

RFP for Providing Services of Hybrid ETC and Toll Management Systems at Eastern Peripheral Expressway (EPE)



**Indian Highways Management
Company Ltd.**

(CIN-U74140DL2012PLC246662)

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NOTICE INVITING TENDER

(Tender Ref No :) - IHMCL/EPExp/JICA/2017/New

Indian Highways Management Company Ltd (IHMCL) invites bids for engagement of service providers for “Providing Services of Hybrid ETC and Toll Management Systems at Eastern Peripheral Expressway”. The engagement shall initially be for a period of **one year and six months (18 Months), and may be extended further up to six months whether in piece meal or at one go, at sole discretion of IHMCL at the cost quoted by successful bidder on the same terms and conditions as mentioned in RFP.**

The Service Provider shall be responsible to provide the services in accordance with the Detailed Scope of Work as described in the Article -10.

The prospective bidders are hereby invited to submit Technical and Financial bids for the **“Providing Services of Hybrid ETC and Toll Management Systems at Eastern Peripheral Expressway”, latest by 09.01.2018** in the pro-forma prescribed herein. No change in the prescribed formats and in the mode of bid submission is permissible.

SCHEDULE OF IMPORTANT EVENTS / ACTIVITIES

S. No.	EVENT(S)	DATE
1.	Issue of RFP Document	08.01.2018
2.	Last date for submission of queries/clarifications	14.01.2018
3.	Pre - bid meeting	15.01.2018 at 11:00 am
4.	Last date/ time for submission of bids (i.e. <i>Bid due date</i>)	29.01.2018 before 14:00am
5.	Opening of Technical Bids	29.01.2018 at 15:00 pm
6.	Opening of Financial bids	To be intimated

NOTE: The above-mentioned schedule of event(s) may be changed, at the discretion of IHMCL, without assigning any reason. Such change of date(s), if any, will be suitably notified only through IHMCL's website www.ihmcl.com. Interested persons/ Prospective Bidders are advised to periodically monitor the information relating to this tender on IHMCL's website.

ARTICLE-1

TENDER APPLICATION FEE AND BID SECURITY

- 1.1** The Bidder shall pay **Tender Application Fee** (non-refundable) amounting to **INR 5,000/- (Rupees Five Thousand Only)** by way of **DD / Pay Order drawn in Favor of “Indian Highways Management Company Ltd”, payable at New Delhi.**
- 1.2** The Bidder shall furnish Earnest Money Deposit (EMD) of **INR 10 Lakh (Rupees Ten Lakh only)** by way of Bank Guarantee (EMBG) in the prescribed format. IHMCL shall not be liable to pay any interest on the EMD.
- 1.3** The EMBG shall remain valid and in force for a period of 180 days (one hundred eighty days) after bid due date. For counting the period of validity of the EMBG, the last date of submission of bids shall be excluded. The claim period of EMBG shall be validity period further extended by 60 days thereafter.
- 1.4** The EMBG from following banks only shall be accepted:-
- i. Any Indian Nationalized Bank.
 - ii. A Foreign Bank (issued by a branch outside India) with a counter guarantee from SBI or any Indian Nationalized Bank.
 - iii. Any Scheduled Commercial Bank approved by RBI having a net worth of not less than INR 500 Crores as per the latest Audited Balance Sheet of the Bank. In the case of a Foreign Bank (issued by the branch of India) the net worth in respect of the Indian operations shall only be taken into account.
- 1.5** The acceptance of the EMBG shall also be subject to the following condition:-
- 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.
- 1.6** An EMBG shall be declared unacceptable, if
- i. It does not comply with the requirements stipulated herein above;
 - ii. It's validity is lesser than the prescribed period;
 - iii. The EMBG is not of requisite amount mentioned here in above;
 - iv. There is a material deviation in the format of EMBG submitted by the bidder from the prescribed format, which is likely to adversely affect the rights of IHMCL for encashment of EMBG in the event of default.
- 1.7** Any bid *not accompanied* by acceptable EMD and/or Tender Application Fee in the prescribed manner shall be summarily rejected.

1.8 The EMBG of unsuccessful bidders shall be returned normally within 30 days after closure of the tender process i.e. signing of the contract agreement with the successful bidder.

1.9 IHMCL reserves the right to annul or cancel the bidding process at any time, at its sole discretion, without giving any reason whatsoever.

1.10 In case any bidder has submitted a Bank Guarantee for EMD to IHMCL in respect of any previous bid and the same has not been returned by IHMCL, the bidder can submit a letter requesting IHMCL to accept the same Bank Guarantee as EMD for this Tender. The decision of IHMCL in this regard shall be final.

1.11 FORFEITURE OF EMD:

The Bidder, by submitting its Bid pursuant to this RFP, shall be deemed to have acknowledged and confirmed that in the event of IHMCL suffering any loss or damage on account of withdrawal of its Bid or for any other default by the Bidder during the period of Bid validity as specified in this RFP, IHMCL shall be entitled to forfeit and appropriate the EMD as Damages thereof. Without prejudice to the generality of the foregoing, following acts or omission on the part of the Bidder shall result in the forfeiture of EMD by IHMCL-

i. If a bidder submits a non-responsive bid:

Subject to, however, that in the event of forfeiture and/ or appropriation of EMD occurring due to operation of this sub para, the damage so claimed by IHMCL shall be restricted to 25% of the value of EMD.

ii. If a Bidder engages in a corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice; or

iii. If a Bidder withdraws its Bid during the period of Bid validity as specified in this RFP and as further extended by IHMCL; or

iv. If the bidder tries to influence the evaluation process; or

v. If a Bidder having been notified as Successful Bidder by IHMCL through issuance of Letter of Award (LOA) during the bid validity period-

(i) Fails or refuses to sign & return the copy of LOA as acceptance of award within stipulated time.

(ii) Fails or refuses to furnish the Performance Security, in accordance with the conditions of RFP specified herein; or Fails or refuses to execute/sign the Contract within the stipulated time frame.

ARTICLE-2

ELIGIBILITY AND PRE-QUALIFICATION CRITERIA

2.1 The Applicant or Bidder may be:

2.1.1 A Company incorporated and registered in India under the Companies Act, 2013/1956.

OR

2.1.2 A Wholly owned subsidiary Company (WOS) registered in India of a Foreign Company having requisite experience. For considering the experience of the Foreign Holding Company ("Parent Company"), the WOS registered in India should provide an undertaking from their Parent Company confirming thereby:

- i. Perpetual and unconditional access to assets, intellectual property, expertise, personnel and facilities of the Parent Company to the WOS;
- ii. Sharing of risks and profits of the WOS by the Parent Company; and
- iii. That the Parent Company has sufficient representation and control of the management of WOS to control the activities of the subsidiary.

Subject to and fulfillment of the conditions as mentioned above ,, the experience and the details of the Parent Company will be considered, otherwise the details/ experience of WOS only, will be considered.

It is clarified that under this concept, there is no involvement of Parent Company; the WOS shall participate as a sole bidder.

OR

2.1.3 A Joint Venture (JV)/ Consortium subject to fulfilling following conditions:

- a. All Partners of the JV/Consortium shall be entities incorporated and registered in India under the Companies Act, 2013/1956.**
- b. Maximum number of partners in the JV or Consortium shall be Three;**
- c. The Partners in a JV or Consortium shall be jointly and severally liable;**
- d. The Lead Partner in the JV or Consortium shall be single largest partner in terms of Capital contribution to the Capital of JV/Consortium.**
- e. The eligibility/ experience of JV or Consortium shall be considered cumulatively.**
- f. The eligibility/ experience of any partner of JV or Consortium shall be considered only if the partner is proposed to hold at least twenty six percent (26%) of capital contribution in the JV/ Consortium.**

- g.** The parties in JV or Consortium cannot be part of any other JV / Consortium or bid individually for the same project. Effectively one party shall be bidding only once, either as an standalone company or as a part of Consortium / JV for this project.

2.2 Eligibility Criteria

A. Technical Strength:

The Bidder should be an entity operating in the field of Tolling Systems for Highways and should have successfully supplied, installed, commissioned; and/ or carried out system integration & maintenance of tolling systems for at least **40 ETC Lanes with RFID transceivers and 80 Cash Toll Lanes** across one or more projects.

B. Financial Strength:

- i.** Bidder should have an average Annual turnover of minimum INR 30 Crore (Rupees Thirty Crore), during the last 3 financial years (FY 2014-15, 2015-16 and 2016-17).
- ii.** The bidders should have positive net worth for each of the the last three financial years (FY 2014-15, 2015-16 and 2016-17).
- iii.** In case of a JV or consortium, the combined financial turnover/net worth of all Partners in proportion of their respective capital contribution in JV/Consortium shall be considered cumulatively.

ARTICLE-3

INSTRUCTIONSTO BIDDERS

3.1 General terms of Bidding

- 3.1.1 The Bid document shall be typed or written in indelible ink and signed by the authorized signatory of the Bidder who shall also initial each page, in blue ink. 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 Bid shall be initialed by the person(s) signing the Bid.
- 3.1.2 No Bidder shall submit more than one Bid. A Bidder bidding whether as standalone entity or as a member of a JV/Consortium shall not be entitled to submit another bid either stand alone or as a member of any Consortium, as the case maybe.
- 3.1.3 Bid documents shall be properly bound in a manner such as to avoid replacement/misplacement / changing / tampering of the documents.
- 3.1.4 If any requisite document/ certificate are 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.
- 3.1.5 **The Technical Bid shall not include any commercial quote.**
- 3.1.6 Bids submitted by fax, telex, telegram or e-mail shall not be entertained and shall be rejected.
- 3.1.7 Bids received by IHMCL after the specified time on the Bid Due Date, shall not be eligible for consideration and shall be rejected.
- 3.1.8 The Bidders are expected to carry out their own surveys, investigations and other detailed examination of the Project before submitting their Bids. Nothing contained in the RFP shall be binding on IHMCL nor confer any right on the Bidders, and IHMCL shall have no liability whatsoever in relation to any issue or matter arising out of any or all contents of this RFP.
- 3.1.9 Notwithstanding anything to the contrary contained in this RFP, the detailed terms specified in the Service Provider Agreement to be executed between the Successful Bidder and IHMCL shall have overriding effect; provided, however, that any conditions or obligations imposed on the Bidder hereunder shall continue to have effect in addition to its obligations under the Service Provider Agreement executed as aforesaid
- 3.1.10 In the event of any difference between figures and words, the amount indicated in words shall be taken into account.

- 3.1.11 In case the Bidder is a Consortium, the Members thereof should furnish a Power of Attorney in favour of the Lead Member in the prescribed format under article 11.3.
- 3.1.12 Bidders are to treat all information as strictly confidential and shall not use it for any purpose other than for preparation and submission of their Bid. The provisions of this Clause shall also apply *mutatis mutandis* to Bids and all other documents submitted by the Bidders, and IHMCL will not return to the Bidders any Bid, document or any information provided along therewith.
- 3.1.13 A Bidder shall not have a conflict of interest (the "Conflict of Interest") that affects the Bidding Process. At any stage of bidding process, any Bidder found to be having a Conflict of Interest shall be disqualified.
- 3.1.14 In the event of disqualification due to clause 3.1.12 , IHMCL shall be entitled to forfeit and appropriate the EMD, as the case may be, up to a 25% of the Security value as **Damages**, without prejudice to any other right or remedy that may be available to IHMCL under the Bidding Documents and/or the Service provider Agreement or otherwise. Without limiting the generality of the above, a Bidder shall be deemed to have a Conflict of Interest affecting the Bidding Process, if:
- i. The Bidder, its shareholder or Associate (or any constituent thereof) and any other Bidder, its shareholder or any Associate thereof (or any constituent thereof) have common controlling shareholders or common ownership; provided that this disqualification shall not apply in cases where the direct or indirect shareholding of a Bidder, its shareholder or an Associate thereof in the other Bidder, its shareholder or Associate, is less than 5% (five per cent) of the subscribed and paid up equity share capital thereof; provided further that this disqualification shall not apply to any ownership by a bank, insurance company, pension fund or a public financial institution referred to in section 2(72) of the Companies Act, 2013. For the purpose of this clause subscribed and paid up share capital as on the day of submission of the Bid shall be taken into account.
 - ii. A constituent of such Bidder is also a constituent of another Bidder; or
 - iii. Such Bidder, its shareholder or any Associate thereof receives or has received any direct or indirect subsidy, grant, concessional loan or subordinated debt from any other Bidder, its shareholder or Associate, or has provided any such subsidy, grant, concessional loan or subordinated debt to any other Bidder, its shareholder or any Associate thereof; or
 - iv. Such Bidder has the same legal representative for purposes of this Bid as any other Bidder; or
 - v. Such Bidder, or any Associate thereof, has a relationship with another Bidder, or any Associate thereof, directly or through common third party/

parties, that puts either or both of them in a position to have access to each others' information about, or to influence the Bid of either or each other; or

vi. Such Bidder or any Associate thereof has participated as a consultant to IHMCL in the preparation of any documents, design or technical specifications of the Project.

vii. In case a Bidder is a JV/Consortium, then the term Bidder as used in this Clause, shall include each Partner of such JV/Consortium.

3.1.16 For purposes of this RFP, Associate means, in relation to the Bidder/ Partners of JV/Consortium , a person who controls, is controlled by, or is under the common control with such Bidder/ Partners of JV/Consortium. As used in this definition, the expression "control" means, with respect to a person which is a company or corporation, the ownership, directly or indirectly, of more than 50% (fifty per cent) of the voting shares of such person, and with respect to a person which is not a company or corporation, the power to direct the management and policies of such person by virtue of ownership interest, capital contribution , or operation of law.

3.1.17 A Bidder shall be disqualified and EMD or, as the case may be, shall be appropriated by IHMCL, if any legal, financial or technical adviser of IHMCL in relation to the Project, is engaged by the Bidder or its Members or any Associate thereof, in any manner, for matters related to, or incidental to such Project, anytime during and after the Bidding Process, up to the Agreement Period.

3.1.18 This RFP is not transferable.

3.1.19 The Financial Proposal Evaluation will be based on the "Total Cost per Quarter", which would be the total pay-outs excluding all taxes etc. by IHMCL to Service Provider.

If there is a discrepancy between the unit price & the total price, the unit price shall prevail and IHMCL shall correct the total price. If there is a discrepancy between words & figures, the amount in words shall prevail. If the bidder does not accept the correction of errors, his bid shall be rejected and the EMD will be forfeited.

3.2 Change in composition of the Consortium

3.2.1 Where the Bidder is a Consortium, change in composition of the Consortium may be permitted by the IHMCL during the Bid Stage, only where:

- (a)** The Lead Partner continues to be the Lead Partner of the Consortium;
- (b)** The Incoming Partner is at least equal to or more than , in terms of Technical Capacity and Financial Capacity, to the Consortium Member who is sought to be substituted (Outgoing Partner) and the modified Consortium shall continue to meet the pre - qualification and short-listing criteria for Applicants; and

- (c) The Incoming Partner (s) expressly adopt(s) the Application already made on behalf of the Consortium as if it were a party to it originally duly supported by Deed of Adherence : and
- (d) The Incoming Partner is not a Stand alone Bidder or , Partner of any other JV/Consortium bidding for this Project.

3.2.2 Approval for change in the composition of a Consortium shall be at the sole discretion of IHMCL. The Bidder must submit its application for change in composition of the Consortium at least 7 (seven) days prior to the Bid Due Date.

3.2.3 The modified/ reconstituted Consortium shall submit a revised Joint Bidding Agreement and a Power of Attorney, in the prescribed format, prior to the Bid Due Date.

