition to or other modification of the terms of
the service provider or of the works to be performed there under or of any of the
Contract documents which may be made between you and the Service Provider shall
in any way release us from any liability under this guarantee, and we hereby waive
notice of any such change, addition or modification.

6. We undertake to pay to the IHMCL any money so demanded notwithstanding any dispute or disputes raised by the Service Provider(s) in any suit or proceeding pending before any Court or Tribunal relating thereto our liability under this present being absolute and unequivocal. The payment so made by us under this bond shall be a valid discharge of our liability for payment thereunder and the Service Provider(s) shall have no claim against us for making such payment.
7. The liability of the Bank under this Guarantee shall not be affected by any change in the constitution of the Service Provider or of the Bank.
8. This guarantee shall also be operable at our _____ branch at New Delhi, from whom, confirmation regarding the issue of this guarantee or extension/ renewal thereof shall be made available on demand. In the contingency of this guarantee being invoked and payment thereunder claimed, the said branch shall accept such invocation letter and make payment of amounts so demanded under the said invocation.
9. This bank guarantee shall be valid from
10. Notwithstanding anything contained herein:
- (i) Our liability under this Bank Guarantee shall not exceed `/-
- (ii) The Bank Guarantee shall be valid up to.....
- (iii) We are liable to pay the Guarantee amount or any part thereof under this Guarantee only and only if you serve upon us a written claim or demand on or before

Name:

Date:

Designation:

Employee Code Number:

Telephone Number:

Name of issuing bank branch _____

Address _____

Telephone number _____

E-mail: _____

Name of bank branch at New Delhi _____

Address _____

Telephone number _____

E-mail: _____

Name of controlling bank branch _____

Address _____

Telephone number _____

E-mail: _____

* The bank guarantee shall be verified through SFMS package.

7.8. Annexure 8: Format for Project Citation by the Bidder

The details of projects executed by the Bidder:

Name of the Project & Location	
Client's Name, Contract Details Complete Address	
Brief narrative description of Project – highlighting relevant scope of work as per RFP	
Contract Value for the Project (in INR)	
Date of Start of Project	
Date of Completion of Project/Status of Completion	
Activities undertaken by Lead Member or Consortium member	

N.B - If the project is ongoing, bidder must clearly specify, the stages/phases/milestones

(Copies of Work orders/Contract Agreement/Client certificate to be attached along with)

Signature & Seal:

Name:

Designation:

Bidding entity's name

Address:

Date:

7.9. Annexure 9: Format for Affidavit Certifying Non-Blacklisting

(On Non-Judicial stamp paper of appropriate value)

Affidavit

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

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

Dated this Day of, 2020.

Name of the Bidder

.....

Signature of the Authorised Signatory

.....

Name of the Authorised Signatory

7.10 Annexure-10: Consortium Agreement

DRAFT MEMORANDUM OF UNDERSTANDING EXECUTED BY MEMBERS OF THE CONSORTIUM

[On Non-judicial stamp paper of INR 100 duly attested by notary public]

This Memorandum of Understanding (MoU) entered into this day of [Date] [Month] 2020 at [Place] among _____ (hereinafter referred to as "_____") and having office at [Address], India, as Party of the First Part and _____ (hereinafter referred to as "_____") and having office at [Address], as Party of the Second Part and _____ (hereinafter referred to as "_____") and having office at [Address], as Party of the Third Part.

The parties are individually referred to as Party and collectively as Parties.

WHEREAS, Indian Highways Management Company Limited (IHMCL) has issued a Request for Proposal dated [Date] (RFP) from the Bidders interested in <Name of RFP> :

AND WHEREAS the Parties have had discussions for formation of a Consortium for bidding for the said Project and have reached an understanding on the following points with respect to the Parties' rights and obligations towards each other and their working relationship.

AS MUTUAL UNDERSTANDING OF THE PARTIES, IT IS HEREBY AGREED AND DECLARED AS FOLLOWS:

- i. The purpose of this Agreement is to define the principles of collaboration among the Parties to:
 - a. Submit a response jointly to Bid for the "<Name of RFP> " as a Consortium.
 - b. Sign Contract in case of award.
 - c. Provide and perform the supplies and services which would be ordered by the Purchaser pursuant to the Contract.
- ii. This Agreement shall not be construed as establishing or giving effect to any legal entity such as, but not limited to, a company, a partnership, etc. It shall relate solely towards the Purchaser for "<Name of RFP> " for and related execution works to be performed pursuant to the Contract and shall not extend to any other activities.
- iii. The Parties shall be jointly and severally responsible and bound towards the Purchaser for the performance of the works in accordance with the terms and conditions of the BID document, and Contract.

- iv. ----- (Name of Party) shall act as Lead Partner of the Consortium. As such, it shall act as the coordinator of the Party's combined activities and shall carry out the following functions:
- a. To ensure the technical, commercial and administrative co-ordination of the work package
 - b. To lead the contract negotiations of the work package with IHMCL.
 - c. The Lead partner is authorized to receive instructions and incur liabilities for and on behalf of all Parties.
 - d. In case of an award, act as channel of communication between the Purchaser and the Parties to execute the Contract
- v. That the Parties shall carry out all responsibilities as Developer in terms of the Project Agreement.
- vi. That the broad roles and the responsibilities of each Party at each stage of the Bidding shall be as below:

Party A: _____

Party B: _____

- vii. That the Parties affirm that they shall implement the Project in good faith and shall take all necessary steps to see the Project through expeditiously.
- viii. That this MoU shall be governed in accordance with the laws of India and courts in Maharashtra shall have exclusive jurisdiction to adjudicate disputes arising from the terms herein.

In witness whereof the Parties affirm that the information provided is accurate and true and have caused this MoU duly executed on the date and year above mentioned.

(Party of the first part) (Party of the second part)

Witness:

i. _____

ii. _____

7.11. Annexure 11: Format for Financial Bid/Proposal*(To be submitted on in the excel format uploaded on the website)***7.11.1. Summary of Total Price**

SI #	Head	CAPEX Price (in Rs.), exclusive of GST	OPEX Price (in Rs.), exclusive of GST	Total Price (in Rs.), exclusive of GST
1	Cloud and BI & Data Analytics Services	NA		
2	Control Center Infra, TMCC Application & Others			
	Grand Total			

Note –

- Bidder to fill up ONLY Cells highlighted in Yellow
- The Total CAPEX and OPEX prices in above table should match with the total provided in the 7.11.2 and 7.11.3. In case of any discrepancy, the total provided at 7.11.2 and 7.11.3 shall prevail.

7.11.2. Cloud and BI & Data Analytics Services

All pricing shall be on pay per use basis and IHMCL will optimize the cloud services in the best interest of IHMCL which will include auto scaling up and down.

SI #	Services	Unit	Qty	Unit Price per Quarter (in Rs.) excluding GST	Total Price for 5 years (in Rs.) excluding GST
1	Data Warehouse solution for analytics Dedicated non-shared 2 vCPUs(1 core) (RAM per core as per OEM specs if not a managed service)	vCPUs	2		
2	Storage for Data warehouse(Geo redundant)	Per GB per month	6000		
3	Analytics platform/service 2 vCPUs(1 core) (RAM per core as per OEM specs if not a managed service)	vCPUs	2		
4	Compute – Virtual Machine – with 2 vCPU(1 core) RAM 15 GB / Core or more, Intel® Xeon Platinum series 8000 or better with Linux. (Flexibility to make/chose the compute shape of IHMCL choice)	Per hour for 2 vCPU and 15 GB+ RAM	16 vCPU with 15+ GB RAM per core		
5	Managed Database – with 2 vCPU(1 core) RAM 15 GB / Core or more, Intel® Xeon Platinum series 8000 or better with Linux. (Flexibility to make/chose the compute shape of IHMCL choice)	Per hour for 2 vCPU and 15 GB+ RAM	16 vCPU with 15+ GB RAM per core		
6	Object Storage (Database Backup)	Gigabyte Storage Capacity Per Month	5000		
7	Database Backup-Archive Storage	Gigabyte Storage Capacity Per Month	3000		
8	Block Volume Storage (SSD) with minimum 60 IOPS/GB	Per GB per month	1000		
9	Load balancer with minimum 400 Mbps with 10 TB data processing and 50 rules	Per hour	1		
10	Network egress (out) (Network ingress should be free and unlimited)	Per GB	10000		
11	DDoS Protection Service with minimum 300 rules	Per hour	1		
12	Identity cloud service	Per user	1000		
13	Web Application Firewall – 300 rules, 1 million request/month	1,000,000 Incoming Requests/Month	1		

SI #	Services	Unit	Qty	Unit Price per Quarter (in Rs.) excluding GST	Total Price for 5 years (in Rs.) excluding GST
14	<Any other line items, as proposed by the Bidder as per its Technical Solution>				
	Total for Cloud Services				

Note - Bidder to fill up ONLY Cells highlighted in Yellow

7.11.3. Control Center Infra, TMCC Application & Others

SI #	BoQ Items	Unit	Qty	Unit Rate (in Rs.) excluding GST	CAPEX Price (in Rs.) excluding GST (A)	OPEX price, including AMC as applicable for entire Contract duration (in Rs.) excluding GST (B)	Total Price (A) + (B) (in Rs.) excluding GST
1	Design, Development & Deployment & O & M of TMCC Applications for Real-time Monitoring system	LS	1				
2	Video Wall Cube	Cube	8				
3	Video Wall Controller & Application	No.	1				
4	Monitoring Workstations with 3 Monitors for TCC with UPS	No.	10				
5	Network Printers (MFC)	No.	2				
6	Local Printer	No.	2				
7	IP EPABX system, as required	Set	1				
8	I.P Phones, as required	No.	15				
9	Site Infra work (Flooring, False Ceiling, Partitioning Work, Office Workstations, Furniture and Fixtures, electrical cabling, etc.)	LS	1				
10	Electrical Cabling & Necessary Illumination Devices	LS	1				
11	Fire Safety System with alarms	LS	1				
12	Access Control System (RFID/Proximity based, for all staff)	LS	1				
13	Air Conditioning as per requirement	LS	1				
14	DG Set as per requirement	No.	1				
15	Rodent Repellent system	No.	1				
16	Connectivity with NPCI Data Center via leased line	LS	1				

SI #	BoQ Items	Unit	Qty	Unit Rate (in Rs.) excluding GST	CAPEX Price (in Rs.) excluding GST (A)	OPEX price, including AMC as applicable for entire Contract duration (in Rs.) excluding GST (B)	Total Price (A) + (B) (in Rs.) excluding GST
17	Networking infra as may be required as per proposed solution of bidder	LS	1				
18	Control Center Operation Team manpower	per person	10				
19	Project Manager & BI analyst	per person	2				
20	API Integration with Toll Information System (TIS) Application - One time (or any other external Application as required by IHMCL during Contract duration)	LS	1				
21	<Any other line items, as proposed by the Bidder as per its Technical Solution>						
22	<Any other line items, as proposed by the Bidder as per its Technical Solution>	LS			-		-
Total for Cloud Infra and others							

Note - Bidder to fill up ONLY Cells highlighted in Yellow

7.12. **Annexure 12: Manufacturers' Authorization Format**

This letter of authority should be on the letterhead of the manufacturing concern and should be signed by a person competent and having the power of attorney to bind the manufacturer.

Some of the key products for which MAF is required are:

- Cloud Service Provider
- BI & Data Analytics Tool
- Video Wall Cube

To,

Date

COO, IHMCL

Subject: Manufacturer's Authorization Form

Reference: RFP No: _____ Dated: _____ for Selection of "XXXXXX" .

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

We hereby extend, our warranty for the hardware goods supplied by the bidder and / or the maintenance or support services for software products against this invitation for bid by _____ (Name of the Bidder) Thanking you, Yours faithfully, (Signature) For and on behalf of: _____ (Name of the OEM) Authorised Signatory Name: Designation: Place: Date:

7.13. Annexure 13: Proposed Unpriced Bill of Material

The Bidder should provide the proposed Bill of Material (BoM) here. Bidder should refer to the Indicative BoM provided in the Section 6.8 and should reproduce the same here along details of the make/brand and model against each line item, wherever applicable, should be mentioned. The bid can be considered non-responsive in the absence of such details.

Kindly also note that once the bidder provides this information in the submitted bid, the bidder cannot change it with any other component / equipment etc. of lower specifications / performance; it can only be upgraded at the time of actual deployment/installation.

SI #	BoM Line Item	Unit	Quantity Proposed	Make/Brand	Model Details
1.					
2.					
3.					
4.					
5.					

7.14. Annexure 14: Summary of Project Experience Submitted by Bidder

Name of Bidder - _____

Sl. No.	Name of Project	Client Name	Contract Value of Project (in Rs. Cr)	Start Date of Work	Completion Date of Work	Status (Completed/Ongoing)	Reference for Documentary Evidence to the Technical Proposal/Bid Submitted (Page no., Document name)
For Experience TQ - SI #							
For Experience TQ - SI #							

7.15. **Annexure 15: Pre-bid Query Format**

(To be submitted in Excel Format ONLY)

Name of Bidder: _____

Sl #	Ref to RFP (Clause, Page no.)	Category of Query (Technical/ Legal/ General/ Others)	Original Clause of RFP	Clarification Sought
		Technical		
		Legal		
		General		
		Others		

Bidders are required to submit their queries in the above format ONLY.

7.16. Annexure 16: Change Control Note (CCN)

Change Control Note		CCN Number:
Part A: Initiation		
Title:		
Originator:		
Sponsor:		
Date of Initiation:		
Details of Proposed Change		
(To include reason for change and appropriate details/specifications. Identify any attachments as A1, A2, and A3 etc.)		
Authorized by Purchaser	Date:	
Name:		
Signature:		
Received by the Bidder	Date:	
Name:		
Signature:		
Change Control Note		CCN Number:
Part B : Evaluation		
(Identify any attachments as B1, B2, and B3 etc.) Changes to Services, payment terms, payment profile, documentation, training, service levels and component working arrangements and any other contractual issue.		
Brief Description of Solution:		
Impact:		

Deliverables:	
Timetable:	
Charges for Implementation: (including a schedule of payments)	
Other Relevant Information: (including value-added and acceptance criteria)	
Authorized by the Bidder	Date:
Name:	
Signature:	
Change Control Note	CCN Number :
Part C : Authority to Proceed	
Implementation of this CCN as submitted in Part A, in accordance with Part B is: (tick as appropriate)	
Approved Rejected Requires Further Information (as follows, or as Attachment 1 etc.)	
For Purchaser and its nominated agencies	For SI
Signature	Signature
Name	Name
Title	Title
Date	Date

7.17. **Annexure 17: Format for Bank Guarantee for EMD**

B.G. No.