3.3 Change in Ownership

3.3.1 Each of the Consortium / JV Partners shall, hold, not less than 26% (twenty six per cent) of the subscribed and paid-up equity of the JV/Consortium Service Provider, for a minimum of 2 years, from the date of Signing of Contract Agreement/Service Provider Agreement.

3.3.2 By submitting the Bid, the Bidder shall also be deemed to have acknowledged and agreed that in the event of a change in control of a Consortium Partner whose Technical Capacity and/ or Financial Capacity was taken into consideration for the purposes of qualification under and in accordance with this RFP, the Bidder shall be deemed to have knowledge of the change as described here in above and shall be required to inform IHMCL forthwith along with all relevant particulars about the same and IHMCL may, in its sole discretion, disqualify the Bidder or withdraw the LOA from the Selected Bidder, as the case may be. In the event such change in control occurs after signing of the Service Provider Agreement it would notwithstanding anything to the contrary contained in the Service Provider Agreement, be deemed to be a breach of the Service Provider Agreement, and the same shall be liable to be terminated and IHMCL may forfeit and appropriate the Bid Security or Performance Security, as the case may be, as Damages without IHMCL being liable in any manner whatsoever to the Service Provider.

3.4 Cost of Bidding

The Bidders shall be responsible for all of the costs associated with the preparation and submission of their Bids. 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 Verification of information

3.5.1 On submission of a Bid in pursuance of this RFP, a Bidder shall be deemed to have:

- (a)** Made a complete and careful examination of the Bidding Documents;
- (b)** Received all relevant information requested from IHMCL;
- (c)** Accepted the risk of inadequacy, error or mistake in the information provided in the Bidding Documents or furnished by or on behalf of IHMCL;
- (d)** Satisfied itself about all matters, things and information necessary and required for submitting an informed Bid, execution of the Project in accordance with the Bidding Documents and performance of all of its obligations thereunder;
- (e)** Acknowledged and agreed that inadequacy, lack of completeness or incorrectness of information provided in the Bidding Documents or ignorance of any of the matters referred herein above shall not be a basis for any claim for compensation, damages, extension of time for performance of its obligations, loss of profits etc. from IHMCL, or a ground for termination of the Service Provider Agreement by the Service Provider;
- (f)** Acknowledged that it does not have a Conflict of Interest; and
- (g)** Agreed to be bound by the undertakings provided by it under and in terms hereof.

3.5.2 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 RFP, the Bidding Documents or the Bidding Process, including any error or mistake therein or in any information or data given by IHMCL.

3.6 Verification and Disqualification

3.6.1 IHMCL reserves the right to verify all statements, information and documents submitted by the Bidder in response to the RFP or the Bidding Documents and the Bidder shall, when so required by IHMCL, make available all such information, evidence and documents as may be necessary for such verification. 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 there under.

3.6.2 IHMCL reserves the right to reject any Bid and appropriate the EMD 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 Bid. Such misrepresentation/ improper response shall lead to the disqualification of the Bidder.

If the Bidder is a Consortium, then the entire Consortium and each Partner may be disqualified/ rejected. If such disqualification / rejection occurs after the Bids

have been opened and the Bidder with the highest total score gets disqualified / rejected, then the IHMCL reserves the right to take any such measure as may be deemed fit in the sole discretion of IHMCL, including annulment of the whole Bidding Process or awarding the work to the bidder with the second highest score.

3.6.3 In Case it is found that the bidder has made material misrepresentation or submitted materially incorrect or false information, or any of the qualification conditions have not been met by the Bidder, at any time during the Bidding process or Agreement Period, the Bidder shall be disqualified and IHMCL shall be entitled to forfeit and appropriate the entire Bid Security or Performance Security as the case may be.

3.7 Clarifications

3.7.1 Bidders requiring any clarification on the RFP may notify IHMCL in writing or e-mail at the addresses/e,mail ids of IHMCL given in Clause 4.4.3 of RFP as per specified format. They should send in their queries on or before the date mentioned in the Schedule of Bidding Process. IHMCL shall respond to the queries, at the earliest. The responses will be published on IHMCL's website, without identifying the source of queries.

Format for sending query/clarification: -

SI No	RFP reference	Query related to Clause	Explanation of the Query	Suggestion (If any)

3.7.2 No further queries shall be entertained after pre-bid meeting date as specified in RFP.

3.7.3 IHMCL may or may not respond to any question or provide any clarification, in its sole discretion.

3.8 Amendment of RFP

3.8.1 At any time prior to the Bid Due Date, IHMCL may, for any reason, whether at its own initiative or in response to clarifications requested by a Bidder, modify the RFP by the issuance of Addenda.

3.8.2 Any Addendum issued hereunder will be in writing and shall be published on IHMCL/NHAI website.

3.8.3 In order to afford the Bidders a reasonable time for taking an Addendum into account, or for any other reason, the IHMCL may, in its sole discretion, extend the Bid Due Date.

ARTICLE-4

BID DOCUMENTS, PREPARATION AND SUBMISSION

- 4.1 Detailed RFP document can be viewed / downloaded from IHMCL/ NHAI website
- 4.2 Bidder(s) have to pay (a) the Tender Application Fee (non-refundable); and (b) Bid Security, in the prescribed manner.
- 4.3 The amendments/clarifications to the RFP, if any, will be published on IHMCL/NHAI website.
- 4.4 PREPARATION & SUBMISSION OF BIDS:
- 4.4.1 The Bid shall remain valid for 180 days w.e.f. the Bid Due Date and comprise of the following:
- 4.4.2 The Bid Envelope shall be marked as “RFP for Providing Services of Hybrid ETC and Toll Management Systems at Eastern Peripheral Expressway (EPE)”.
- 4.4.3 The Bid should be addressed to: -
Manager (Projects),
2nd Floor, MTNL Building,
Sector-19, Dwarka – 110075, New Delhi
info@ihmcl.com
- 4.4.4 The envelope should also bear the bidder’s name & address. If the envelope is not sealed and marked as above, IHMCL will assume no responsibility for the misplacement or premature opening of the contents of the envelope and consequent losses, if any, suffered by the Bidder. Such Bids may also be declared non-responsive.
- 4.4.5 The Bid envelope shall contain the Bid documents in manner described below:
- 4.4.5.1 PART 1 (Pre-qualification cum Technical Bid) – Envelope-1
The Documents specified below shall be serially marked, filed and placed in a sealed envelope. The envelope should bear the following identification: “Eligibility Bid for Tender Ref:-

List of Documents

- i. Bid Covering Letter
- ii. Demand Draft / Pay Order of Tender Application Fee of prescribed amount.
- iii. Bid Security (EMD) of appropriate amount and in the prescribed manner;

- iv. Original Power of Attorney¹ in favor of authorized signatory in the prescribed format (Article 11.3).
- v. Incorporation certificate, MoA / AoA of the Bidder or each of the Partner if Bidder is a JV/Consortium.
- vi. Copy of Board Resolution and/ or Power of Attorney in the prescribed format / any other supporting document indicating that the person signing the bid has the required authority to sign on behalf of the Bidder.
- vii. Documentary proof of shareholding details.
- viii. Documentary proof for access to parent company's assets, in case of WOS.
- ix. JV / Consortium Agreements with shareholding details in case of JV / Consortium. Following document shall also be submitted as part of the Technical Bid:
 - i The documentary proof in support of fulfilling the eligibility criteria by the sole Applicant or by the Consortium/ JV, as the case may be, along with a copy of MoU/JV Agreement as well as other relevant documents as stipulated herein above. The JV / Consortium Agreement should clearly describe the responsibility/obligations of each partner.
 - ii Brief background of the each JV / consortium partner in format prescribed.
 - iii Documents substantiating eligibility of each JV / consortium partner.
- x. Power of Attorney in favor of Lead bidder, in case of JV/Consortium.
- xi. Duly filled specified format i.e. Article 11.3 along with self-certified copy of Documentary proof in the form of copy of contract / work order and / or IHMCL's testimonials, if any, shall be submitted for Technical eligibility as required under Clause 2.2.
- xii. Documentary proof in the form of copy of contract agreement/ work order/PO/work completion certificates/Experience Certificates shall be submitted for Technical Strength as required under Clause 5.10.2 in table "Technical Evaluation Scheme".
- xiii. Documentary proof in the form of a certificate from the Practicing Company Secretary or statutory auditor/ chartered accountant as per the specified format shall be submitted to substantiate the requisite financial turnover/net worth of the Company, shall be submitted for Technical eligibility as required under Clause 2.3.

4.5 MODIFICATION /SUBSTITUTION/ WITHDRAWAL OF BIDS:

- i. The Bidder may modify, substitute or withdraw its bid after submission prior to the Bid Due Date. No Bid shall be modified, substituted or withdrawn by the Bidder on or after the Bid Due Date.
 - ii. Any alteration/modification in the Bid or additional information supplied, subsequent to the Bid Due Date, unless the same has been expressly sought for by IHMCL, shall be disregarded.
 - iii. For withdrawal of bid, Bidder has to give written application to IHMCL.
 - iv. Before withdrawal of a bid, it may specifically be noted that after withdrawal of a bid for any reason, Bidder cannot re-submit the bid again.
 - v. The invitation and submissions of bids under this RFP shall not be binding on IHMCL in any manner. Further, IHMCL shall reserve the right to reject any or all of the bids received or cancel the tender process without assigning any reasons whatsoever, without incurring any liability on this account.
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ARTICLE-5

BIDDING PROCESS

5.1 GENERAL

Bidders are advised to study the RFP document carefully. Submission of the bid will be deemed to have been done after careful study and examination of ground realities as well as all the instructions, eligibility norms, terms & conditions, requirements and specifications available in the RFP document with full understanding of its implications. The Bidder is expected to examine carefully all the instructions, conditions of Contract, forms for submitting Technical and Financial Bids and scope of work in the RFP document before submitting their Bids. Failure to comply with all the requirements of RFP document shall be at the Bidder's own risk. Bids, which are not substantially responsive to the requirements of the RFP document, shall be declared non-responsive and shall not be considered for evaluation.

The Bidders are advised to use the prescribed forms for submission of their Technical as well as Financial Bids. The Bidders are further advised to cross-check the completeness of their Bid before submission. The Technical and Financial Bid shall be signed by the Authorized Signatory of the bidder. The authorized signatory holding Power of Attorney shall only be the Signatory. In case authorized signatory holding Power of Attorney and Signatory are not the same, the bid shall be considered non-responsive.

No change in the terms and conditions given in this RFP document by the Bidder is permissible. In case any Bidder submits a conditional Bid, the same shall be declared non-responsive.

5.2 CONTENT OF BIDDING DOCUMENTS

Please refer to relevant 'Attachment/Annexure' of this document.

5.3 PREPARATION AND SUBMISSION OF BID

Please refer to relevant 'Attachment/Annexure' of this document.

All the Bids (Technical & Financial bids) will have to be submitted ONLY in HARD BOUND(Hard bound implies such binding between two covers through stitching or otherwise whereby it may not be possible to replace any paper without disturbing the document) form with all pages sequentially numbered either at the top or at the bottom right corner of each page. It should also have an index giving page wise information of

above documents. Bids without hard bound will summarily be rejected. The spiral bound document is not hard bound and will be summarily rejected.

5.4 CURRENCIES OF BID AND PAYMENT

The prices shall be quoted by the Bidder in Indian National Rupees (INR). All payment shall be made in Indian Rupees.

5.5 BID VALIDITY

The Bid must be valid for a period of 180 days from the last date of submission of the bid ("Validity Period"). The quoted rates shall prevail during the Contract period. No request will be considered for price revision during this period for any reason whatsoever.

A bid valid for a shorter period shall be declared as non-responsive.

IHMCL will make its best effort to complete the bidding process within bid validity period. In exceptional circumstances, prior to expiry of the time limit, IHMCL may request the Bidder(s) to extend the period of validity for a specified additional period beyond the original validity of 180 days. Such request and the bidders' responses shall be made in writing. The bidder(s) not agreeing for such extensions will be allowed to withdraw their bids without forfeiture of their Bid Security.

5.6 MODIFICATION / WITHDRAWAL OF BIDS:

Please refer to relevant 'Attachment/Annexures' of this document.

5.7 INVALID OFFERS

The Bids submitted in any manner other than that prescribed above shall be deemed to be invalid proposal and shall not be considered. No correspondence will be entertained on this matter.

5.8 PROCESS TO BE CONFIDENTIAL

Information relating to the examination, clarification, evaluation and comparison of Bids and recommendations for the award of a Contract shall not be disclosed to Bidders or any other persons not officially concerned with such process until the award to the Successful Bidder has been announced. Any effort by a Bidder to influence IHMCL's processing of Bids or award decisions may result in the rejection of his Bid. IHMCL will treat all information, submitted as part of the Bid, 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.

5.9 OPENING AND EXAMINATION OF BIDS

- a. The bids will be opened in the presence of the bidders who choose to attend on the time and date specified in “SCHEDULE OF IMPORTANT EVENTS / ACTIVITIES”.
- b. The Evaluation Committee (hereinafter called ‘EC’) constituted by IHMCL, shall examine and evaluate the bids in accordance with the provisions set out. Prior to evaluation of the bids, IHMCL shall determine as to whether each bid is responsive to the requirements of this RFP document. If at any time during the evaluation process, the EC requires any clarification in order to carry out the evaluation, it reserves the right to request information / clarification from any Bidder, and the Bidder concerned shall be obliged to respond to any request for such information/ clarification and to supply the same to the EC within such reasonable timeframe as EC may require.
- c. Financial bid of Pre-qualification-cum-Technical Stage non-responsive/ ineligible bidders shall not be opened.
- d. This RFP confers neither the right nor expectation on any party to participate in the selection process. IHMCL reserves the right to reject any or all of the bids, if it considers necessary to do so, or to vary any of its terms at any time without giving any reason or incurring any liability thereto.

5.10 EVALUATION PROCESS

A three-stage evaluation procedure will be adopted:

Stage-1: Pre-qualification

Stage-2: Technical Evaluation

Stage-3: Financial Evaluation

5.10.1 Stage-1: Pre-qualification

As part of the evaluation, the Pre-qualification documents shall be checked for responsiveness in accordance with the requirements of the RFP and only those bids which are found to be responsive would be further evaluated in accordance with the criteria set out. List of Documents considered for pre-qualification stage are mentioned in Article-4 of this RFP.

5.10.2 Stage-2: Technical Evaluation

- I. Technical Eligibility Bid Evaluation Criteria: The evaluation committee ("Evaluation Committee") appointed by the IHMCL will carry out the technical evaluation of Bid on the basis of the following evaluation criteria and points system. Evaluators of Technical Eligibility Bid shall have no access to the Financial Eligibility Bid until technical evaluation, is concluded. Each evaluated Bid will be given a technical score (TS) as detailed below. The maximum points/ marks to be given under each of the evaluation criteria are provided in the subsequent table.