Dated:

To,

Chief Operating Officer,

Indian Highways Management Company Ltd (IHMCL)

2nd Floor, MTNL Building,

Sector-19, Dwarka,

New Delhi – 110075

1. WHEREAS M/s..... (a company registered under the Companies Act, 2013) and having its registered office at) (hereinafter referred to as the “Bidder” which expression shall unless it be repugnant to the subject or context thereof include its/their executors, administrators, successors and assigns) desires to submit bids for “<RFP Name>” against IHMCL’s RFP No. _____
2. AND WHEREAS the said RFP requires the bidder(s) to furnish an Earnest Money Bank Guarantee (EMBG) along with their bids for the sum specified therein as security for compliance with his obligations in accordance with the said RFP.
3. AND WHEREAS at the request of the Bidder, we (..... Name of the Bank) having our registered office at..... and one of its branches at (hereinafter referred to as the “Bank”), have agreed to issue such a Bank Guarantee.
4. NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Bidder for the sum of INR 4,00,00,000 (Rupees Four Crore) only, and we undertake to pay you, upon your first written demand and without cavil or argument, and without reference to the Bidder, any sum or sums within the limits of INR 4,00,00,000 (Rupees Four Crore) only as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.
5. Any such written demand made by the Authority stating that the Bidder is in default of the due and faithful fulfilment and compliance with the terms and conditions contained in the RFP Documents (hereinafter referred to as “Bidding Documents”) shall be final, conclusive and binding on the Bank.
6. We, the Bank, do hereby unconditionally undertake to pay the amounts due and payable under this Guarantee without any demur, reservation, recourse, contest or protest and without any reference to the Bidder or any other person and irrespective of whether the claim of the Authority is disputed by the Bidder or not, merely on the first demand from the Authority stating that the amount claimed is due to the

Authority by reason of failure of the Bidder to fulfil and comply with the terms and conditions contained in the Bidding Documents including failure of the said Bidder to keep its Bid open during the Bid validity period as set-forth in the said Bidding Documents for any reason whatsoever. Any such demand made on the Bank shall be conclusive as regards amount due and payable by the Bank under this Guarantee.

7. This Guarantee shall be irrevocable and remain in full force for a period of 180 (one hundred and eighty) days after the Bid Due Date. The claim period shall be 60 (sixty) days thereafter or for such extended period as may be mutually agreed between the Authority and the Bidder, and agreed to by the Bank, and shall continue to be enforceable till all amounts under this Guarantee have been paid.

8. We, the Bank, further agree that the Authority shall be the sole judge to decide as to whether the Bidder is in default of due and faithful fulfilment and compliance with the terms and conditions contained in the Bidding Documents including, inter alia, the failure of the Bidder to keep its Bid open during the Bid validity period set forth in the said Bidding Documents, and the decision of the Authority that the Bidder is in default as aforesaid shall be final and binding on us, notwithstanding any differences between the Authority and the Bidder or any dispute pending before any Court, Tribunal, Arbitrator or any other Authority.

9. The Guarantee shall not be affected by any change in the constitution or winding up of the Bidder or the Bank or any absorption, merger or amalgamation of the Bidder or the Bank with any other person.

10. In order to give full effect to this Guarantee, the Authority shall be entitled to treat the Bank as the principal debtor. The Authority shall have the fullest liberty without affecting in any way the liability of the Bank under this Guarantee from time to time to vary any of the terms and conditions contained in the said Bidding Documents or to extend time for submission of the Bids or the Bid validity period or the period for conveying acceptance of Letter of Award by the Bidder or the period for fulfilment and compliance with all or any of the terms and conditions contained in the said Bidding Documents by the said Bidder or to postpone for any time and from time to time any of the powers exercisable by it against the said Bidder and either to enforce or forbear from enforcing any of the terms and conditions contained in the said Bidding Documents or the securities available to the Authority, and the Bank shall not be released from its liability under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the said Bidder or any other forbearance, act or omission on the part of the Authority or any indulgence by the Authority to the said Bidder or by any change in the constitution of the Authority or its absorption, merger or amalgamation with any other person or any other matter or thing whatsoever which under the law relating to sureties would but for this provision have the effect of releasing the Bank from its such liability.

11. Any notice by way of request, demand or otherwise hereunder shall be sufficiently given or made if addressed to the Bank and sent by courier or by registered mail to the Bank at the address set forth herein.

12. We undertake to make the payment on receipt of your notice of claim on us addressed to name of Bank along with branch address and delivered at our above branch which shall be deemed to have been duly authorized to receive the said notice of claim. This guarantee shall also be operable at our _____ branch at New Delhi, from whom, confirmation regarding the issue of this guarantee or extension/ renewal thereof shall be made available on demand. In the contingency of this guarantee being invoked and payment thereunder claimed, the said branch shall accept such invocation letter and make payment of amounts so demanded under the said invocation.

13. It shall not be necessary for the Authority to proceed against the said Bidder before proceeding against the Bank and the guarantee herein contained shall be enforceable against the Bank, notwithstanding any other security which the Authority may have obtained from the said Bidder or any other person and which shall, at the time when proceedings are taken against the Bank hereunder, be outstanding or unrealized.

14. We, the Bank, further undertake not to revoke this Guarantee during its currency except with the previous express consent of the Authority in writing.

15. The Bank declares that it has power to issue this Guarantee and discharge the obligations contemplated herein, the undersigned is duly authorized and has full power to execute this Guarantee for and on behalf of the Bank.

16. For the avoidance of doubt, the Bank's liability under this Guarantee shall be restricted to INR 4,00,00,000 (Rupees Four Crore). The Bank shall be liable to pay the said amount or any part thereof only if.

the Authority serves a written claim on the Bank in accordance with relevant paragraph hereof, on or before (indicate date falling 180+60 days after the Bid Due Date).

(Signature of the Authorized Signatory)

(Official Seal)

Name:

Date :

Designation:

Employee Code Number:

Telephone Number:

Name of issuing bank branch _____

Address _____

Telephone number _____

E-mail: _____

Name of bank branch at New Delhi _____

Address _____

Telephone number _____

E-mail: _____

Name of controlling bank branch _____

Address _____

Telephone number _____

E-mail: _____

IHMCL bank account details for SFMS package is mentioned as below: -

A/c Holder Name = Indian Highways Management Company Limited

Bank Name = Canara Bank

A/c No. = 8598201006217

IFSC = CNRB0008598

Branch = Delhi NHAI Dwarka Branch New Delhi-110075

8. Functional requirements Specifications

8.1. Data Lake for NETC programme and other projects

8.1.1. The bidder shall comply the guidelines issued by MeitY for cloud services.

8.1.2. Technical requirement specifications –

SI #	Description	Compliance (Yes/No)
1.	The Bidder will need to provide a monthly uptime SLA of 99.95%	
2.	CSP should provide database/data warehouse as managed services to build enterprise scale data warehouse	
3.	CSP Database should provide end-to-end management of data warehouse like Provisioning new instances, Backup and restore, Patching and upgrades, Cloning to support Full lifecycle managed using Service Console or API's	
4.	CSP should have capability of Automatic and manual back-ups to support point in time recovery	
5.	CSP should provide option to query & load data from object storage into data warehouse	
6.	Should support to load data via Data loading tools like ETL/ELT	
7.	should provide built-In Machine Learning Library like Clustering, Classification, Regression, Feature Extraction, Text Mining Support, Statistical Functions etc	
8.	Should support full encryption of entire database, backups and all network connections. In addition should provide Database auditing in terms of Login failures, Modifications to user accounts or database structures	
9.	Should have option of configuring Disaster Recovery environment in Sync or Async mode.	
10.	Database should support mixed OLTP/OLAP workloads to enable building business application & analytics	
11.	Should provide database/data warehouse aware strong encryption capabilities within database/data warehouse for stored information in the tables as well as the information transmitted over network.	
12.	Must provide support to In-memory database transactions, able to process both row and column based data format in-memory simultaneously	
13.	Should provide Database/Data warehouse instance scaling up & down(Compute-Cores & Storage) with no downtime to application	
14.	Data encryption both at database & storage level (at rest & motion)	
15.	Database/Data Warehouse should provide Spatial analytics Insights using spatial operators	

16.	Database/Data Warehouse should provide processing capabilities of JSON data from loading to analysis	
17.	should provide Data security to ensure Configuration drift assessment, User wise risk assessment, overall activity audit reporting, in data set find out sensitive data discovery	
18.	Should provide database management tooling like cloning/refresh cloning, backups & management & monitoring SQL performance	
19.	Data Integrator tool to extracts, transforms, and loads data into Data warehouse from various sources systems of toll plaza with the capability to connect to various database, Files, SFTP servers, web services	
20.	Proposed Service Should be in Gartner Magic Quadrant of Data management solutions for Analytics, most recent report	
21.	The Cloud services should be available on pay as per use model	
22.	The Bidder should have the capability to provide various other services like Database, Cache, Search, Analytics, Mobile Backend, Queues, Tables, Backup, Identity Management, CDN, Client Application Analytics as a Service on pay as per usage mode backed by monthly SLAs of minimum 99.5% availability.	
23.	The Bidder should provide inbuilt logging and auditing capabilities	
24.	The Bidder should support auto scalability to increase or decrease the compute resources as per demand in order of minutes based on CPU/RAM utilization and charge only for resources being used on a per minute, hourly or daily basis.	
25.	The Bidder should provide mechanisms to allow provisioning/de provisioning of Virtual Machines on demand and should not charge for them when de provisioned.	
26.	The Bidder will support and allow users to encrypt their data at rest using customer's own key	
27.	The Bidder must ensure that the Network layer has capabilities for in-depth packet inspection and intelligence in blocking attacks at no extra cost to the user.	
28.	The Bidder should ensure that their network is protected against DDOS attacks at no extra cost.	
29.	The Data Centre services from where Cloud services are being provisioned should be ISO 27001 certified.	
30.	The Data Centre from where the Cloud services are being provided shall be in India.	
31.	The Bidder should publish the real-time status of all the services refreshed atleast at a frequency of 5 min	
32.	The Bidder should allow penetration testing if required.	
33.	Bidder should be independently audited twice in a year by independent third party auditors and the relevant report / findings of the report should be made available to IHMCL on request	
34.	Bidder must provide a UAT (User Acceptance Test) for the failover/failback scenarios after the deployment.	

8.2. Business Intelligence and Data Analytics Tool Specifications

8.2.1. The proposed BI System/ Tool should have the following features:

a) Analytics and Reporting

- i. A GUI based system where all business users are able to view/ save/ download/ schedule various enterprise metrics/ dashboards and their summary without any programming efforts
- ii. Capable to filter all key business metrics based on various parameters
- iii. Capable to pull the report for a specified performance period in a pivot table & different graphical layouts
- iv. Capable to compare metrics across various parameters in a chart or graphical formats

b) Automated Dashboard Design:

- i. Capable to produce dashboards without the help of IT team for system integration and publish it for the consumption of department users
- ii. Capable of making ad-hoc query through SQL commands as well as GUI based design (drag and drop) along with rich analytical functions

c) Data Management:

- i. Compatible with different data storages like Flat file storage, relational databases and big data storages like Hive/HBase.
- ii. Supports on-demand processing with its own data ETL process
- iii. Supports integration with existing or market leading data preparation/ management platforms
- iv. Functionality for admin users to create new dimensions, derived metrics etc.

d) Access Management:

- i. Capability for SSO and/or AD/LDAP authentication, OAuth.
- ii. Hierarchy of user access viz. View, Design, Modify, Admin access.
- iii. Allows a domain-based edit access while view access should be available to all users.

8.2.2. Functional Requirements

a) **Compatibility – Should be compatible and work seamlessly with the cloud services provided by the proposed CSP without any extra cost.**

b) The Reporting tool with

- ability to schedule reports.
- robust visualizations such as graphs, charts, and histograms.
- slicing and dicing features
- output data in various formats like PDF, Images.

c) Web based management console capable to monitor multiple systems in Test, Development and production across multiple instances and across locations

d) Data Visualization like heat maps, spark lines, geographical mapping, spider charts etc., preferably with auto charting and dashboard facilities through the key words

e) A browser based, tab/ smart phone-based interface to view reports

- f) Customizable Fields
- g) Graphical Data Presentation with Geospatial support features
- h) Built-in ETL and/or strong Integration with leading data preparation platforms
- i) Drag & Drop interface for data transformation & preparation
- j) Automated data refreshes
- k) Support from OEM for 5 Years (patches and bug fixings)
- l) In Premises Deployment option
- m) Drilldown capabilities (ability to drill down to various levels of a hierarchy)
- n) Able to format (page size, row, columns, fonts, colors, tables etc.), allow data manipulation (slice & dice multidimensional data on the fly, pivoting, sorting, ranking etc.).
- o) Capability of raising exception alarms (e.g. email notification)
- p) Compatible with all environments like Windows, Linux etc.
- q) User friendly GUI to allow easy generation of reports and exporting capabilities (ability to export resulting data to other applications such as PDF, Images)
- r) Able to publish all the reports on the portal and have the ability to archive reports.
- s) The BI application needs to have the BI capabilities like Drill down, Slice and Dice, Multi-Dimensional Analysis, Ad-Hoc analysis
- t) Capability to extend or integrate with components of advanced analytics
- u) Capability to embed visualization in other web-portals/ mobile Apps
- v) Provide native access to leading RDBMS solutions and capability to connect with big data components based on HDFS like spark, hive, impala, No SQL.
- w) Mobile Integration/ Support for iOS, Android, Windows etc.
- x) Performance Reporting / Monitoring
- y) API – capability to provide an API for integration with external web applications
- z) Export to PDF - All dashboard, maps, graphs, tables and reports can be exported to PDF
- aa) Export to Excel and CVS - Tables, Reports and graphs can be exported to EXCEL or in a CSV
- bb) Export as a Picture - Graphs, Maps, Tables, Reports and all dashboard pages can be exported in a picture format

8.3. Real-time Monitoring software requirement

8.3.1. Real-time Data Acquisition

8.3.1.1. Target systems and data acquisition frequency

- a) The Real-time Monitoring software shall automatically acquire data in real-time from the following target systems:
- Toll Management systems (TMS)
 - NPCI NETC system including the EGCS
 - NETC Mapper
 - Traffic Survey systems
 - IHMCL/ NHAH Mobile Apps
 - Any other relevant system identified by IHMCL

The Real-time Monitoring software shall have following 03 major components

- Real Time Monitoring
- Critical Equipment Uptime
- Lane Uptime

In Phase 1, data acquisition from the TMS systems (700 Nos), NPCI NETC system (incl. EGCS) and the NETC Mapper shall be implemented.

- b) The above data acquisition shall support the following two modes, depending on the target system:
- Data that is broadcast by the target system at known time intervals / time stamps.
 - Data that is provided by the target system on demand
- c) The frequency of data acquisition from the above target systems of Phase I shall be as shown in the Table below:

S.No	Target System	Data record description	Data acquisition frequency	No of Target systems in the 1 st phase
1	Toll Management System (TMS)	<ol style="list-style-type: none"> Each and every toll transaction Health status of Key Toll equipment Events related to the Toll Management system 	Every 5 minutes	700
2	NPCI NETC system including EGCS	<ol style="list-style-type: none"> Details of each and every FASTag transaction 	Every 5 minutes	1
3	NPCI NETC Mapper	<ol style="list-style-type: none"> Vehicle and Owner details, Tag status Exception list of FASTags 	On Demand	1

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Details of the Data records (including the sizes) of the TMS system, the NPCI NETC system (incl. EGCS) and the NPCI NETC Mapper are provided in Section 8.3.1.2 of this document.