Technical Evaluation Scheme

S.No.	Criteria	S.No.	Sub-Criteria	Marks
A	Financial Strength	A1	<p>Bidder's Average Annual Turnover over the last 3 financial years (FY 2014-15, 2015-16 and 2016-17)*.</p> <ul style="list-style-type: none"> • INR 30 to 50 Cr : 10 Marks • >INR 50 to 70 Cr : 15 Marks • >INR 70 Cr: 20 Marks 	20
B	Technical Strength**	B1	<p>Experience in implementing & operationalising ETC Lanes using RFID transceivers</p> <ul style="list-style-type: none"> • 40 to 60 Lanes : 15 Marks • 61 to 80 Lanes: 20 Marks • 81 to 100 Lanes: 25 Marks • >100 Lanes: 30 Marks 	30
		B2	<p>Experience in implementing & operationalising Toll Management System for Cash Lane</p> <ul style="list-style-type: none"> • 80 to 100 lanes : 15 Marks • 101 to 120 lanes: 20 Marks • 121 to 140 Lanes: 25 Marks • >140 Lanes: 30 Marks 	30
		B3	<p>Experience in implementing & operationalising Close Loop Tolling system</p> <ul style="list-style-type: none"> • 1 project : 5 Marks • 2 projects : 10 Marks • >=3 projects : 15 Marks <p>Additional 5 marks for ETC enablement in 1 or more</p>	20

			projects	
Total				100

*CA certified statement-showing turnover for 3 financial years FY 201414-15, FY 20115-16 and FY 201616-17

** Bidder should submit the proof as per clause No. 2.2

The Technical Eligibility Bid (TB) which secures the highest marks will be given a technical score (TS) of 100 points. The technical scores (TS) of the other Technical Bid will be determined using the following formula:

$$TS = 100 \times T/TB;$$

Where TS is the technical score, TB is the highest score secured by a Technical Bid, and T is the score of the Technical Bid under consideration.

Minimum technical score (TS) required to qualify technical evaluation is 50. A proposal will be considered unsuitable and will be rejected at this stage if it does not respond to important aspects of RFP Document and if it fails to achieve the TS. The IHMCL will notify Bidder who fails to score the TS about the same and return their financial bid unopened after completing the selection process.

5.10.3 Stage 3: Financial Evaluation

The IHMCL will notify the Bidders who qualify the technical evaluation, indicating the date and time set for opening the Financial Bid. The notification may be sent by registered letter, facsimile, or electronic mail.

The Financial Bid will be opened publicly in the presence of Bidder representatives who choose to attend. The name of the Bidder, their technical scores and the proposed prices will be read aloud and recorded when the Financial Bid is opened.

Prior to evaluation of the Financial Bid, the Evaluation Committee will determine whether the Financial Bid is complete in all respects, and submitted in accordance with the terms hereof.

The cost indicated in the Financial Bid shall be deemed as final and reflecting the total cost of services and should be stated in INR only. Omissions, if any, in costing of any item shall not entitle the Bidder to be compensated and the liability The lowest Financial Bid (FB) will be given

a financial score (FS) of 100 points. The financial scores (FS) of the other Financial Bid will be determined using the following formula:

$$FS = 100 \times FB/F;$$

in which FS is the financial score, FB is the lowest Financial Bid, and F is the Financial Proposal (in INR) under consideration. Proposals will be finally be ranked in accordance with their combined technical (TS) and financial (FS) scores:

$$S = TS \times Tw + FS \times Fw;$$

where S is the combined score, and Tw and Fw are weights assigned to Technical Bid and Financial Bid that will be in ratio of 0.6:0.4 respectively.

The Bidder achieving the highest combined technical and financial score will be considered to be the Successful Bidder and will be issued LOA and invited for contract signing subject to fulfillment of other conditions as mentioned in this RFP document.

5.10.4 General Conditions

- i. To facilitate evaluation of Bids, IHMCL may, at its sole discretion, seek clarifications from any Bidder regarding its Bid. 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. If an Bidder does not provide clarifications sought by IHMCL within the specified time, its Bid may be liable to be rejected. In case the Bid is not rejected, IHMCL may proceed to evaluate the Bid by construing the particulars requiring clarification to the best of its understanding, and the Bidder shall be barred from subsequently questioning such interpretation by IHMCL.
- ii. IHMCL reserves the right to verify all statements, information and documents, submitted by the Bidder in response to this RFP. Any such verification or absence of verification by IHMCL shall not in any manner whatsoever relieve the Bidder of its obligations or liabilities hereunder nor will it affect any rights of IHMCL.
- iii. In case it is found during the evaluation or at any time before signing of the Contract or after its execution and during the period of subsistence thereof, that any eligibility conditions have not been met by the Bidder or if the Bidder has made material misrepresentation or has given any materially incorrect or false information, the Bidder shall be disqualified forthwith if not yet selected (either by issuance of the LOA or entering into of the Contract), and if the Successful Bidder has already been issued the LOA or has entered into the Contract, 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 without IHMCL being liable in any

manner whatsoever to the Successful Bidder, as the case may be. In such an event, IHMCL shall, without prejudice to any other right or remedy that may be available to IHMCL, forfeit and appropriate the Performance Security as mutually agreed pre-estimated compensation and damages payable to IHMCL for, inter alia, time, cost and effort of IHMCL; provided that in the event the Performance Security has not been provided, IHMCL have the right to forfeit the Bid Security and the Bidder, as the case may be, shall be liable for the difference.

- iv. Prior to evaluation of Bid, IHMCL will determine whether each Bid is responsive. The IHMCL may, in its sole discretion, reject any Bid that is not responsive.
- v. IHMCL reserves the right to seek clarifications or additional information from the bidder during the evaluation process. The IHMCL will subsequently examine and evaluate Bids in accordance with the Selection Process detailed out below.

vi. Tests of responsiveness

As a first step towards evaluation of bids, IHMCL shall determine whether each bid is responsive to the requirements of this RFP. A bid shall be considered responsive only if:

- (a) Technical and Financial qualification bid is received as per the format required under this RFP;
- (b) Application is accompanied by the EMD and the application fee as specified in under this RFP;
- (c) Application is accompanied by the Power of Attorneys in the format as required under this RFP;
- (d) Application is accompanied by Power of Attorney for Lead Member of Consortium and the Joint Bidding Agreement as specified in RFP, if applicable;
- (e) Bids contain all the information (complete in all respects);
- (f) Bid does not contain any condition or qualification;
- (g) it is not non-responsive in terms hereof.

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

5.11 AWARD OF CONTRACT

- I. Letter of Award (LOA) shall be issued by IHMCL to the Successful Bidder and he shall be asked to submit a Performance Security and sign the Contract within the specified timeframe as per the LOA, failing which, the offer will be treated as withdrawn and the Bid Security will be forfeited.
- II. The contract will be valid for a period of One Year Six Month, which may be extended to a maximum of 6 months as per the requirement of IHMCL/NHAI at the same cost quoted by successful bidder with same terms and conditions.

- III. IHMCL reserves the right to ask for further clarification and/or justification for the quoted prices from the lowest Bidder in case the quoted prices vary highly (more than 25%) from estimated prices of IHMCL or from average quoted prices of other Bidders.

5.12 NOTIFICATION OF AWARD AND SIGNING OF CONTRACT

- I. The Successful Bidder shall be notified of the award of work by IHMCL in writing through email or facsimile confirmed by post/ courier through issue of LOA.
- II. Upon receipt of LOA, the Successful Bidder shall comply with the conditions of LOA and submit a Letter of Acceptance along with Performance Security of INR 1 Crore (Rupees One Crore only) within the specified timeframe, failing which, the LOA shall stand cancelled and also lead to annulment of the award and forfeiture of the Bid Security. IHMCL shall be entitled to take any other remedy as per law.
- III. Upon furnishing of the Letter of Acceptance along-with Performance Security, the Successful Bidder shall be asked to sign the Contract.

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ARTICLE-6

PERFORMANCE SECURITY

6.1 On receipt of the LOA, the Successful Bidder shall deliver to IHMCL an unconditional and irrevocable Performance Security in the form of a Performance Bank Guarantee (PBG) in the prescribed format. The PBG shall be for an amount of INR 1 Cr. (Rupees One Crore only) and should be in favour of "Indian Highways Management Company Ltd.". The Performance Security shall be valid for a period of 24 months.

6.2 In case the difference between the lowest financial bid (L1) and that of the second lowest financial bid (L2) happens to be more than 25% of L2, then the Successful Bidder shall also be required to submit additional performance security of INR 50 Lakh (Rupees Fifty Lakh only) in the manner prescribed above. The additional performance security in this case shall be required to be submitted by the Successful Bidder to ensure that it shall perform the contractual obligations to the satisfaction of IHMCL despite such lower quote and this additional performance security shall for all purposes be treated as performance security for encashment/ forfeiture.

6.3 The PBG from following banks shall only be accepted:-

- I. Any Indian Nationalized Bank.
- II. A Foreign Bank (issued by a branch outside India) with a counter guarantee from SBI or its subsidiaries or any Indian Nationalized Bank.
- III. Any Scheduled Commercial Bank approved by RBI having a net worth of not less than Rs. 500 Crore as per the latest Audited Balance Sheet of the Bank. In the case of a Foreign Bank (issued by the branch of India) the net worth in respect of the Indian operations shall only be taken into account.
- IV. The acceptance of the PBG shall also be subject to the following conditions:-
- V. The capital adequacy of the Bank shall not be less than the norms prescribed by RBI.
- VI. The bank guarantee issued by a Cooperative Bank shall not be accepted.

6.4 DISQUALIFICATION

IHMCL may at its own sole discretion and at any time during the process, disqualify any bidder, if the bidder has:

- I. Made misleading or false representations in the forms or false statements and attachments submitted in support of proof of eligibility requirements;
- II. Exhibited a record of poor performance such as abandoning works, not properly completing the contract, inordinately delaying completion, being involved in litigation, or

- financial failures, etc.; submitted a bid which is not accompanied by required documentation and non-refundable cost of RFP document or is non-responsive;
- III. Failed to provide clarifications, when sought;
 - IV. Found to be involved in anti-national activity, corruption, political or other type of canvassing in its favor;
 - V. Violated any law or infringed any third party copyright.
 - VI. Any effort by the Bidder to influence IHMCL Bid evaluation, Bid comparison or Contract award decisions may result in the rejection of the Bidders' Bid.

6.5 IHMCL'S RIGHT TO ACCEPT ANY BID AND TO REJECT ANY OR ALL BIDS

IHMCL reserves the right to accept or reject any Bid, and to cancel the bidding process and reject all Bids, at any time prior to the award of Contract, without thereby incurring any liability to the affected Bidder or Bidders or any obligation to inform the affected Bidder or Bidders of the grounds for IHMCL's action.

6.6 CORRESPONDENCE WITH THE BIDDER

Save and except as provided in this RFP, IHMCL shall not entertain any correspondence from any Bidder in relation to the acceptance or rejection of any Bid. IHMCL is not bound to reply/respond to any representation/letter or request for change in scope of the works, eligibility criteria or any relaxation in respect of the RFP conditions. No correspondence will be entertained on this matter.

6.7 INDEMNITY

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

6.8 PROPRIETARY DATA

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

6.9 CORRUPT OR FRAUDULENT PRACTICES

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

- I. Defines, for the purposes of this provision, the terms set forth below as follows:

- a) "Corrupt Practice" means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official/officers and employees of IHMCL in the procurement process or in Contract execution;
 - b) "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) aimed or designed to establish Bid prices at artificial non-competitive levels and to deprive IHMCL of the benefits of free and open competition;
 - c) "Coercive Practice" means impairing or harming, or threatening to impair or harm, directly or indirectly, any person or property to influence any person's participation or action in the bidding process;
 - d) "Undesirable Practice" means (i) Establishing contact with any person connected with or employed or engaged by IHMCL with the objective of canvassing, lobbying or in any manner influencing or attempting to influence the bidding process; or (ii) having a Conflict of Interest; and
 - e) "Restrictive Practice" means forming a cartel or arriving at any understanding or arrangement among Bidders with the objective of restricting or manipulating a full and fair competition in the bidding process.
- II. Will reject a bid for award if it determines that the Bidder recommended for award has engaged in corrupt or fraudulent or coercive or undesirable or restrictive practices in competing for the Contract in question;
- III. Will declare a firm ineligible, either indefinitely or for a stated period of time, to be awarded any Contract by IHMCL if it at any time determines that the firm has engaged in corrupt or fraudulent or coercive or undesirable or restrictive practices in competing for, or in executing, an IHMCL Contract.

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ARTICLE – 7

MISCELLANEOUS

- I. 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.
- II. IHMCL, in its sole discretion and without incurring any obligation or liability, reserves the right, at any time, to;
 - a. 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;
 - b. Consult with any Bidder in order to receive clarification or further information;
 - c. Retain any information and/ or evidence submitted to IHMCL by, on behalf of, and/ or in relation to any Bidder; and/or;
 - d. Independently verify, disqualify, reject and/ or accept any and all submissions or other information and/or evidence submitted by or on behalf of any Bidder.
- III. IHMCL is not bound to reply/ respond to any representation/ letter or request for change in scope of the works, eligibility criteria or any relaxation in respect of the tender conditions. No correspondence will be entertained on this matter.
- IV. 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 Law, any and all rights and/ or claims it may have in this respect, whether actual or contingent, whether present or in future.
- V. IHMCL shall not be responsible for any wrong assessment by the bidder regarding the scope of work and shall not in any case bear any additional cost there from.
- VI. IHMCL reserves the right to ask for further clarification and/or justification for the quoted prices from all the bidders.

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ARTICLE-9

MODIFICATION /SUBSTITUTION/ WITHDRAWAL OF BIDS:

The Bidder may modify, substitute or withdraw its bid after submission prior to the Bid Due Date. No Bid shall be modified, substituted or withdrawn by the Bidder on or after the Bid Due Date.

Any alteration/modification in the Bid or additional information supplied, subsequent to the Bid Due Date, unless the same has been expressly sought for by the IHMCL, shall be disregarded.

For withdrawal of bid, bidder has to give written application to IHMCL.

Before withdrawal of a bid, it may specifically be noted that after withdrawal of a bid for any reason, bidder cannot re-submit the bid again.

The invitation and submissions of bids under this RFP shall not be binding on IHMCL in any manner. Further, IHMCL shall reserve the right to reject any or all of the bids received or cancel the tender process without assigning any reasons whatsoever, without incurring any liability on this account.

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ARTICLE 10

SCOPE OF WORK & PROJECT DURATION

10.1 Background:

In order to remove the bottlenecks associated with manual toll collection and ensure seamless movement of traffic and collection of toll as per the notified rates, the Government had decided to introduce Electronic Toll Collection (ETC) across National Highways in India. For implementing ETC across the country, Indian Highways Management Company Limited (IHMCL) was constituted.

IHMCL has been mandated by NHAI for providing services of Hybrid ETC and Toll Management Systems at the toll plazas of the Eastern Peripheral Expressway project. The details of toll plazas and number of lanes planned for Eastern Peripheral Expressway (EPE) are mentioned in the table below:

S. no	Package	Location	Type	Type of Tolling planned	# of Plaza	No. of Lanes
1	Pkg-I	Ch.5 + 500	Main Carriage	Closed system of toll collection	1	18
2	Pkg-I	Ch.15+360	Interchange	Closed system of toll collection	4	12
3	Pkg-II	Ch.44+537	Interchange	Closed system of toll collection	6	17
4	Pkg-III	Ch. 52 + 174	Interchange	Closed system of toll collection	6	18
5	Pkg-IV	Ch.72 + 724	Interchange	Closed system of toll collection	8	20
6	Pkg-IV	Ch. 83 + 005	Interchange	Closed system of toll collection	2	6
7	Pkg-V	Ch. 108 + 875	Interchange	Closed system of toll collection	4	12
8	Pkg-VI	Ch.132+085	Main Carriage	Closed system of toll collection	1	18
9	Pkg-VI	Ch. 134 + 946	Interchange	Closed system of toll collection	2	8
Total					34	129

10.2 Objective:

To cater to the above requirement, IHMCL intends to engage a Service Provider to undertake the supply, installation, integration, testing, commissioning and configuration of all required hardware & software systems & sub-systems for Hybrid ETC and Toll Management Systems at the plazas in the EPE project in a time bound manner. Service provider is also expected to provide round the clock maintenance for the same during the entire period of contract such that the required services are available at the toll plazas as per service level requirements.