- d) The above data shall be automatically acquired by the TMCC in real time / 'near' real time without a break throughout the Contract period. 'Near' real time shall mean a maximum time gap (between the time stamp when the transaction/ health status/ event was generated in the TMS and the time stamp when it was received at the TMCC backend) of 10 minutes not more than 5 times a day.

Note: As part of ensuring the above, each TMS shall be time synchronized with the TMCC backend.

- e) Based on the above acquired data from the TMS, the Real-time Monitoring software shall generate warnings and alarms with respect to TMS-related events, TMS equipment health status, TMS performance and the NETC system performance. These warnings and alarms shall be displayed on a Video Wall display as well as on individual TMCC workstations.

8.3.1.2. From the TMS systems

The TMCC backend application shall receive the following data every 5 minutes from each Toll Management system (TMS):

- a) Every time-stamped Toll Transaction from each lane including the following:

- i. Transaction Date and Time (20 Bytes)
- ii. Plaza ID (4 Bytes)
- iii. Lane ID (2 Bytes)
- iv. Media of Toll Payment: ETC/Cash/others (2 Bytes)
- v. Transaction Id (20 Bytes)
- vi. Tag Id / Other ETC media Id (for non-FASTag media) (20 Bytes)
- vii. Vehicle class (Tag Class /Operator class) (2 Bytes)
- viii. Vehicle class (AVC) (2 Bytes)
- ix. Toll amount (5 Bytes)

- b) The health status of the following lane equipment detected **every 5 minutes**

- i. Plaza ID (4 bytes)
- ii. Lane ID (2 bytes)
- iii. Status Date and Time (20 Bytes)
- iv. Lane controller (2 Bytes)
- v. RFID Transceiver (2 Bytes)
- vi. AVC (2 Bytes)
- vii. Incident Camera (2 Bytes)
- viii. ANPR camera (2 Bytes)
- ix. Barrier (2 Bytes) (if supported in the TMS)
- x. Traffic Light (2 Bytes) (if supported in the TMS)
- xi. OHLS (2 Bytes) (if supported in the TMS)
- xii. User Fare display (2 Bytes) (if supported in the TMS)

All the above data sizes are 'per minute'. Therefore, there will be five health status records per equipment every five minutes.

- c) Events (represented as the Event ID below) from the Toll systems, that shall be received every five minutes. Examples of such events include

- i. Toll collector / Toll booth Operator login and logout
- ii. Lane Open / Lane closed
- iii. Cash-up / Login and Log out
- iv. Toll Exempts
- v. ETC tag non-read by Lane Transceiver in ETC lane
- vi. Other TMS events specified by IHMCL

For each of the above events the following data shall be received :

- i) Event Date and Time (20 bytes)
- ii) Plaza ID (4 bytes)
- iii) Lane ID (2 bytes)
- iv) Event ID (ie. Toll collector login, logout etc) (6 bytes)

8.3.1.3. From the NPCI NETC EGCS system and Mapper

- a) The following FASTag Transaction data shall be received on-line (every 5 minutes) from the NPCI's ETC & EGCS system by the TMCC backend application
- i. Plaza ID (4 bytes)
 - ii. Lane ID (2 bytes)
 - iii. Concessionaire ID (4 bytes)
 - iv. Transaction Date and time stamp (20 Bytes)
 - v. Transaction settlement Date and time stamp (20 Bytes)
 - vi. Tag class (2 Bytes)
 - vii. Mapper class (2 Bytes)
 - viii. Violation raised? (1 Byte)
 - ix. Date and time stamp of when Violation was raised (20 Bytes)
 - x. Violation resolved and result? (1 +2 Bytes)
 - xi. Date and time stamp of Violation resolution (20 Bytes)
 - xii. Dispute (by Road User) raised? (1 Byte)
 - xiii. Date and Time stamp when the dispute was raised (20 Bytes)
 - xiv. Dispute resolved and result? (1 + 2 Bytes)
 - xv. Date and Time stamp of dispute resolution (20 Bytes)
 - xvi. Action Taken (2 Bytes) e.g. Tag Blacklisted
- b) The following information shall be received on-line from the NETC mapper, **on demand** by the TMCC backend application
- i. Tag ID
 - ii. Status (e.g. in Exception list)
 - iii. Date of entry into Exception List and Date of removal from Exception list
 - iv. Road User (Vehicle Owner) name and address
 - v. Mapper Vehicle Class
 - vi. Date registered on the NETC system

- c) On demand the TMCC backend application shall receive the current Exception list (Blacklist)

8.3.2. Monitoring

8.3.2.1. Monitoring the Connectivity with the TMS and the NPCI NETC systems

- a) The Real-time Monitoring software shall continuously monitor on-line, the status of connectivity of an individual TMS to the TMCC backend.
- i. Any '**miss**' in the above 5 min data broadcast from the TMS, shall result in the raising of a **warning** in the TMCC Control room with the following information- Plaza ID along with the Date and Time Stamp.
 - ii. A **break** in the communication of 15 minutes (i.e. the miss-out of three of every five-minute transmissions) resulting in the raising of an **alarm** in the TMCC Control room with the following information – Plaza ID along with the Date and Time Stamp.
- The above warnings and alarms shall be **logged** in the TMCC with the date and time stamp, for reporting purposes.
- b) A similar monitoring shall be performed on the connectivity with the NPCI with the corresponding raising of alerts and warnings.
- c) Near Real Time Monitoring
- AVC Accuracy
 - Handheld reader Usage
 - ETC, Cash, Violation and other transaction monitoring
 - Tag Class, AVCC class and Mapper Class monitoring
- d) MSP shall provide map for all NH toll plazas under NETC programme with green (connected) and red (not connected) option.

8.3.2.2. Response to warnings / alarms

- a) Based on the above acquired real-time data from the TMS & the NPCI NETC system, the Real-time Monitoring software shall automatically generate warnings and alarms with respect to the following
- i. TMS-related events,
 - ii. TMS equipment health status,
 - iii. TMS performance and the NETC system performance.

Detailed algorithms to generate warnings and alarms on the TMS and NETC system performance, based on the acquired data, shall be implemented by the MSP after approval by IHMCL.

- b) The above warnings and alarms shall be promptly displayed on the TMCC Operator workstation (please refer section 8.3.3 for details). In response, the Real-time Monitoring software shall enable the Operator to acknowledge the same on the workstation.
- c) Further, the system shall enable the operator to take immediate action like contacting (e.g. using an on-screen selection of the entity associated with the warning/alarm, to establish a dedicated audio communication link) the corresponding toll Plaza to enquire

on the problem (whether the problem is with the TMS or the Internet Data link) and reminding on its immediate resolution. The system shall also enable a similar action to be taken with respect to any connectivity issues detected with respect to the NPCI NETC system and the Mapper.

- d) The above warnings and alarms as well as the action taken by the TMCC Operator shall be automatically logged in the TMCC with the date and time stamp, for analysis and reporting purposes. The Date and Time stamp of the resolution of warnings and alarms shall also be logged.

8.3.3. Warning / Alarm window

- a) A Warning / Alarm Window shall automatically appear on the TMCC Operator screen, on detection of a Warning/Alarm, with the most recent Warning / Alarm added at the top. Each record on this window shall be dedicated to a single Warning / Alarm and will include the following fields:
 - i. Warning / Alarm ID
 - ii. Date and time stamp of the detection of the fault and the generation of the Warning / Alarm
 - iii. Plaza ID in case of TMS or NCPI NETC system / Mapper
 - iv. Warning / Alarm description
 - v. Status (Un-acknowledged / Acknowledged / Resolved). Typically, an Un-acknowledged alarm will flash (in red) until acknowledged.
 - vi. If resolved then the Date and Time stamp of the resolution.
 - vii. TMCC Operator ID who acknowledged and followed up for resolution.
- b) 'NIL' transaction from plaza (05 min interval)
- c) 'NIL' transaction from 40% of ETC lanes at a toll plaza
- d) More than 20% critical equipment faulty at a toll plaza
- e) Overall AVCC Accuracy is less than 95%
- f) More than 5% ETC transactions are processed through handheld
- g) Exempt Transactions (except FASTag exempt) are more than 2% of total transaction
- h) Violation transaction count crosses 2% of total transaction till that time

Further details on the workflow to be followed by the TMCC Operator shall be based on guidelines provided by IHMCL to the successful bidder.

8.3.4. Data Analytics related to real-time monitoring of the TMS and NETC systems

It shall be possible to perform analytics in the Real-time Monitoring software to broadly obtain the following:

- a) Plaza equipment (TMS) uptimes, MTBF, MTTR and System Availability
- b) Toll Plaza's FASTag SLA performance
- c) FASTag readability at various plazas
- d) FASTag read accuracy at a particular plaza and comparison with other plazas.
- e) Plaza-wise violating handling and resolution efficiency
- f) Plaza-wise Customer dispute handling efficiency

- g) NETC system Transaction settlement efficiency
- h) Journey analytics- Typical Journeys of various FASTag IDs – Origin destination analyses (Geographically and vehicle class-wise)
- i) Detection of possible malpractices in the Issue and usage of FASTags

8.3.5. Report generation

Based on all the above data acquired, the system shall support the generation of the following types of reports:

- a) The Real-time Monitoring software shall have the capability of generating a wide variety of reports for authorized users. For this purpose, it shall provide each authorized user a 'easy-to-use' menu driven tool.
- b) The reports shall be generated on pre-defined formats as well as on user-defined formats. To enable the user-design of report formats, the TMCC shall provide an easy to use, report formatting tool that will include both data selection and format design.
- c) While aiding the design of the report format, as above, the system shall support and prompt the user appropriately with guidance on information adequacy, clarity and pleasing aesthetics.
- d) It shall be possible to include any of the acquired 'raw' data processed data present in the TMCC database, in the report.
- e) It shall be possible to capture on a single report the results of data analysis performed on data received from a single TMS as well as those performed on data received from two or more TMS.
- f) Typical reports include the following:
 - i. TMS performance report of a single plaza including
 - ii. Revenue collection
 - Lane-wise, FASTag vs Cash
 - Hourly, FASTag vs Cash
 - FASTag, Dedicated vs Hybrid lanes
 -
 - iii. Plaza Vehicle throughput
 - Lane-wise, FASTag vs Cash
 - Hourly, FASTag vs Cash
 - FASTag, Dedicated vs Hybrid lanes
 - iv. Toll Plaza traffic, Single toll Plaza and comparative
 - Lane-wise
 - Hourly
 - Vehicle classes-based
 - v. AVC accuracy – Lane-wise and for Plaza
 - For a particular plaza
 - For inter-plaza comparison
 - vi. TMS performance report – Comparative report between selected plazas involving and including the above elements of revenue collection and plaza vehicle throughput.
 - vii. FASTag transaction related

- Plazas not meeting the SLA parameters
- viii. Reports related to the results of the Analytics routines captured in Section 3 above including Availability of Plaza equipment and Internet Data connectivity.
- ix. Report Module (Overall, RO wise, PIU Wise, MSP wise and plaza wise
 - Daily, Fortnightly, Monthly, quarterly, Half yearly and yearly transaction report(ETC, Cash, Violation, Exempt and others)
 - AVC Accuracy report
 - Penetration report
- x. Over all and Plaza wise ETC transaction report (Fixed reader vis a vis Handheld reader)
 - Critical Equipment downtime report
 - Lane Downtime report
- g) It shall be possible for an authorized user to export a such a report to other editable and non-editable formats like Ms-Excel®, MS-Word®, Pdf®, JPEG etc.

a) Reports

i. Status reports

The maximum time for report generation, from the issue of a user command on the system to the display of a status report on the user screen shall be 3 seconds.

ii. Analytical reports (e.g. Involving data processed using data analytics, machine intelligence algorithms)

The maximum time for report generation, from the issue of a user command on the system to the display of an analytic report on screen shall not exceed 10 seconds.

iii. **Scalability:** The TMCC software shall support practically unlimited scalability as far as the TMCC backend is concerned. Thus, it shall be possible for IHMCL to continuously scale up the system by enhancing the hardware configuration 'on the cloud'.

8.4. Control Center Infrastructure

8.4.1. Video Wall Cube:

- 1) Configuration: Seamless Video wall of DLP Cubes. Each cube size to be 70" (72 Inches diagonally) or more with complete configuration of (4 cubes 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 DLP Cubes / Interfaces / Connecting cables.
- 2) Operation 24 X 7: The Video Walls & Controllers and all support systems should be capable of working in 24 x 7 mode without any deterioration in the performance
- 3) Chip Type: DLP single chip
- 4) Native Resolution: Full HD (1920 x 1080) / UXGA (1600 x 1200)
- 5) Light Source Type: Laser light source
- 6) Brightness : Typ. 2400 Lumens
- 7) Brightness Uniformity: $\geq 98\%$
- 8) Aspect ratio: 16:9 / 4:3
- 9) Contrast ratio: Typ. 1800:1
- 10) Redundant Dual Power Supply: Cube should be equipped with a built in dual redundant power supply
- 11) Hot Swappable Power Supply: The inbuilt power supply should be hot swappable
- 12) Control: IP based control to be provided
- 13) Remote: IR remote control should also be provided for quick access
- 14) Screen to Screen Gap: $\leq 0.2\text{ mm}$
- 15) Full viewing angle: 180 degree
- 16) Maintenance Access: Rear mount
- 17) Inputs in the Cube: DVI-2, HDMI-1, HDBaseT-1, Display port-1, 21
- 18) Output in Cube: DVI – 1
- 19) Cube control & Monitoring: Video wall should have cube control & monitoring system which can provide video wall status including source, light source, temperature, fan & power information. The system should be based on web-browser architecture. Should be able to provide an error message in three sections:
 - a. Problem area
 - b. Error Module Location
 - c. Error Module Image
- 20) Laser Lamp Life
 - a. Eco mode: 100,000 hours
 - b. Normal mode: 80,000 hours
 - c. Bright mode: 60,000 hours

8.4.2. Video Wall Controller & Application

- 1) Display controller: Controller to control Video Walls in a matrix of 4 x 2 with 16 DVI outputs (for future expansion) , 4 Universal inputs & DUAL LAN INPUTS along with requisite software
- 2) Processor: Single Quad Core Intel®: Xeon/i7 64-bit 2.0 GHz CPU or better