This is to clarify that IHMCL does not seek/intend to procure or purchase any of the equipment, system, sub systems or any components thereof, through this RFP. All the Systems, software, equipment & components supplied by the Service Provider for fulfillment of its obligations as per this RFP shall remain property of the Service Provider.

The duration of the Services shall be for one year and six months (18 Months) initially and may be extended further up to six months whether in piece meal or at one go, at sole discretion of IHMCL at the cost quoted by successful bidder with the same terms and conditions as mentioned in RFP.

10.3 Detailed Scope of Work:

10.3.1 Installation and Integration:

- i. A closed system of toll collection for both cash and ETC system is planned at the toll plazas in the EPE project.
- ii. The service provider shall supply, install, integrate, test, commission and configure all required hardware & software systems & sub-systems for Hybrid ETC and Toll Management Systems at the designated Toll Plazas as per the tolling system mentioned in clause 10.3.1.(i). The implementation details (Phase-wise, Plaza-wise) of the systems (Hardware & Software) and relevant sub-systems are placed at Annexure-A.
- iii. IHMCL shall notify the Service Provider to commence work on the specified Toll Plaza Sites as per instructions/timelines received from NHAI/IHMCL for installation of Hybrid ETC System and Toll Management System in two phases, as shown in Annexure-A.
 - A. **Phase-1:** -Service provider shall complete the Installation, Integration, Commissioning of Toll Management System and Hybrid ETC system and sub systems as specified in Annexure-A on such specified sites within 30 days of the receipt of notification.
 - B. **Phase-2** Service provider shall complete the Installation, Integration, Commissioning of Hybrid ETC system and sub systems as specified in Annexure-A on such specified sites within 45 days of the receipt of notification.
- iv. The service provider shall be responsible for system integration so that the Hybrid ETC and Toll Management System including the sub-

system(s) work coherently and are able to exchange data/ information electronically, among themselves i.e. from each toll plazas under closed system of Toll collection as well as with the acquirer bank and central clearing house for ETC program without any financial implication to Toll operating agency and IHMCL/NHAI.

10.3.2 Operation and Maintenance:

- i. Maintenance, repair and replacement of all hardware, software, peripherals and sub components of all BOQ items shall be the responsibility of Service Provider in adherence to the SLA defined at Section- 10 clause- 10.4 without any further cost to the IHMCL.

- ii. **Type of maintenance work**

The various classifications of maintenance and repair work and related services to be performed by the Service Provider shall include the following:

- (a) Preventive maintenance

The work to be done consists of monthly inspection/cleaning and servicing of various system components and related equipment. Minor deficiencies uncovered during the performance of preventive maintenance shall be corrected immediately.

- (b) Corrective maintenance

The work to be done consists of correcting malfunctions resulting from any cause including but not limited to defective design, defective manufacturing process, equipment deterioration and failure under normal operating conditions, improper handling and inadequate operation by the Contractor's staff, or third party.

- (c) Accident repair and rehabilitation

The work to be done consists of repairing damages to the equipment due to accidents, vandalism, and pavement failures and includes clean-up of debris, erecting necessary warning and safety devices, and hook-up of temporary equipment if required to insure the safety of the public.

- (d) System modification

The work to be done consists of modifying the system, system parameter and other operating conditions and to improve the operation or to conform to new operational requirements. The work shall be done as directed by the NHAI/IHMCL.

10.3.3 Other activities:

- i. Toll Management System should be able to support all kind of Fare structures & Payment methods including, but not limited to, Daily Pass, Return Pass, Monthly Pass, Discounted tariffs, Exemptions, Open / Closed fare schemes etc. and shall meet the Tolling System requirements of the respective Concession Agreement, including subsequent regulation / notification thereon by IHMCL/NHAI/MoRTH.
- ii. The BOQ (As defined under Annexure-A) by IHMCL/NHAI may increase/decrease according to the further requirement at sites.

- iii. The Service Provider shall arrange for all insurances pertaining to the scope of work and it shall be deemed that any related costs are included in the price bid.
- iv. The scope of the service provider will also include civil, electrical, networking works required to complete installation/commissioning of Hybrid ETC and Toll Management System and associated peripherals on the plaza.

10.4 Service Level Requirements:

10.4.1 System Downtime Calculations

- A. The uptime availability of all systems and sub-system of Hybrid ETC and TMS is provided in Annexure-A. The permissible downtime for critical systems and sub-systems is 7 hours per lane per month.
- B. The downtime for a toll lane shall be calculated at a cumulative level when any of the **critical components as mentioned in Annexure-A** is non-operational for that specific lanes/plaza.
- C. For all other components of Hybrid ETC System and TMS, the uptime availability shall be 98% per lane per month.
- D. Scheduled downtime is defined as a period of time when system will remain unavailable for conducting necessary preventive maintenance, urgent repairs etc. The maximum scheduled downtime for any Site shall be 4 hours per lane per month.
- E. The formula for calculation of Hybrid ETC System availability shall be as follows:

$$\text{System Uptime} = [1 - \{A/(B-C)\}] * 100$$

Where A = Time for which system is down per month basis scenarios identified in section 10.4.1B

B = Total time in a month

C = Scheduled downtime basis section 10.4.1D
- F. The Service Provider shall maintain adequate inventory/spares to ensure the service levels prescribed in clause 10.4.1A are adhered.
- G. In case of non-adherence to service levels as defined in point A, penalties of 5% of quarterly invoice amount shall be detected.
- H. The Service Provider along with the Toll Operating Agency shall ensure that all transaction files of the Hybrid ETC systems are uploaded as per the service levels defined in the NETC program.

10.4.2 Routine Maintenance

Scheduled downtime / Routine maintenance is defined as a period of time when system will remain unavailable for conducting necessary preventive maintenance, urgent repairs etc. The maximum scheduled downtime for any site shall be 4 hours per lane per month. The objective of electronic equipment maintenance shall be to ensure reliability, to enhance its economic life and to improve its efficiency. Routine maintenance consists of a fixed set of checks, measurements, cleaning and calibration. These activities shall be

based on Equipment Service Provider's specifications and general maintenance practices that include but not limited to:

- Checking the condition of components, e.g. check connections for signs of deterioration.
- Check voltage levels: Power supply levels are crucial to the effective operation of electronic equipment. Borderline levels could lead to intermittent faults and damage to components.
- Voltage level changes are caused by the deterioration of capacitors, transformers and semiconductor components.
- Certain measurements can also be performed to check the status of elements of the system, i.e. impedance and isolation tests.
- Mechanical components need routine cleaning and lubrication to ensure their effective operation.

10.4.3 Data Retention, Back-up and Restore Operations:

Data Retention:

Data for each plaza shall be retained for entire Agreement period in the Toll Plaza Server. The backup devices and media as per current industry practice shall also be provided.

The Service provider shall ensure adequate security measure for safe guarding of Toll Transaction data, by providing, off site Disaster recovery or Data Storage mechanism.

The service provider shall also be responsible to extract and provide data /information based on requirement of law Enforcement Agencies of Govt. of India/ State based on specific approvals on case-to-case basis.

However it will be limited to the data captured in Hybrid ETC and Toll Management Systems as per standard operations and the data being retained as per retention schedule.

Data Back up & Restore:

Service provider shall also demonstrate the backup & restore procedure successfully. The Service Provider shall prepare and implement a proper Data Backup & Restore policy with IHMCL's approval, to ensure data safety and avoid data loss, in case of any untoward incidents.

Such policy shall ensure Back up & restore of Toll Transaction data at least once in a week.

10.4.4 Ownership of Equipment & other conditions:

All the equipment shall be owned by the Service Provider throughout the duration of contract. The Service Provider will be paid on Quarterly basis a lump sum amount for the complete end-to-end services made available to IHMCL, subject to deductions, if any, towards deficiencies in services as per service level agreements mentioned herein.

10.4.5 Statutory and Others:

IHMCL shall reserve the right to get the security / compliance audit of the Hybrid ETC and Toll Management Systems done at any time through any agency appointed for the purpose and the service provide shall extend all support & cooperation for smooth conduct of said Audit.

The Service Provider shall abide by all statutory guidelines and comply with rules/regulations framed by IHMCL and/or M/o Road Transport & Highways from time to time; It shall be responsibility of the service provider to incorporate such changes within the stipulated time frame into the Toll Management System.

The Service Provider shall comply with the guidelines and/ or Specifications and Standards including the revisions thereof issued from time to time by M/o Road Transport & Highways Govt. of India / IRC. In absence of which, the system and equipment provided by the service provider shall meet relevant American or European/ British standards & specifications.

10.4.6 Technical Specifications & Standards

The minimum technical specifications & the standards to be adhered have been prescribed under Annexure-B. The Service Provider shall ensure to provide the equipment meeting the prescribed requirements.

10.4.7 Acceptance Test and Approvals

After installation of Hybrid ETC and Toll Management System at the toll plazas in the current scope of work, a Site Acceptance Test shall be carried out at these plazas to test the system functionality and performance. This shall be carried out as per the Circular IHMCL/ETC/Operations/2017/Phase-III/361/CO-II/01 dated September 28, 2017 issued by the NHAI.

Commissioning: Once Site Acceptance Testing has been concluded and the Service Provider has attended to and remedied all reported defects, the system shall be ready to be commissioned and taken into operation.

Third Party Check: For Acceptance Testing, IHMCL reserves the right to appoint a third party to carry out Acceptance Testing on behalf of IHMCL. The service provider shall have no objection on the same & will cooperate with such appointed third party/ consultant.

Failure by the Service Provider to complete the Works and to have remedied all reported defects by the Prescribed Date for commissioning shall result in the application of the penalties for delays prescribed under liquidated damages in the Contract Agreement.

10.4.8 System Development Progress Reporting

The Service Provider shall note that they are obliged to provide hardware and software progress reports, if any, as the works proceeds. These reports shall be in the English language for project management purposes.

10.4.9 Other Works

a) Service Provider's Design Responsibility

The Service Provider shall be required to produce engineering design drawings of all Toll Management Systems components / system, electrical installation and computer & data transmission network systems. It shall be the Service Provider's responsibility to adhere to the designs submitted during the implementation of Hybrid ETC systems and Toll management systems at the plazas. In case of any changes in the systems the service provider shall modify and resubmit the designs. The design should be submitted by the service provider within 7 days of receipt of notification of commencement of work.

b) Electricity Requirements

The Service Provider shall be required to submit the design of the electricity load requirement for the Toll Management Systems / ETC Equipment, which shall include the cabling, distribution boards, and clean earthing system, in regard to its suitability for the Toll Management Systems and ETC components. Toll Management Systems equipment earthing shall be separated from the toll plaza utility power earthing. Earthing for all equipment shall be the responsibility of the Service Provider.

c) Cabling to UPS Loads

The Service Provider shall supply, install, terminate and connect all cabling from the power DB to the entire field and control room equipment. The cable shall be suitably sized and earth PVC insulated and steel wire armoured copper cables. Wire armoring may be omitted, if the cables are drawn through a conduit.

d) Cable tray

The Service Provider shall provide adequate perforated cable trays and / or cable support wherever required, for all cabling required in Toll Lanes / Booths & Plaza Building.

f) Cable Numbering

All cables installed shall be numbered with ferules, in accordance with the universal cable numbering system, in such a way that any person shall be able to understand & identify cabling for specific equipment.

All cables shall be ISI marked, fire retardant type and shall be terminated with proper lugs & joints as per best industry practices.

ARTICLE 11

FORMATS FOR BID DOCUMENTS

11.1 Bid Covering Letter

(To be prepared on letterhead of the Bidder)

To
Manager (Projects)
Indian Highways Management Company Ltd
2nd Floor, MTNL Building
Sector-19, Dwarka,
New Delhi - 110075

Subject: RFP for Providing Services of Hybrid ETC and Toll Management Systems at Eastern Peripheral Expressway

Ref: Tender Ref No: IHMCL/EPExp/JICA/2017/New

Dear Sir,

1. We, the undersigned, have carefully examined the contents of the above referred RFP document including amendments/ addendum (if any) thereof and undertake to fully comply and abide by the terms and conditions specified therein and hereby submit our Bid for the aforesaid service. Our bid for the subject RFP is unconditional and unqualified.
2. We confirm that if selected, we shall offer and provide services for Hybrid ETC and Toll Management Systems at Eastern Peripheral Expressway including system integration thereof, integration with other non-ETC lanes, if any and integration with NHAI HQ data centre for real time data transfer, to ensure ETC services on toll plazas.
3. We offer to execute the work in accordance with the Scope of work and the Conditions of Contract of this RFP both explicit and implied.
4. We undertake that, in competing for (and, if the award is made to us), for executing the above contract, we will strictly observe the laws against fraud and corruption in force in India namely "Prevention of Corruption Act 1988" .
5. We understand that :
 - 5.1 This bid, if found incomplete in any respect and/ or if found with conditional compliance or not accompanied with the requisite EMD, shall be summarily rejected.
 - 5.2 If at any time, any averments made or information furnished as part of this bid is found incorrect, then the bid will be rejected and the contract if awarded on the basis of such

information shall be cancelled. IHMCL is not bound to accept any or all the Bid(s) it will receive.

5.3 Until a contract is executed, this bid together with RFP Document as well as notification of Letter of Award issued by IHMCL shall constitute a binding Contract between us.

6. We declare that :

6.1 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.

6.2 We also confirm that we have not been *declared as non-performing or debarred* by IHMCL, NHAI or Ministry of Road Transport & Highways, Government of India.

6.3 We *have not been blacklisted* by a Central/ State Government institution/ Public Sector Undertaking/ Autonomous body under the administrative control of Central or any State Government and there has been *no litigation* with any Government Department/ PSU/ Autonomous body on account of similar services.

6.4 We have *not* directly or indirectly or through an agent *engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice*, as defined in the Contract Agreement, in respect of any tender or request for proposal issued by or any Contract entered into with IHMCL or any other Public Sector Enterprise or any Government, Central or State;

6.5 We hereby certify that we have taken steps to ensure that in conformity with the provisions of the RFP document, no person acting for us or on our behalf has engaged or will engage in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice.

6.6 We have not been convicted by a Court of Law or indicted or adverse orders passed by a regulatory authority which could cast a doubt on our ability to undertake the subject work or which relates to a grave offense that outrages the moral sense of the community.

6.7 Neither the Bidder nor any of its Directors are the subject of criminal or civil proceedings that could be expected to adversely affect its business or its ability to bid in the present tender.

6.8 No investigation by a regulatory authority is pending either against us or against our Managing Director /CEO or Key Management Personnel or or any of our directors/ managers/ employees.

6.9 The information provided in this technical bid (including the attachments) as well as the financial bid is true, accurate and complete to the best of our knowledge and belief. Nothing has been omitted which renders such information misleading; and all documents accompanying our bid are true copies of their respective originals.

6.10 We shall be liable for disqualification or termination of contract at any stage, if any information/declaration is found to be incorrect or false.

7. In the event of our bid being declared as successful bid, we agree to enter into a contract agreement.

8. We offer the Bid Security in accordance with the RFP document as per the details furnished below:

BG/DD/Banker's Cheque/Pay Order No.	BG Validity	Date	Amount	Issuing Bank/ Branch

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

Yours sincerely,
For.....

Name

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

11.2 Brief Information about the Bidder(s)

(To be prepared on letterhead of the Bidder)

1. (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.