- 3) RAM: 8GB
- 4) HDD: 500 GB Hard Disk, Hard disk Capacity should be upgradable
- 5) RAID: RAID 0 configured with usable space of 500 GB in each controller
- 6) Networking:
 - Dual-port Gigabit Ethernet Controller inbuilt
 - Support for Add on Network adapters
 - Support for Optical Fiber interface Adapters
- 7) Accessories: DVD-R, DVD+RW, Keyboard, mouse
- 8) OS: Supports 64-bit Operating Systems Windows 7
- 9) Power Supply:
 - (1 + 1) Redundant AC-DC high-efficiency power supply w/ PFC
 - AC Voltage 100 - 240V, 50-60Hz
- 10) Chassis:
 - 19" industrial Rack mount movable
 - Front Panel should have lockable Door to Protect Drives
- 11) System Reliability:
 - Operating Temperature range: 10° to 35°C (50° to 95°F)
 - Non-operating Temperature range: -40° to 70°C (-40° to 158°F)
 - Operating Relative Humidity range: 8% to 90% (non-condensing)
 - Humidity: 10 – 90% non-condensing
 - Non-operating Relative Humidity: 5 to 95% (noncondensing)
- 12) Wall configuration: 16 DVI-D Outputs
- 13) Resolution: 1920x1200 per output minimum (WUXGA)
- 14) Universal Inputs: 8 Universal Inputs (Should be able to accept at least 4 kinds of signals i.e. DVI/RGB/Component Video) along with USB 3.0
- 15) Redundancy Support: System Should have the redundancy support for Controller HDD, power supply & LAN (Gigabit Ethernet RJ-45 connection)
- 16) Connectivity: Connectivity between the controller & Video wall should be on Optical Fiber cables only.
- 17) Video Wall, Controller, Cube and wall management: Video Wall, Controller, Cube & Wall management software should be from same OEM for ensuring smooth operations and seamless integration and feature enablement and enhancement. All licenses of the software supplied with Controller and Video Wall should be with perpetual license and cost of the same should be included in the quoted cost.
- 18) Controller configuration: Two controllers should be provided which can act as backup to each other i.e. a single controller should be able to drive all the cubes of both the video walls.
- 19) Video Wall stand: Video Wall should be mounted on stand with minimum height of 750 mm (two and half feet) with flexibility of 50 mm height
- 20) Warranty: Comprehensive onsite warranty on the DLP video wall and Controller for 5 years

8.4.3. All in One Workstations

Parameter	Minimum Specifications
Processor	Intel i3 generation or higher
RAM	16 GB DDR4 expandable upto 32 GB
Graphics card	Minimum 1 GB Video memory or higher
HDD	Must have 500GB or more, 5400 rpm or more, solid-state drive
Media Drive	DVD RW Drive with dual Layer Support
Network interface	Wireless 802.11 b/g/n support, Ethernet RJ45 at least 100 megabits per sec
Audio	Line/Mic IN, Line-out/Spr Out (3.5 mm)
Ports	USB Ports 1xUSB 2.0; 2xUSB 3.0 Microphone, Ethernet/ LAN HDMI, VGA
Keyboard	104 keys minimum OEM keyboard
Mouse	2 button optical scroll mouse (USB)
Monitor	22" LED backlit, and a glossy or antiglare surface 1366x768 Pixel
Certification	Energy star 5.0/BEE star certified
Operating System	Latest Windows Professional
Other Software	Latest MS Office Professional and other licensed applications as required for smooth operations
Security	BIOS controlled electro-mechanical internal chassis lock for the system.
Antivirus feature	Advanced antivirus, antispyware, desktop firewall, intrusion prevention (comprising of a single, deployable agent) which can be managed by a central server. (Support, updates, patches, and errata for the entire contract/ project period)
Power supply	SMPS; Power supply should be 90% efficient with EPEAT Gold certification for the system.

8.4.3.1. Installation Requirement of Workstation

- i. The ground mounted enclosure shall be installed according to appropriate good engineering practices. All internal components and UPS (if required) shall be securely mounted.
- ii. For ground mounted enclosure installation, UV-resistant caulking material shall be applied along the joints of the enclosure. For mounting under a camera lowering system, the enclosure shall be positioned away from the space directly below related camera.
- iii. Provisions shall be made for all ducts (i.e. power, telecommunications, etc.), in accordance with the design drawings and/or specifications, that will facilitate the connection between the enclosure and the concerned equipment.
- iv. Where cables enter the ground mounted enclosure, they shall be fixed and secured against movement and to relieve stress on the cable termination. All penetrations to the enclosure shall be sealed with silicone sealant to impede entry of gas, dust and water.
- v. All wires/cables within the enclosure shall be secured and labeled. Earth wires from all electrical devices, including surge suppressors, shall be terminated directly to the

- dedicated earth terminal in the enclosure. Earth conductors shall not be daisy-chained from device to device.
- vi. All conductors carrying electricity at 60Vac or higher shall be segregated from all telecommunications, signal conductors and conductor carrying electricity lower than 60Vac. A minimum of 75mm shall be provided between these two conductor groups. Where conductors belonging to these two groups need to cross each other at distances closer than 75mm, the installer must ensure the conductors are at a 90 degree angle (perpendicular) to each other.
 - vii. Each wire shall be identified on both ends of the wire with heat shrink, thermal transfer tube type wire markers in English. Adhesive labels are not acceptable. The wire markers shall be white with black lettering. Hand marking of the label is not acceptable.
 - viii. The Graphic User interface on all TMCC workstations shall be clutter-free and shall use colours with adequate contrast so as to cause minimum fatigue to the user. All the displayed text and graphics shall be large enough to be recognized with minimum effort.

8.4.4. Network Printer (MFC)

Parameter	Minimum Specifications
Technology	Laser
Monthly duty cycle/RMPV (pages)	200,000/5K-20K
Print speed – simplex (A4)	Up to 41 ppm
Scan speed – Black/Color simplex	Up to 50/30 ipm
Scan speed – Black/Color duplex	Up to 19/14 ipm
Scan-to destinations	Email, Network folder, USB
Processor (MHz)	600
Memory (MB)	1,024
Hard disk drive (HDD)/Capacity (GB)	Yes/240
Connectivity	2 Hi-Speed USB 2.0; 1 Gigabit Ethernet 10/100/1000T network
Print resolution – Max/Best print quality (dpi)	Up to 1200x1200
Input capacity – Std/Max (sheets)	600/4,600
Output size – Min/ Max (mm)	76.2 x 127/312x469.9
Automatic duplex	Yes
Energy Efficiency	BEE or Energy Star certified
Control panel display	20 m touchscreen

8.4.4.1. Local Printer

Parameter	Minimum Specifications
Print speed black (normal, A4)	Up to 25 ppm
Print quality black (best):	Up to 1200 x 1200 dpi
Print technology :	Monochrome Laser
Duty cycle (monthly, A4)	Up to 15,000 pages

Recommended monthly page	volume 250 to 2000
Standard memory:	Minimum 128 MB
Processor speed:	Minimum 700 MHz
Paper handling standard/input	Up to 250-sheet input tray
Paper handling standard/output	Up to 150-sheet output bin
Media sizes supported	A4, A5, A6, B5, postcard
Media types supported	Paper, transparencies, postcards, envelopes, labels
Standard connectivity	Hi-Speed USB 2.0 port with USB data cable, Ethernet with RJ45 connectivity
Duplex printing	Automatic (standard)
Compatible operating systems	Microsoft Windows 7 Professional(64bit), Windows 8 Pro(64 bit), Windows 8.1, Windows 10, Server 2008 R2, Server 2012 R2, MAC OS 9.0, MAC OS X, Linux
Power requirements:	Input voltage 220 to 240 VAC (+/- 10%), 50 Hz (+/- 2 Hz);
Power consumption during printing	Less than 500W
Energy Efficiency	BEE or Energy Star certified
Front operating Panel	Graphical LCD display