- (e) CIN....

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

Yes/ No/ Not applicable

(f) Name(s) of Directors/

.....

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

- (a) Complete postal address:
- (b) Fixed telephone number
- (c) Mobile telephone number
- (d) E-mail address

3. Name & Address of the principal banker³:

- (a) Bank A/c Number
- (b) Branch Address
- (c) IFSC /MICR Code:

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

Name

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

³These details are required for refund of Bid Security.

11.3 POWER OF ATTORNEY

Know all men by these presents, we, (Name of Company/ Firm and address of

the registered office) do hereby constitute, nominate, appoint and authorize Mr /

Ms.....

..... son/daughter/wife of..... and presently residing at

....., who is presently employed with us and holding the position of as

our true and lawful attorney (hereinafter referred to as the “**Authorized Signatory or Attorney**”) to do in our name and on our behalf, all such acts, deeds and things as are necessary or required in connection with or incidental to submission of our Bid for selection as the Service Provider for “**Providing Services of Hybrid ETC and Toll Management Systems at Eastern Peripheral Expressway**”, proposed by Indian Highways Management Company Ltd, including but not limited to signing and submission of all applications, bid(s) 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 bid and generally dealing with IHMCL in all matters in connection with or relating to or arising out of our Bid for the said Tender and/or upon award thereof to us.

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

IN WITNESS WHEREOF WE,THE ABOVE NAMED PRINCIPAL HAVE EXECUTED THIS POWER OF ATTORNEY ON THIS DAY OF, 2017

For

(Signature, name, designation and address) Witnesses:

1.

2.

Notarise
Accept

.....

(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 notarised by a notary public.***

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

For a Power of Attorney executed and issued overseas, the document will also have to be legalised by the Indian Embassy and notarised 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 legalised by the Indian Embassy if it carries a conforming Apostles certificate.

11.4 Format for Earnest Money Bank Guarantee (EMBG)

(Refer Clauses 1.2 & 1.3)

B.G. No.

Dated:

To,

Manager (Projects),
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 (and acting on behalf of its Consortium of &

_____) (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 Providing Services of Hybrid ETC and Toll Management Systems at Eastern Peripheral Expressway" 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 10,00,000 (Rupees Ten Lakhs)** 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 10,00,000 (Rupees Ten Lakhs)** 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 IHMCL stating that the Bidder is in default of the due and faithful fulfillment 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

IHMCL stating that the amount claimed is due to IHMCL by reason of failure of the Bidder to fulfill 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 IHMCL 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 IHMCL shall be the sole judge to decide as to whether the Bidder is in default of due and faithful fulfillment 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 IHMCL that the Bidder is in default as aforesaid shall be final and binding on us, notwithstanding any differences between the IHMCL 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. IHMCL 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 fulfillment 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 IHMCL, and the Bank shall not be released from its liability under these presents by any exercise by IHMCL 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 IHMCL or any indulgence by the IHMCL to the said Bidder or by any change in the constitution of the IHMCL 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 IHMCL 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 IHMCL 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.

For the avoidance of doubt, the Bank's liability under this Guarantee shall be restricted to **INR 10,00,000 (Rupees Ten Lakhs)**. The Bank shall be liable to pay the said amount or any part thereof only if IHMCL serves a written claim on the Bank in accordance with paragraph 12 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: _____

11.5 Format of Certificate in respect of Bidder's Technical and Financial Eligibility

(To be submitted separately for each constituent in case of a Joint Venture/ Consortium)

Technical Eligibility

Format for Experience

Assignment Name	
Number of ETC lanes and Cash lanes	
Location of toll plaza	
Start Date	
Completion Date	
Details of tolling system supplied and /or services owned/controlled	

Letter of Completion or Work order for the above, from the clients, need to be provided as part of eligibility document

In case of experience in close loop tolling system, letter of completion or work order for the above, from the clients, need to be provided separately under the technical bid for evaluation process.

Dated: /...../2017

Certificate of Annual Turnover

It is certified that we have examined the books of accounts of M/s. _____ (*name and address*

of the bidder) ___ and the requested financial details of the company, during last three financial years

are as under:

1. Annual Turnover

Amount in **INR (Lakhs)**

Financial Year⁴	Amount in figures	Amount in words
FY 2014-15		
FY 2015-2016		
FY 2016-2017		
Average		

2. Annual Net Worth

Amount in **INR (Lakhs)**

Financial Year	Amount in figures	Amount in words
2014-15		
2015-16		
FY 2016-2017		

(Signature of Statutory Auditor/ Chartered Accountant)

Name:

Seal:

⁴In the above table, Financial Year (FY) means a period from 1st April of preceding year to 31st March of the succeeding year.

11.6 Format for Financial Bid Submission

(To be submitted on letterhead of the Bidder)

To

Manager Projects,
Indian Highways Management Company Ltd. (IHMCL),
2nd Floor, MTNL Building,
Sector 19, Dwarka
New Delhi-110 075

Subject: Financial Bid for RFP Providing Services of Hybrid ETC and Toll Management Systems at Eastern Peripheral Expressway.

Ref: Tender Ref No IHMCL/EPExp/JICA/2017/NEW

Dear Sir,

We, the undersigned having examined the above referred RFP including addendum thereof and, hereby offer to submit our bid to undertake the subject assignment with scope of work mentioned in the said RFP Document with quarterly payments as under:

BREAK-UP OF RATE for.....

Sr. No.	Item/Description	Unit	Quantity	*Unit Quarterly Rate (In INR) (A)	Total No. of Equipments (B)	*Total Quarterly Cost (C) = (A) x (B)
1	RFID ETC transceiver near Pay-axis - mounted on pole/canopy	No	1 per lane		129	
2	Lane Controller with Industrial PC	No	1 per lane		129	
3	AVC including sensors	Set	1 per lane		129	
4	Automatic Barrier Gate	No	1 per lane		129	
5	Traffic light with mounting pole	Set	1 per lane		129	
6	Loops with detector	Set	2 per lane		258	
7	License Plate Image Capture Camera with mounting poles	Set	1 per lane		129	
8	Incident Capture Camera	Set	1 per lane		129	
9	TFT Monitor	No	1 per lane		129	
10	Customized industrial grade keyboard	No	1 per lane		129	
11	Thermal Receipt Printer	No	1 per lane		129	
12	Barcode Reader with stand	No	1 per lane		129	

13	Booth CCTV camera	No	1 per lane		129	
14	UPS for each lane system (1 KVA)	No	1 per lane		129	
15	Network Switch unmanaged (8 Port)	No	1 per lane		129	
16	User fare Display	No	1 per lane		129	
17	Fog Light	No	1 per lane		129	
18	Plaza Server	No	1 per plaza		34	
19	Workstations alongwith Monitor, Keyboard & Mouse	No	4 per Main Toll Plaza		8	
20	Workstations alongwith Monitor, Keyboard & Mouse	No	2 per Interchange plaza		64	
21	Network Printer	No	1 per Main Toll Plaza		2	
22	Normal Laser Printer	No	1 per Interchange plaza		32	
23	Broadband Internet connection with minimum 2 Mbps link	Facility	1 per plaza		34	
24	UPS system for plaza equipments (6 KVA)	No	1 per Main Toll Plaza		2	
25	UPS system for plaza equipments (4 KVA)	No	1 per Interchange plaza		32	
26	21" LED Display for CCTV Monitoring	No	1 per plaza		34	
27	Network Video Recorder (NVR) for CCTV recording	No	1 per plaza		34	
28	Network Switch 16 Port	No	1 per Interchange plaza and 1 per main toll plaza		34	
29	Network Switch 24 Port	No	1 per Main Toll Plaza		2	
30	CCTV cameras for Plaza building surveillance (server room, control room, cashup room, admin)	No	4 per plaza		136	
31	Toll Management System software supporting all features including but not limited to Fee Change configuration options, fully integrated with all other systems / peripherals					
31.1	For Lanes				129	
31.2	For Plaza Server				34	
31.3	For Admin Workstations				72	
32	Server Operating Systems – Preferably Open Source (Linux / Unix)				34	
33	Lane / Admin Workstations Operating System Licenses					
33.1	For Lanes				129	
33.2	For Admin Workstations				72	
34	MS-Office on Admin Workstations.				72	
37	Anti virus and Anti-Spam				34	
Total						

*All rates quoted should be excluding GST and other applicable taxes.

1. We understand that the above breakup of rates takes care of all items of work / services to be delivered as per good industry practice to ensure full compliance of the detailed scope of work mentioned in Contract Agreement.
2. We understand that IHMCL reserves the right to award work at any toll plaza for all the components above, or any combination thereof as per its toll plaza specific requirement. We understand that IHMCL reserves the right to award the work in stages.
3. We understand that the estimated number of toll lanes mentioned above is indicative only and for the purpose of bid evaluation, Per Lane and / or Per Unit values have been taken. Actual number of toll lanes may vary as per requirement of IHMCL.
4. We understand that the payments shall be made as per actual number of toll lanes serviced in accordance to the provision of the Scope of Work prescribed in the RFP Document.
5. We hereby confirm that the quoted rates include all the charges payable in full compliance to the Scope of Work and other terms specified in the RFP document. No additional charges have been envisaged. We also understand that apart from quarterly payments against the services provided to IHMCL in compliance to the prescribed scope of work, IHMCL is not liable to make any other payments whatsoever.
6. We do hereby confirm that our bid price includes all statutory taxes/ levies.
7. We also declare that any tax, surcharge on tax and / or any other levies, if altered in future and payable under the law, the same shall be borne by us.
8. This bid is **valid** for a period of **180 calendar days** from the bid due date.
9. We understand that the applicable TDS will be deducted against payments as per Applicable Law.
10. In case of any difference in figures and words, the amount mentioned in words will prevail.

Yours sincerely,

For.....

Name

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

11.7 FORMAT OF PERFORMANCE BANK GUARANTEE

To,

Manager (Projects),
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 **“RFP for Providing Services of Hybrid ETC and Toll Management Systems at Eastern Peripheral Expressway” (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: _____

ANNEXURE -1

CONTRACT AGREEMENT

No.

This Contract Agreement (hereinafter called the "Contract") is made on this ____ day of the month of

_____, 2017.

BETWEEN

Indian Highways Management Company Ltd (IHMCL), a company incorporated under the provisions of the Companies Act, 1956 and having its head office at 2nd Floor, MTNL Building, Sector 19, Dwarka, New Delhi-110075 (hereinafter referred to as the "IHMCL", which expression shall, unless repugnant to or inconsistent with the context, mean and include its successors and assigns) of the first part.

AND

M/s _____, a company incorporated under the provisions of the Companies Act, 1956 or a firm established in India and having its registered office at

_____ (hereinafter referred to as the "Service Provider" which expression shall unless repugnant to or inconsistent with the context, mean and include its successors and assigns) of the OTHER PART. Each of the parties mentioned above are hereinafter collectively referred to as "**Parties**" and individually as a "**Party**".

WHEREAS

(a) the Service Provider, in the ordinary course of its business, is engaged in providing similar services to their clients, and have represented to IHMCL through their bid, against RFP No. _____ dated _____ for (hereinafter called the "Tender") that they have the required professional skills, personnel, technical & financial resources to provide the required services;

(b) on the basis of the said Tender, after evaluation of Bids, IHMCL has selected & accepted the Bid of the Service Provider and issued Letter of Award (LoA) No. _____ dated _____.2017 for providing the required services, to the selected bidder requiring *inter alia*, to convey its acceptance to the LOA within 15 days of the date of issue thereof.

(c) the Service Provider has conveyed its acceptance of the LOA to IHMCL including the obligation to enter into this Agreement pursuant to the LOA, with his letter Ref no.....dated.....

(d) The Service Provider, in accordance with the terms of the LOA and Clause 2.17 of the RFP, has also submitted the Performance Security in the form of Bank Guarantee equivalent to Rs. _____ in Words (_____) valid for a period of 180 days after the expiry of Agreement Period as per prescribed format.

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

The mutual rights and obligations of the Service Provider and IHMCL shall be as set forth in this Contract, in particular:

The Service Provider shall carry out the Services in accordance with the provisions of the Contract; and IHMCL shall make payments to the Service Provider in accordance with the provisions of the Contract.

The following schedules/ appendices shall be deemed to form and be read and construed as part of this Contract viz.

- | | |
|------------|--|
| Appendix A | Copy of RFP & subsequent amendments & clarifications if an |
| Appendix B | Copy of Financial Bid of the Service Provider |
| Appendix C | Letter of Award issued by IHMCL. |
| Appendix D | Letter of Acceptance submitted by the Service Provider |
| Appendix E | Copy of the Performance Security submitted by the Service Provider |
| Appendix F | Copy of the Technical Bid and/or any subsequent correspondence
of the Service Provider/ IHMCL |

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

FOR AND ON BEHALF OF
(Indian Highways Management Company Ltd)
(Authorized Representative)
Name : _____
Designation _____ Indian
Highways Management Company Ltd
2nd Floor, MTNL Building, Sector – 19,
Dwarka, New Delhi – 110075

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

In the presence of following witnesses:

Name : _____
Designation _____
Indian Highways Management Company Ltd
2nd Floor, MTNL Building, Sector – 19,
Dwarka, New Delhi – 110075

Name : _____
Designation : _____
M/s _____
Address : _____

Name : _____
Designation _____
Indian Highways Management Company Ltd
2nd Floor, MTNL Building, Sector – 19,
Dwarka, New Delhi – 110075

Name : _____
Designation : _____
M/s _____
Address : _____

1. DEFINITIONS AND INTERPRETATION

1.1 Definition

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

1.2 Interpretation

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

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

- h)** References to a “**business day**” shall be construed as a reference to a day (other than a Sunday and holidays) on which banks in their respective States are generally open for business;
- i)** Any reference to month shall mean a reference to a calendar month as per the Gregorian calendar;
- j)** References to any date, period or time shall mean and include such date, period or time as may be extended pursuant to this Agreement;
- k)** Any reference to any period commencing “**from**” a specified day or date and “**till**” or “**until**” a specified day or date shall include both such days or dates; provided that if the last day of any period computed under this Agreement is not a business day, then the period shall run until the end of the next business day;
- l)** The words importing singular shall include plural and vice versa;
- m)** “**Lakh**” means a hundred thousand (100,000) and “**crore**” means ten million (10,000,000);
- n)** References to the “winding-up”, “dissolution”, “insolvency”, or “reorganization” of a company or corporation shall be construed so as to include any equivalent or analogous proceedings under the law of the jurisdiction in which such company or corporation is incorporated or any jurisdiction in which such company or corporation carries on business including the seeking of liquidation, winding-up, reorganization, dissolution, arrangement, protection or relief of debtors;
- o)** Save and except as otherwise provided in this Agreement, any reference at any time to any agreement, deed, instrument, license or document of any description shall be construed as reference to that agreement, deed, instrument, license or other document as amended, varied, supplemented, modified or suspended at the time of such reference; provided that this Sub-clause shall not operate so as to increase liabilities or obligations of the IHMCL hereunder or pursuant hereto in any manner whatsoever;
- p)** Any agreement, consent, approval, authorization, notice, communication, information or report required under or pursuant to this Agreement from or by any Party shall be valid and effective only if it is in writing under the hand of a duly authorised representative of such Party, as the case may be, in this behalf and not otherwise;
- q)** The Schedules and Recitals to this Agreement form an integral part of this Agreement and will be in full force and effect as though they were expressly set out in the body of this Agreement;

- r) References to Recitals, Articles, Clauses, Sub-clauses or Schedules in this Agreement shall, except where the context otherwise requires, mean references to Recitals, Articles, Clauses, Sub-clauses and Schedules of or to this Agreement and references to a Paragraph shall, subject to any contrary indication, be construed as a reference to a Paragraph of this Agreement or of the Schedule in which such reference appears; and
- s) The damages payable as set forth in this Agreement, whether on per diem basis or otherwise, are mutually agreed genuine pre-estimated loss and damage likely to be suffered and incurred by the Party entitled to receive the same and are not by way of penalty (the “Damages”);
- t) Time shall be of the essence in the performance of the Parties’ respective obligations. If any time period specified herein is extended, such extended time shall also be of the essence.

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

1.3. Arithmetic conventions

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

1.4. Priority of Agreements, Clauses and Schedules

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

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

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

2. TERM OF THE AGREEMENT

- 2.1** The term of this Agreement shall be for a period of 1 (One) year 6 (Six) months commencing from the date of signing of this Agreement (the “**Agreement Period**”) including the time required for installation & commissioning of all the services being provided under this Agreement.
- 2.2** The Agreement Period may be extended further up to six months whether in piece meal or at one go, at sole discretion of IHMCL at the cost quoted by successful bidder with the same terms and conditions as mentioned in RFP.

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3. TIME SCHEDULE

- 3.1 The service provider shall supply, install, integrate, test, commission and configure all required hardware & software systems & sub-systems for Hybrid ETC and Toll Management Systems at the designated Toll Plazas as per the tolling system mentioned in RFP clause 10.3.1.(i) under Scope of Work. The implementation details (Phase-wise, Plaza-wise) of the systems (Hardware & Software) and relevant sub-systems are placed at Annexure-A.
- 3.2 IHMCL shall notify the Service Provider to commence work on the specified Toll Plaza Sites as per instructions/timelines received from NHAI/IHMCL for installation of Hybrid ETC System and Toll Management System in two phases, as shown in Annexure-A.
- a. **Phase-1:** - Service provider shall complete the Installation, Integration, Commissioning of Toll Management System and Hybrid ETC system and sub systems as specified in Annexure-A on such specified sites within 30 days of the receipt of notification.
 - b. **Phase-2** Service provider shall complete the Installation, Integration, Commissioning of Hybrid ETC system and sub systems as specified in Annexure-A on such specified sites within 45 days of the receipt of notification
- 3.3 The Service Provider shall ensure that the Services are undertaken and completed in accordance with the time schedules in this Agreement as per clause 3.2. In case of any deviation from the schedule, IHMCL reserves the right to terminate the Agreement and/or recover Liquidated Damage there from.
- 3.4 The Service Provider, if faced with problems in undertaking the Project, which have dependencies on the Project Owners, which are beyond their control, the Service Provider shall immediately inform IHMCL in writing, about the causes of the delay and tentative duration of such delay etc. IHMCL, on receipt of such notice, shall analyze the facts at the earliest and may, at its sole discretion, provide additional time, as deemed reasonable.
- 3.5 The Service Provider, if faced with problems in timely commencement of the Services, other than those mentioned in Clause 3.4 above, it shall immediately inform IHMCL in writing about the causes of the problem /delay and tentative duration of such delay etc. IHMCL, on receipt of such communication, shall analyze the facts at the earliest and take necessary action as deemed reasonable in its sole discretion.

3.6 Damages For Delay / SLA:

In case of delay in providing required Services at any toll plaza site as per the time schedule prescribed in clause 3.2, liquidated damages @0.05% of the Agreement Price for each day of delay, subject to a maximum of 5% of the Agreement Price, shall be levied on the Service Provider. In case such deductions reach 5% of the Agreement Price, IHMCL may consider termination of this Agreement or IHMCL may choose to deallocate the said site from the scope of the service provider and allocate to any other service provider, at its sole discretion.

In case of delay due to reasons beyond the control of the Service Provider, upon such request from the Service Provider, IHMCL may, in its sole discretion, consider suitable extension of time without imposing any liquidated damages upon the Service Provider.

4. PRICES AND PAYMENTS

- 4.1 Interest Fee Advance Payment of 5% of the Contract Value shall be provided against the Bank Guarantee of Equal Amount.
- 4.2 Payments shall be made on Quarterly basis, against the services provided, as per rates quoted by Service Provider.
- 4.3 The quoted rates for all items shall remain fixed for entire Contract Period.
- 4.4 The quoted prices are exclusive of all Taxes (GST) & duties.
- 4.5 All payment shall be made in Indian Rupees only.
- 4.6 IHMCL reserves the right to order for increased or decreased quantity, by up to 25%, of number of Toll Plazas or Toll Lanes, without any change in unit price quoted by Service Provider.
- 4.7 Payment will be subject to deductions against downtime as prescribed under Service Level Requirements.
- 4.8 No amount toward cost or expenses incurred, of whatsoever nature, shall be payable separately for the days to be devoted for carrying out the services prior or after the field work such as holding discussion, as considered necessary by IHMCL or otherwise, for any purpose with IHMCL's Head office or elsewhere, prior, during and after the conduct of an assignment at site.
- 4.9 The Service Provider shall be liable for payment of all taxes and levies prevalent and/or imposed or increased, during the period of contract agreement and indemnify IHMCL against any such claims.
- 4.10 Applicable statutory deductions such as TDS, Cess etc shall be deducted from all the Payments.
- 4.11 The Format for BG will be shared after award of Contract. The BG for advance should be Valid for the duration of Contract, and claim period shall be 6 Months beyond the Validity Date.
- 4.12 The Advance shall be recovered in equal installments, from Quarterly Payments over a Period of One Year six months. In case the quarterly payment due to the service provider is less than the quarterly advance recovery installment, the balance shall be recovered from the subsequent payments.

5. OBLIGATIONS OF THE SERVICE PROVIDER

The Service Provider agrees and undertakes to fulfill the following obligations towards IHMCL, at its own cost and expense:

- 5.1 The Service Provider shall undertake the Scope of Work as mentioned in ARTICLE 10 hereto.
- 5.2 The Service Provider shall strictly comply with the time lines as mentioned in this agreement.
- 5.3 The Service Provider shall strictly comply with the Technical Specifications as mentioned in this agreement.
- 5.4 The Service Provider shall strictly comply with the Service Level Requirements as mentioned in this Agreement.
- 5.5 The Service Provider shall coordinate the installation with all necessary parties and obtain the necessary approvals before commencing works.
- 5.6 The Service Provider may sub-contract certain installation works to a third party, provided that written approval is obtained from IHMCL prior to such sub-contracting. For the avoidance of doubt the Service Provider shall remain solely responsible for all works under this Agreement.
- 5.7 Technical specifications and architecture principles shall be generic and should be capable of being used to future extensions.
- 5.8 It shall be the obligation of the Service provider to integrate the Hybrid ETC and Toll Management System with the prescribed data centre of IHMCL or any other data centre as and when required by IHMCL.

5.9 Damages for delay

- 5.9.1 In case of delay in providing required Services at any toll plaza site, liquidated damages @0.05% of the Agreement Price for each day of delay, subject to a maximum of 5% of the Agreement Price, shall be levied from the Service Provider. In case such deductions reach 5% of the Agreement Price, IHMCL may consider termination of this Agreement or IHMCL may choose to deallocate the said site from the scope of the service provider and allocate to any other service provider, at its sole discretion.
- 5.9.2 In case of delay due to reasons beyond the control of the Service Provider, upon such request from the Service Provider, IHMCL may, in its sole discretion, consider suitable extension of time without imposing any liquidated damages upon the Service Provider.

6. OBLIGATIONS OF IHMCL

The IHMCL undertakes to fulfill the following obligations at its own cost and expense:

- 6.1 Supervise the overall management and implementation of this Agreement.
- 6.2 Provide requisite specifications from time to time to the Service Provider for carrying out its obligations under this Agreement.
- 6.3 Act as an interface between the Service Provider and the Project Owners and coordinate/reconcile any concerns of the Service Provider with the Project Owners or vice versa for smooth implementation of the ETC and TMS Services.
- 6.4 Extend cooperation for facilitating the Service Provider in the implementation of the Project in accordance with the provisions of this Agreement.

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7. REPRESENTATION AND WARRANTIES

7.1 REPRESENTATION AND WARRANTIES OF THE SERVICE PROVIDER

The Service Provider declares, represents and warrants as follows:

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

7.2 REPRESENTATION AND WARRANTIES OF IHMCL

The IHMCL represents and warrants to the Service Provider that:

- 7.2.1 It has full power and authority to execute, deliver and perform its obligations under this Agreement and to carry out the transactions contemplated herein and that it has taken all actions necessary to execute this Agreement, exercise its rights and perform its obligations, under this Agreement;
- 7.2.2 It has taken all necessary actions under the Applicable Laws to authorize the execution, delivery and performance of this Agreement;
- 7.2.3 This Agreement constitutes a legal, valid and binding obligation enforceable against it in accordance with the terms hereof;
- 7.2.4 It has no knowledge of any violation or default with respect to any order, writ, injunction or any decree of any court or any legally binding order of any Government Instrumentality which may result in any Material Adverse Effect on the IHMCL's ability to perform its obligations under this Agreement;

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8. COMPENSATION FOR BREACH

8.1 Compensation for default by the SERVICE PROVIDER

- 8.1.1 In the event of the Service Provider being in breach of this Agreement, unless such default or delay is on account of Force Majeure or through no fault of the Service Provider, the Service Provider shall pay to the IHMCL and/or the Toll Collection Agencies by way of compensation, all direct costs suffered or incurred by IHMCL or the Toll Collection Agencies , as the case may be, as a consequence of such breach, within 30 days of receipt of the demand supported by necessary particulars thereof.
- 8.1.2 Without limiting the generality of Clause 8.1.1, the Service Provider shall pay to the IHMCL and/or the Toll Collection Agencies by way of compensation, all direct costs suffered or incurred by IHMCL or the Toll Collection Agencies, as the case may, 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:
- (i)** Any untrue statement or misrepresentation of a material fact provided by the Service Provider or an omission to state a material fact required to be communicated;
 - (ii)** Any non-performance or breach of the roles, responsibilities, representations, warranties, undertakings and declarations contained herein by the Service Provider or its directors, employees, personnel or representatives.
 - (iii)** Negligence, fraud or misconduct of the Service Provider or any of its employees, agents, affiliates or advisors.

9. INDEMNIFICATION

- 9.1 The Service Provider shall indemnify, defend, save and hold harmless, IHMCL and its officers, servants, 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 Service Provider's obligations under this Agreement or any other related agreement or otherwise, any fraud or negligence attributable to the Service Provider or its Agents or sub-Service Providers, under contract or tort or on any other ground whatsoever, all eventualities of theft, dacoit, 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 Agreement on the part of the IHMCL Indemnified Persons.
- 9.2 The Service Provider shall indemnify IHMCL and NHAJ of all legal obligations of its professionals deployed. IHMCL and NHAJ also stand absolved of any liability on account of death or injury sustained by the Service Provider's staff during the performance of their work and also for any damages or compensation due to any dispute between the Service Provider and its staff.
- 9.3 In addition to the aforesaid, the Service Provider shall fully indemnify, hold harmless and defend the 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 Service Provider or by its agents in performing the Service Provider's obligations or in any way incorporated in or related to this Agreement. If in any such suit, action, claim or proceedings, a temporary restraint order or preliminary injunction is granted, the Service Provider 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 Service Provider is unable to secure such revocation within a reasonable time, it shall, at its own expense, shall rectify such defaults and shall also be liable for damages to IHMCL for the corresponding loss during the interim period on this account.
- 9.4 The remedies provided under this Article are not exclusive and shall not limit any rights or remedies that may otherwise be available to IHMCL Indemnified Party at law or in equity.
- 9.5 The provisions of this Article 9 shall survive Termination.

10. TERMINATION

10.1 Termination for Service Provider Default

10.1.1 Notwithstanding anything stated in this Agreement, in the event that any of the defaults specified below shall have occurred, the IHMCL shall provide a notice to the Service Provider (hereinafter referred to as “**Cure Period Notice**”). If the Service Provider fails to cure the default within the Cure Period set forth below, as also stated in the Cure Period Notice, the Service Provider shall be deemed to be in default of this Agreement (the “**Service Provider Default**”), unless the default has occurred solely as due to Force Majeure or for reasons not attributable to the Service Provider. The Cure Period under this Clause shall be calculated from the date of receipt of the notice by the Service Provider or when the default comes into the knowledge of the Service Provider, whichever is earlier. The defaults referred to herein shall include, but shall not be limited to the following:

- a)** The Service Provider fails to carry out any of its obligations under the Agreement.
- b)** The Service Provider without reasonable excuse fails to commence the work in accordance with the terms of this Agreement.
- c)** The Service Provider fails to furnish the required securities or extension thereof in terms of this Agreement.
- d)** The Service Provider stops any work without the prior written approval of IHMCL;
- e)** The Service Provider at any time during the term of the Agreement becomes insolvent or makes a voluntary assignment of its assets for the benefit of creditors or is adjudged bankrupt.
- f)** In case the Service Provider has, in the judgment of IHMCL, has engaged in corrupt or fraudulent practice in competing for or in executing this Agreement.
- g)** The Service Provider sub-contracts any specialized work without the prior permission from IHMCL.
- h)** Any representation or warranty of the Service Provider herein contained which is, as of the date hereof, found to be materially false.

- i) The Service Provider has failed to fulfil any obligation, for which Termination has been specified in this Agreement.
- j) The Service Provider, in the judgment of IHMCL, has engaged in corrupt or fraudulent practice in competing for or in implementation of the Project.
- k) The Service Provider fails to replenish the Performance Security as per the terms of RFP.
- l) Any other fundamental breaches as specified in the RFP or this Agreement.
- m) The Service Provider fails to complete the work within the time line as specified in the RFP.

10.2 Notwithstanding the above, IHMCL may terminate the Agreement for convenience by giving 30 days prior notice without assigning any reason whatsoever.

10.3 This Agreement shall be deemed to have been automatically terminated on the expiry of the Agreement Period unless IHMCL has exercised its option to extend the Agreement in accordance with the provisions of this Agreement.

10.4 The Parties to this Agreement shall have the right to terminate the Agreement on account of Force Majeure.

10.5 **Consequences of Termination**

10.5.1 Upon Termination, the Service Provider shall comply with and conform to the following requirements:

- a. transfer relevant documents/permissions/data to IHMCL or any other entity as directed by IHMCL;
- b. transfer and/ or deliver permits obtained under the Applicable Law pertaining to the Project;

10.5.2 Upon Termination (except on account of expiry of Term of this Agreement or Force Majeure), the IHMCL shall be entitled to appropriate the entire Performance Security.

10.6 **Survival of rights**

Notwithstanding anything to the contrary contained in this Agreement, any Termination pursuant to the provisions of this Agreement shall be without prejudice to the accrued rights of either Party including its right to claim and recover money damages, security deposits, and other rights and remedies which it may have in law or contract.

11. FORCE MAJEURE

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

11.2 Reporting of Force Majeure

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

11.3 Mitigate the Force Majeure Event

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

12. DISPUTE RESOLUTION

12.1 Dispute resolution

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 including the Toll Collection Agencies, 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 by mutual discussion and conciliation in the interest of the Toll Plaza Automation Program under the supervision of IHMCL.

12.3 Arbitration

12.3.1 Any Dispute which is not resolved amicably by conciliation shall be finally decided by reference to arbitration. Such arbitration shall be referred to the Chairman of the Indian Highways Management Co. Ltd. (IHMCL) or his nominee being a sole arbitrator, and shall be subject to the provisions of the Arbitration & Conciliation Act, 1996, as amended from time to time. The venue of such arbitration shall be Delhi, and the language of arbitration proceedings shall be English.