8.4.4.2. CORE SWITCH

#	Minimum Specifications
1.	Should be a chassis-based switch and have minimum 32 x 40G QSFP+ or more ports distributed across minimum two or more interface line-cards fully populated with Mode Fiber Transceiver. In addition, it must have 48x 10G BaseT ports and 48x 1/10G SFP+ ports fully populated with multi-mode fiber transceiver.
2.	There should not be any single point of failure in the switch. All the main components like CPU module, switching fabric, power supplies and fans etc. should be in redundant configuration.
3.	It must have minimum five or more vacant interface payload slots (after populating all the required above interfaces)
4.	Chassis must support 40G and 100G interface line cards.
5.	Should have minimum of 3.84 Tbps full duplex or more per interface slot throughput.
6.	All the interfaces / line-cards should be non-blocking and wire-speed for 64 bytes of packet size and have distributed forwarding architecture.
7.	Should have 128K IPv4 Routes, 32K IPv6 Routes, 12K ACL's, 160K MAC Address, 4K active VLAN's and 8 hardware queues per port.
8.	Should support minimum of 32 no of ports per LAG / vLAG / Ether channel.
9.	Should have IPv6 Static routes, OSPFv3, PIM Sparse / Dense mode (SM /DM), Policy-based routing (PBR), Virtual routing and forwarding (VRF), BGP and Netflow/ Jflow/ Sflow.
10.	Should have minimum of 64MB or more of packet buffer size for traffic to support huge file transfers on all the proposed line-cards.
11.	Should support the separation of data and control plane, to be controlled by SDN Controller, utilizing ACI / openflow or equivalent protocol.
12.	The OEM must feature in the Leaders/ Challengers segment of the "Gartner Magic Quadrant for Data Center Networking".
13.	It is preferred that Switch & transceiver to be from same OEM.

8.4.4.3. Civil Work (Masonry work, Flooring, Ceiling, Partitioning Work, Office Workstations, Furniture and Fixtures)

i. False Ceiling

- a) Providing and fixing metal false ceiling with powder coated 0.5mm thick hot dipped galvanized steel tiles 595 x 595 mm with regular edge (10mm) suitable for 25mm grid supported on suitable powder coated galvanized steel grid as per manufacturer specification. The same shall be inclusive of cut outs for lighting, AC grills, Fire detectors, nozzles, etc.
- b) Providing and fixing 12 mm thick fire line Gypsum false ceiling and lighting troughs 300 mm as per design including 100 mm high cornices as lighting pelmets on G.I. frame work, in G.I. vertical supports at every 450mm c/c and horizontal runners at every 900mm c/c self-taping metal screws to proper line and level. The same shall be inclusive of making holes and required framing for fixing electrical fixtures, A.C. grills etc. GI vertical supports to be anchored to slab by means of anchor fasteners.

ii. Furniture and Fixture

- a) Workstation size of min. 18" depth made with 1.5mm thick laminate of standard make over 18mm thick commercial board complete with wooden beading including cutting holes & fixing of cable manager etc. complete with French polish. Edges shall be factory post-formed. The desk shall have the necessary drawers, keyboard trays, cabinets etc. along with sliding / opening as per approved design with quality drawer slides, hinges, locks etc.
- b) Providing & making of storage unit with 18 mm thick MDF board along with 1.5 mm approved laminate colour outside and 2 coat of enamel paint inside the storage of size 1'6"x1'6"x2'4". The same should be provided with all the required accessories including the handle, lock, sliding channel and necessary hardware, etc. complete with French polish
- c) Cabin table of min. depth 2' made with 1.5mm thick laminate of standard make over 19mm thick commercial board complete with wooden beading including cutting holes & fixing of cable manager etc. complete with French polish.
- d) Providing, making & fixing 6" high laminated strip using 1.5mm thick laminate over 10mm thick commercial board on all vertical surface in the entire server & ancillary areas including low height partition, brick wall, partition wall, cladding etc. complete with French polish in all respect.
- e) Providing, making & fixing an enclosure for gas cylinder of Shutters and Partitions along with wooden support and 18 mm thick MDF board along with 1.5 mm approved laminate colour outside and 2 coat of enamel paint inside the shutter. The same should be provided with all the required accessories including the handle, lock, loaded hinges, tower bolt and necessary hardware etc. complete with French polish.

iii. Partitions (wherever required as per approved drawing)

- a) Providing and fixing in position full height partition wall of 125 mm thick fire line gyp-board partition using 12.5 mm thick double fire line gyp-board on both sides with GI steel metal vertical stud frame of size 75 mm fixed in the floor and ceiling channels of 75 mm wide to provide a strong partition. Glass wool insulation inside shall be provided as required. Fixing is by self-tapping screw with vertical studs being at 610 mm intervals. The same should be inclusive of making cut-outs for switch board, sockets, grill etc. It shall also include preparing the surface smoothly and all as per manufacture's specification etc. finally finishing with one coat of approved brand of fire resistant coating.

- b) With glazing including the framework of 4" x 2" powder coated aluminium section complete (in areas like partition between server room & other auxiliary areas).
- c) Providing & fixing Fire Rated Wire Glass minimum 6 mm thick for all glazing in the partition wall complete. (External windows not included in this).
- d) All doors should be minimum 1200 mm (4 ft.) wide.

iv. Cable Work

- a) Cable ducts should be of such dimension that the cables laid in it do not touch one another. If found necessary the cable shall be fixed with clamps on the walls of the duct. Cables shall be laid on the walls/on the trays as required using suitable clamping/ fixing arrangement as required. Cables shall be neatly arranged on the trays in such manner that a criss-crossing is avoided and final take off to switch gear is easily facilitated.
- b) All cables will be identified close to their termination point by cable number as per circuit schedule. Cable numbers will be punched on 2mm thick aluminum strips and securely fastened to the. In case of control cables all covers shall be identified by their wire numbers by means of PVC ferrules. For trip circuit identification additional red ferrules are to be used only in the switch gear / control panels, cables shall be supported so as to prevent appreciable sagging. In general distance between supports shall not be greater than 600mm for horizontal run and 750mm for vertical run.
- c) Each section of the rising mains shall be provided with suitable wall straps so that same the can be mounted on the wall.
- d) Whenever the rising mains pass through the floor they shall be provided with a built-in fire proof barrier so that this barrier restricts the spread of fire through the rising mains from one section to the other adjacent section.
- e) Neoprene rubber gaskets shall be provided between the covers and channel to satisfy the operating conditions imposed by temperature weathering, durability etc.
- f) Necessary earthing arrangement shall be made alongside the rising mains enclosure by Mean of a GI strip of adequate size bolted to each section and shall be earthed at both ends. The rising mains enclosure shall be bolted type.
- g) The space between data and power cabling should be as per standards and there should not be any criss-cross wiring of the two, in order to avoid any interference, or corruption of data.

v. Air Conditioning

The TMCC vendor shall make necessary arrangement for provision of proper air-conditioning at Control Centre for proper functioning of equipments.

vi. Rodent Repellent system:

The entry of Rodents and other unwanted pests shall be controlled using non-chemical, non-toxic devices. Ultrasonic pest repellents shall be provided in the false flooring and ceiling to repel the pests without killing them. However periodic pest control using Chemical spray can be done once in 3 months as a contingency measure to effectively fight the pest menace.

Configuration	Master console with necessary transducer
Operating Frequency	Above 20 KHz (Variable)

Sound Output	50 dB to 110 dB (at 1 meter)
Power output	800 mW per transducer
Power consumption	15 W approximately
Power Supply	230 V AC 50 Hz
Mounting	Wall / Table Mounting