12.3.2 The arbitrator shall make a reasoned award (the “**Award**”). Any Award made in any arbitration held pursuant to this Article 15 shall be final and binding on the Parties as from the date it is made, and the Parties agree and undertake to carry out such Award without delay.

This Agreement and the rights and obligations of the Parties shall remain in full force and effect, pending the Award in any arbitration proceedings hereunder.

13. MISCELLANEOUS

13.1 Confidentiality

13.1.1 The Parties hereby unconditionally agree and undertake that they shall not disclose the terms and conditions of this Agreement or disclose the information submitted under this Agreement to any third party unless such disclosure is required by law or regulation, to internal/external auditors or advisers in respect of performing functions under this Agreement or for the purpose of performing their obligations under this Agreement.

13.1.2 All details, documents, data, applications, software, systems, papers, statements and business / customer information pertaining to this Agreement communicated in writing shall be treated as absolutely confidential and the Parties irrevocably agree and undertake to ensure that they shall keep the same as secret and confidential and that they shall not disclose the same, in whole or in part to any person without the prior written permission of the other Party nor shall use or allow to be used any information, other than as may be necessary for the due performance of their obligations hereunder. The confidentiality obligations shall not apply to (i) information in the public domain, or (ii) information that is received by a Party from a third person without breach of a confidentiality obligation by such third person, or (iii) disclosure of any information by a Party under any applicable law, rule, regulation or to a judicial, regulatory, quasi judicial, administrative or governmental body or authority; (iv) is not in writing.

13.1.3 The Parties agree to:

(a) Take all necessary action to protect the confidential information against misuse, loss, destruction, deletion and/or alteration

(b) Not to misuse or permit misuse directly or indirectly, commercially exploit the confidential information for economic or other benefit

(c) Not to make or retain any copies or record of any confidential information submitted by either of the Party other than as may be required for the performance of the obligations under this Agreement.

(d) Notify the other Party promptly of any unauthorized or improper use or disclosure of the confidential information

(e) Promptly return all the confidential documents / material that is in the custody of the other Party upon Termination of this Agreement

13.2 Intellectual Property Rights

All Intellectual Property of the respective Parties shall continue to vest with the respective Party and one Party may make use of the Intellectual Property only with the express consent of the other Party.

13.3 Governing Law and Jurisdiction

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

13.4 Severability

If for any reason whatsoever any provision of this Agreement is or becomes invalid, illegal or unenforceable or is declared by any court of competent jurisdiction or any other instrumentality to be invalid, illegal or unenforceable, the validity, legality or enforceability of the remaining provisions shall not be affected in any manner, and the Parties will negotiate in good faith with a view to agreeing 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 Agreement or otherwise.

13.5 Waiver

No failure or delay on the part of any Party in the exercise of any power, right or privilege hereunder shall operate as a waiver thereof, nor shall any failure or delay in exercise of such power, right or privilege preclude the other from further exercise thereof. The rights and remedies provided in this Agreement are cumulative and not exclusive of any rights or remedies provided by law.

13.8 Relationship between the Parties:

Nothing contained herein shall be construed as establishing a relationship of master and servant or of principal and agent as between IHMCL and the Service Provider. The Service Provider, subject to this Contract, has complete charge of Personnel performing the Services and shall be fully responsible for the Services performed by them or on their behalf hereunder. IHMCL has no liability w.r.t. the representatives/ employees of the Service Provider.

13.9 Language:

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

13.10 Effectiveness of Contract

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

13.11 Contract Period:

The total contract period shall be for One year and six months (18 months) from the Effective Date, renewable up to six months after completion, at the option of IHMCL. However, for renewal of contract period, the service provider shall submit a request to IHMCL three months prior to expiry of the contract period.

13.12 Suspension:

IHMCL may, by written notice to the Service Provider, suspend in whole or part, the contract in the event the Service Provider fails to perform any of its obligation under this Contract, including carrying out of the Services.

13.13 Notices

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

The addresses for service of Notice shall be:

IHMCL:

<Designation>Attention:
n:

<Address>

Facsimile: _____

E-mail: _____

Service Provider:

Attention:_____

<Address>

Facsimile:_____

—

E-mail:_____

13.15 No partnership

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

13.16 Insurance

The Service Provider shall for the duration of this Agreement, take out and maintain at its own cost, such insurance cover, which is adequate to cover any and all losses/damages for equipment, systems and personnel provided under scope of this agreement.

Note: IHMCL is not liable to bear any cost of the equipment damaged due to accident, theft or mishandling.

15. DEFINITIONS

“**TMS**” means Toll Management System

“**TOR**” means Terms Of Reference

“**RFP**” means Request For Proposal

“**Hybrid ETC System**” shall mean new Electronic Toll Collection (ETC) system with all modes of payment for User Fee collection including ETC.

“**Arbitration Act**” means the Arbitration and Conciliation Act, 1996 and shall include modifications to or any re-enactment thereof as in force from time to time;

“**Effective Date**” shall mean date of this Agreement;

“**ETC**” or “**Electronic Toll Collection**” means electronic payment of User Fee using vehicle-to-roadside communication technologies.

“**ETC Lane(s)**” means the lanes facilitating ETC at the Specified Toll Plazas.

“**ETC System**” means the equipments and associated hardware/software installed at Specified Toll Plazas.

“**ETC Transaction**” shall mean electronic transactions made by a User for payment of User Fee.

“**Material Adverse Effect**” means a material adverse effect of any act or event on the ability of either Party to perform any of its obligations under and in accordance with the provisions of this Agreement and which act or event causes a material financial burden or loss to either Party;

“**Nominated Company**” has the meaning ascribed to it under the respective Contract Agreement.

“**Specified Toll Plazas**” shall mean the toll plazas of the Service Provider.

“**Stakeholders**” shall mean and include the Toll Collection Agencies, IHMCL and NHAI.

“**Toll Collection Agency/Agencies**” are the entities selected by Authority for the purpose of collection of User Fee at the specified Toll Plaza for a defined duration.

**IN WITNESS WHEREOF THE PARTIES HAVE EXECUTED AND DELIVERED THIS
AGREEMENT AS OF THE DAY, MONTH AND YEAR FIRST ABOVE WRITTEN**

SIGNED, SEALED AND DELIVERED

For and on behalf of **Indian Highways Management Company Ltd** by:

(Signature)

(Name)

(Designation)

In the presence of

1.

2.

ANNEXURE-B

Technical Specification:-

1.1 RFID ETC transceiver

Service Provider are free to choose any brand of RFID reader as long as it satisfies the functional requirements prescribed by the NHAI/IHMCL as below:

A. Functions

Each hybrid ETC lane shall have one ETC transceiver. The ETC Transceiver shall be mounted on the canopy 4 to 5 meters from the pay-axis. The reader shall be mounted at least 5.5 meters above the finished road level. The toll operator shall provide cantilever pole (if required), brackets, fixtures and other accessories necessary for the installation of the readers.

The operator shall design the installation method of ETC Transceiver and decide the height of the reader within the applicable laws and regulations. But in no case, the clearance from the ground level shall be less than 5.5 meter. The communication range between ETC transceiver and RFID tag shall not be less than 4.0 meter along the centre line of the lane.

B. Specifications

Description	Specification
RF/Radio:	
Frequency	UHF 865 to 867 MHz
Communications	Ethernet/Serial communication (EIA standard RS 232 C/ RS 485)
RF Power maximum	1 W – transmitted & 4 W – EIRP (Equivalent Isotopically Radiated Power)
Reading distance	With the Transceiver mounted typically at a height of 6m above the road surface, the coverage of the antenna shall not exceed a diameter of 3.6m
Antenna	Circularly Polarized
Protocol	EPC Gen 2, ISO 18000-6C and shall comply with the general conformance requirements of the standard
Visual diagnostics	The Transceiver shall have LED indicators for sense; transmit Fault and Power which shall be visible clearly to the operator on ground while the system is operational.
Environmental:	
Enclosure	Light weight enclosure for the RFID Transceiver and circularly polarized antenna
Environmental	IP 65 or better for outdoor units
Relative Humidity	95% Condensing
Operating Temperature	-20°C to 55°C
Storage Temperature	-40°C to 85°C
Operational Characteristics:	

Air Interface & Adaptive Noise Features	The Transceiver technology employed should have the capability to optimize read rates for the vehicle identification application and adapt to instantaneous noise and interference level
Application capability	1. Should have read reliability exceeding 99.5% in the distance range specified 2. Diagnostic and Reporting Tools
Upgradeability	The firmware should be upgradable to support future protocols
Transaction Capability	Reading of Tag & EPC memory for at least 2 Tags per second for a moving vehicle with a speed limit of 40 kilometres/hour.
Driver Software	The transceiver driver software shall be provided along with the transceiver that will interface to the ETC client through socket interface and handle the communication with ETC client. The packet structure shall be as notified in the ETC client-transceiver interface. The driver software shall implement filtering using a range of EPC-codes /Tag-TID code provided by set of bit pattern masks.

1.2 Lane Controller

The Toll Lane Controller (TLC) shall be able to control and communicate with all Lane equipments. The enclosure shall have high security locking mechanism. All the peripheral devices in the lane shall be hardwired to the TLC, which store all the relevant transactional data, incidents & events occurring in the lane area. The TLC System includes software and hardware components. TLC shall be interfacing with AVC & other components installed in the toll lane. The TLC in turn is connected to Toll Management Server (TMS) located in Plaza.

The system shall be modular with Input/Output Card having adequate channels catering to interfacing of all the peripheral devices with a provision for adding extra two devices. The system shall be housed in a metallic enclosure and wall mounted in the toll booth. The TLC to have minimum following components/features:

- i. Industrial Motherboard with CPU (Min Core i5, quad core with Hyperthreading Tech)
- ii. RAM 4 GB or more
- iii. Hard Drive 500 GB or more
- iv. Data Communication ports - USB/Serial/Parallel/PCI
- v. Digital I/O port
- vi. Power Distribution
- vii. Surge & Lightning Protection
- viii. Industrial Grade I/O Device
- ix. Relays

- x. Cooling Fan
- xi. Display HDMI/DVI
- xii. Ethernet LAN Port –10/100/1000 Base – T
- xiii. Redundant Power Supply
- xiv. TLC Enclosure - IP 65 rated Enclosure Industrial Grade, Lockable, Secure, Vandal Proof, MS Powder coated

1.3 Automatic Vehicle Classification (AVC) system including all peripherals

Functional Requirements:

The AVC system shall have, including but not limited to, following feature and functionalities:

1. The AVC system shall be able to distinguish between the categories of vehicles using the highway, as defined by the Ministry's Toll Rules time to time.
2. This class information shall be transmitted to the Lane Computer on completion of the post transaction Automatic Vehicle Classification (AVC).
3. The Lane Computer shall check that this information matches the classification entered by the toll collector.
4. If there is a discrepancy between the two classifications, the Lane Camera shall capture a digital image of the vehicle together with details of the class discrepancy message, transaction number with its date and time, lane number and toll collector.
5. The digital image and discrepancy information shall be communicated to the supervisory console for further processing by the toll supervision staff.
6. In case of network or lane computer failure, the AVC system shall function independently and store data directly to the Plaza Server.
7. The system shall be able to detect the vehicle moving in wrong direction.
8. The system shall also assist in auditing the toll collection operation.
9. The central AVC data base system shall be part of this audit function. It shall be a standalone device with controlled access, where the data cannot be changed or altered in any way.
10. The reports from this system shall assist in identifying problems with operations, fraud or over/under collection of tolls.
11. This central AVC database System shall be able to operate independently of the Toll Lane System, even if the Toll Lane Controller is non-operational.
12. Any new technology, meeting the requirements specified in these specifications, is encouraged and should not be excluded.

Technical Requirements:

Each lane shall be equipped with an AVC controller based vehicle profiler technology. AVC processing unit shall be a real-time processing unit and shall have standby power supply capable of operations for a period of at least 4 hours. The AVC controller should be metallic, vandal-proof with IP 65 protection. It shall have System accuracy (calculated on a base of 10,000 vehicles):

- a) For vehicle counting : 99% minimum
- b) For vehicle classification : 98% minimum

Specifications:

IP 65 rated sensor enclosures

1.4 Automatic Boom Barrier

The operation of boom barrier shall be linked to the lane computer and shall allow the vehicle to pass through after a successful financial transaction. The system shall consist of a fixed housing and a movable arm. The boom shall be of 3000 mm length for a normal lane and 3500 mm for extra wide lane. The boom barrier should be electrically operated barrier gate for Toll Lane application. The barriers shall have presence detectors independent to the AVC system to prevent barrier arms coming down on vehicle while passing. This shall be in the form of infrared units, dedicated embedded loops or any other sensors. The finish of its housing shall be Powder Coated Orange, RAL 2000 and that of the boom with powder Coated White RAL 9010 with reflective strips. All housing and internal parts shall have rust and corrosion free metals or alloys of high strength with suitable epoxy coating as applicable. The Housing base frame shall be of Stainless Steel so as to protect the housing from rusting from the bottom.

Technical Requirement

- i. Supply Voltage Range: 85 V - 260 V, +/-5%,
- ii. Frequency: 50Hz with 100 percent duty cycle.
- iii. Temperature range: -5°C to 50°C
- iv. Ingress protection: IP54
- v. Open / Close time: 0.9 Second
- vi. Boom Arm Length: 3000 mm
- vii. MTBF: 5 million cycles

Extra Features

- i. Swing open on impact

- ii. Constant speed / time under variable wind speeds
- iii. Smooth Landing of Boom arm without swaying

1.5 Traffic Light with Mounting Pole

LED based traffic light signal, installed at the toll lane towards the exit side shall be connected to the lane controller. The traffic sign glowing red would indicate that the motorist has to stop and pay the user fee. After successful transactions, the traffic sign would turn green to indicate that the motorist can proceed. Traffic lights shall be installed on a pole of about 2 m above the road surface on the right side of each lane. The Service Provider shall decide the appropriate height taking into account other equipments to ensure clear / unobstructed visibility and control through lane controller. The system shall work in synchronization with the boom barrier and shall have in-built night dimming function.

Type	2 Aspects Red (Barrier Closed) / Green (Barrier Open)
Led Intensity	Day light visibility (Red color) minimum luminance of 3000cd/m ² (Green color) minimum luminance of 4000cd/m ²
Controlled by	TLC & synchronized with automatic boom barrier
Size of the display	200mm dia with sun visor
Visibility	>100 mtrs under normal condition
Housing	Polycarbonate/ corrosion resistance material
Dimensions	200mm diameter of Red LEDs Aspect and 200mm diameter for Green LEDs Aspect.
Interface	2 separate 230 Vac. Input for Red and Green.
Operating Temperature	-10°C to +65°C
Enclosure Environmental protection	IP 65 (LEDs sealed Retrofit Kit)
Electronic Components	Industrial grade components and connectors

1.6 Magnetic Loops

A. Functions:

The magnetic loops shall be used for three purposes:

- Presence Loop – This is a single loop installed in the transaction area. This shall be triggered on the basis of vehicle detection leading to a certain set of activities as required.
- Exit Loop – This is a single loop installed at the end of transaction used to trigger the exit barrier once the transaction has been completed.

B. Specifications:

The loop detector units/cards shall conform to the following minimum requirements.

- The unit shall be easily removable and shall be fitted with at least two (2) loops per card.
- The unit shall have a minimum of 4 separate adjustable sensitivity and frequency levels.
- The unit shall have indicators for vehicle presence, loop on/off and failure.

1.7 License Plate Image Capture Camera

It is used to capture Front Image of vehicle including the Number Plate of all vehicle as it approaches toll booth. It shall produce clear images of the front view along with the number plates of the vehicles even during night. The resolution of the images should be such that the registration number of the vehicles can be easily read. The camera should have waterproof housing with a hood to protect from direct sunlight. The protection shall be in accordance with IP65. The stand for the camera shall be made in steel tube that will not swing or twist under speed of strong wind. The LP camera shall be part of surveillance system and shall store data in NVR and at same time, shall be able to capture images / frames for use in Toll system, in following scenarios:

- Show the video stream of front of vehicle with number plate, on Toll Collector's screen
- The image / frame shall be saved on NVR and tagged with the Toll transaction number.
- Supervisor / Auditor shall be able to pull up the image / frame for review / audit of Toll transaction.

Desired Specifications:

Image Sensor:	1/2.8" Progressive Scan CMOS
Signal System:	PAL / NTSC
Min. Illumination:	0.05Lux @(F1.2,AGC ON) ,0 Lux with IR
Shutter time:	1/25(1/30) s to 1/100,000s
Lens:	EI3:6mm@ F2.0 Angle of view:45.3°(4mm optional) EI5: 12mm@ F2.0 Angle of view:22°
Lens Mount:	M12

Day& Night Function:	Day Night visibility with color images / videos
Video Compression:	H.264 / MPEG4 / MJPEG
Bit Rate:	32 Kbps ~ 16 Mbps
Dual Stream:	Yes
Max. Image Resolution:	1920 x 1080
Frame Rate:	50Hz:25fps (1920x1080), 60Hz:30fps (1920 x 1080)
Image Settings:	Saturation, brightness, contrast adjustable through client software or web browser
Alarm Trigger:	Motion detection, Dynamic Analysis, Tampering alarm
Security:	User Authentication, Watermark, IP address filtering, anonymous access
System Compatibility:	ONVIF, PSIA, CGI
Operating Conditions:	-10°C ~ 60°C (14°F ~ 140°F), Humidity 90% or less (non-condensing)
Power Supply:	DC, PoE (802.3af)
Weather Proof:	IP66
IR Range:	EI3:Approx. 20 – 30 Meters, EI5:Approx. 50 Meters.
OCR:	Yes

Note: This Camera needs external high power IR panel to illuminate license plate with a stronger IR light.

1.8 Incident Capture Camera

Lane Incident Camera is mounted outside toll booth in a way so that it can record passage of vehicles through each toll lane. It shall be a part of surveillance system and shall store the videos in the NVR and at same time shall be able to capture images / frames for use in Toll System, in following scenarios:

- Class discrepancy between the class detected by AVC and that entered by the toll collector
- Exempt users
- All transaction of vehicle with special events
- Offending vehicles
- When the alarm foot switch is activated by the toll collector.

Desired Specifications:

Image Sensor:	1/3" Progressive Scan CMOS
Min. Illumination:	0.01 Lux @(F1.2,AGC ON), 0 Lux with IR
Shutter time:	1/25s ~ 1/100,000s
Lens:	2.8 - 12 mm @ F1.4,Angle of view: 80°-28.7°
Lens Mount:	φ14
Day& Night:	IR cut filter with auto switch
Wide Dynamic Range:	Digital WDR
Digital noise reduction:	3D DNR
Video Compression:	H.264/M-JPEG
Bit Rate:	32 Kbps ~ 16 Mbps
Audio Compression:	-S: G.711/G.726/MP2L2
Dual Stream:	Yes
Max. Image Resolution:	1280x960
Frame Rate:	50 Hz: 25 fps (1280 x 960), 25 fps (1280 x 720), 25 fps (704 x 576), 25 fps (640 x 480), 60 Hz: 30 fps (1280 x 960), 30 fps (1280 x 720), 30 fps (704 x 576), 30 fps (640 x 480)
Image Settings:	Saturation, brightness, contrast adjustable through client software or web browser
BLC:	Yes, zone configurable
ROI:	Yes, up to 4 configurable areas
Network Storage:	Shall store data on NVR
Alarm Trigger:	Motion detection, Dynamic Analysis, Tampering alarm, Network disconnect, IP address conflict, Storage exception
Protocols:	TCP/IP,ICMP,HTTP,HTTPS,FTP,DHCP,DNS,DDNS,RTP, RTCP,PPPoE,NTP,UPnP,SMTP,SNMP,IGMP,802.1X,QoS
Security:	User Authentication, Watermark, IP address filtering, anonymous access
System Compatibility:	ONVIF, PSIA, CGI, ISAPI
Communication Interface:	1 RJ45 10M / 100M ethernet interface
On-board storage:	Built-in Micro SD/SDHC/SDXC card slot, up to 64 GB

Reset Button:	Yes
Operating Conditions:	-30 °C ~ 60 °C (-22 °F ~ 140 °F)
Power Supply:	12 VDC ± 10%, PoE (802.3af)
Power Consumption:	Max. 5.5 W (Max. 7.5 W with IR cut filter on)
Weather Proof:	IP66
IR Range:	Up to 30m

1.9 TFT Monitor

Display	18.5" TFT Color Monitor – Anti Glare
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1.10 Customized Industrial Grade Keyboard

The keyboard keys customized as per the requirements. The keys are used for various Operations: viz., to open lane, to close lane, for log out, to classify vehicles for toll charge, to print receipt etc.

128 Key Matrix Layout

Fully programmable ,RS232/PS2/USB

Flexible layout customization with programmable keys

IP54 rated spill and dust resistant key field

Card Reader

1.11 Thermal Receipt Printer

- I. The receipt printer shall be a compact thermal printer, able to print, as a minimum, toll payment receipts (text and graphics) and bar codes.
- II. The receipt printer shall use thermal fixed head technology.
- III. It shall be able to support paper thickness of upto 75-80 GSM.
- IV. The receipt printer shall have an automatic cutter with a self sharpening ceramic rotary knife.
- V. The receipt printer shall be robust for use in a toll booth environment where there is heavy usage and dust and exhaust from vehicles.
- VI. The auto cutter shall have a reliability of at least 1.5 million cuts.
- VII. The receipt printer enclosure shall be IP54 rated.

Specifications:

Print method	Thermal line Printing
Font	9 x 17 / 12 x 24
Column Capacity	56 / 42 columns
Character Size (W x H)	0.99 x 2.4 mm / 1.41 x 3.39 mm
Character Set	95 Alphanumeric, 18 set International, 128 x 43 Graphic Bar code: UPC-A, UPC-E, JAN8(EAN), JAN13(EAN), CODE39, CODE93, CODE128, ITF, CODABAR, GS1-128, GS1 DataBar Two-dimensional Code: PDF417, QRCode, MaxiCode, 2D GS1 Data Bar, Composite Symbology South Asian models carry Thai (128 x 3), Vietnamese (128 x 2) characters, Simplified Chinese (GB18030-2000:28,553)
Character Structure	12 x 24 / 9 x 17 / 9 x 24 (including 2-dot spacing horizontally)
Interface	Built-in USB + UIB (Serial or Parallel or Ethernet Interface)
Data Buffer	4KB or 45 bytes
Print speed	max. 300 mm/ sec
Dot Density	180 x 180 dpi*
Paper Dimensions	
Width x Diameter	79.5 ± 0.5 mm x 83.0 / 57.5 ± 0.5 x83.0 mm
Thickness (mm)	0.06 to 0.07mm
Power	
Supply Voltage	24 VDC ± 7 %
Power Consumption	Approx. 1.8A (Mean)
D.K.D. Function	2 Drivers
Reliability	
Printer Mechanism Life	20 million lines
Auto cutter life	2 million cuts (when using OJI Paper PD150R or PD160R)
MTBF	360,000 hours
MCBF	70 million lines

EMC & Safety Standards	UL / FCC, CE Marking, AS / NZS CISPR22 Class A, IP54
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1.12 Barcode Reader with Stand

- I. The bar code reader shall be equipped with easily visible LEDs and audible beeps that indicate the scanner's operation status. The bar code reader shall have a rugged protective boot with an adjustable stand and be mounted to a counter top or be left free standing for hand held scanning.
- II. The barcode readers shall confirm to IS: 14700: Part 6: Sec 3; 2002.

III. Technical Specification:

Scan Pattern	Single scan line
Scan Angle	Horizontal: 30°
Decode Capabilities	Reads standard 1D and GS1 Data Bar symbolizes
Host System Interfaces	Multi-interface; includes USB (HID Keyboard, Serial, RS232 (TTL + 5V, 4 signals), Keyboard Wedge, RS-232C (± 12V), RS485 supported via adapter cable
Drop	Designed to withstand 30 drops on concrete from 1.5 m (5')
Environmental Sealing	IP54
Light Levels	0-75,000 Lux (direct sunlight)

1.13 Booth CCTV Camera

Functions:

The booth CCTV camera shall be a fixed dome type IP (Internet Protocol) colour camera installed inside the booth to capture the activities of the fee collector while performing his operations. The camera shall also capture the view of the paying vehicle.

These cameras shall have inbuilt voice recording and SD memory card of minimum 32GB for local storage of videos and voice recordings. These cameras shall be connected to the plaza video server installed at the PMS server room at each plaza building.

The camera shall be capable of triggering alarms in case of camera tampering detection and audio detection. The triggering alerts can be controlled by the control room operator.

Specifications:

The technical specifications of the booth cameras shall be as follows:

Description	Specifications
Image Sensor	1/2.8" Progressive CMOS
Maximum Resolution	1920x1080 (2MP)
Lens Type	Fixed Focal
Focal Length	f = 2.8
Aperture	F1.8
Field of View	110° (Horizontal) 64° (Vertical) 135° (Diagonal)
Shutter Time	1/5 sec. to 1/30,000 sec.
Day/Night	Removable IR-cut filter for day & night function
Minimum Illumination	0.08 Lux @ F1.8 (Color) 0.001 Lux @ F1.8 (B/W)
IR Illuminators	Built-in IR illuminators, effective up to 25 meters or better IR LED*8
On-board Storage	SD/SDHC/SDXC card slot
Compression	H.264 & MJPEG
Maximum Frame Rate	30 fps @ 1920x1080 In both compression modes
Maximum Streams	4 simultaneous streams
S/N Ratio	Above 55dB
Dynamic Range	97dB or better
Video Streaming	Adjustable resolution, quality and bitrate
Image Settings	Adjustable image size, quality and bit rate, time stamp, text overlay, flip & mirror, configurable brightness, contrast, saturation, sharpness, white balance, exposure control, gain, backlight compensation, privacy masks, scheduled profile settings, seamless recording, smart stream, 3D Noise Reduction, Video Rotation
Audio Capability	Audio input /output (full duplex)
Compression	G.711, G.726
Interface	External microphone input

	Audio output
Protocols	IPv4, IPv6, TCP/IP, HTTP, HTTPS, UPnP, RTSP/RTP/RTCP, IGMP, SMTP, FTP, DHCP, NTP, DNS, DDNS, PPPoE, CoS, QoS, SNMP, 802.1X, UDP, ICMP
Interface	10 Base-T/100 BaseTX Ethernet (RJ-45)
ONVIF	Supported
Alarm Triggers	Video motion detection, manual trigger, digital input, periodical trigger, system boot, recording notification, camera tampering detection, audio detection
Alarm Events	Event notification using digital output, HTTP, SMTP, FTP and NAS server, SD Card File upload via HTTP, SMTP, FTP, NAS server and SD card
Connectors	RJ-45 cable connector for Network/PoE connection Audio output DC 12V power input Digital input*1 Digital output*1
LED Indicator	System power and status indicator
Power Input	Max. 9 W (PoE)
Safety Certifications	CE, LVD, FCC Class B, VCCI, C-Tick
Operating Temperature	Starting Temperature: -10°C to 50°C (14°F~ 122°F)

1.14 UPS for Toll Lane Equipment

UPS with Battery	Online
Rating	1 KVA
Backup	2 Hours
Input Voltage	155-305 VAC
Input Frequency	50H z
Output Voltage	230 VAC
Output Waveform	Sine Wave

1.15 8 Port Switch

This device shall have the capability to provide adequate continuous power to each of the CCTV cameras and associated equipment to meet the required performance, quality and reliability requirements.

- a. Switch shall have minimum 8 nos. 10/100Base-T ports.
- b. Shall have be IP30 rated and shall work on up to 60°C temp in a sealed enclosure and should be DIN Rail mountable.
- c. Switch shall be IEC 60068-2-6, IEC 60068-2-27, IEC 60068-2-47, IEC 60068-2-64, IEC 61000-4-5 and NEMA TS-2 compliant.

1.16 User Fare Display

The User's Fare Display (UFD) Unit shall be in the form of a variable message sign, synchronized controlled automatically by the TLC lane computer, to indicate the category of the vehicle and the amount payable by the road user. When the payment has been made, the publicity message can be shown. The system shall be LED based. It shall be installed outside the booth, near the payment window so that the road user will have clear view of the fare payable. The main function of User Fare Display is to inform the driver of the vehicle classification entered by the toll collector and the toll to be paid. It shall also convey Overweight Warnings, Low balance warnings, traffic safety messages, public relations and seasonal messages (if any/customized).

Display Module	<p>LEDs type-Ultra Bright LEDs</p> <p>LED Intensity- 8000mcd min.</p> <p>Viewing Angle-30° C</p> <p>Display Area- 620mm (w) x 155mm (H) ± 8 %</p> <p>Display color- Amber</p> <p>Pixel Pitch- 5mm</p> <p>Number of Lines- 2 Lines</p> <p>Character per line- 12 characters</p> <p>Character height- 60 mm</p> <p>Character width- 40mm</p>
Communication	RS232 / 9 pin "D" type connector (Protocol to be decided by the Service Provider as per site requirement)
Visibility	Minimum 20 meters

Power Supply	220V/ 50Hz AC
LED Reliability	100,000 Hrs.
Operating Temperature	-10°C to +65°C
Mounting arrangement	Swivel type from bottom or Pole Mounting
IP Rating Enclosure	IP 65
IP Rating Electronic Components	Industrial grade components and connectors

1.17 Fog Light

Fog Light is a blinker lighting device, to be placed at the start of the bullnose edge and used to enhance the visibility under extreme weather conditions like fog, rain, etc.

Technology	LED
Color	Amber/Yellow
Size	450mm
Flasher Unit	Inbuilt Blinking Unit
Flashing rate	30-40pm
Sensor	Photo sensor
Display	Amber /Yellow
Visibility	300 meters under ambient conditions and 100 meters under extreme foggy conditions
Night dimming	Photo sensor for automatic intensity control
LED Chain failure	If one LED is damaged will not affect other LEDs
Viewing angle	23 degree
Enclosure	Polycarbonate
Environmental protection	IP 65, Weather proof housing with a sunshade or visor

1.18 Plaza Server

The Plaza Server should have redundancy and should be provided with Server Rack 24U, with Fan and adequate power points and cable management adjustable for caster / wall mount.

Form factor/height	2U Rack
Processor	4 - core Intel Xeon E5-2600 v2 series processors – 2 Nos. or Better.
Cache	15 MB per processor or Better
Memory	32 GB RAM, DDR 4, Shall be expendable to 64 GB
Internal Storage	Minimum 8 TB SAS/SATA or Better
Media bays	ODD and tape drive bay
RAID support	Integrated 6 Gbps or new optional 12 Gbps* hardware RAID-0, -1, -10 with optional RAID-5, -50, -6, -60.
Power supply (std/max)	2 - Redundant Hot swappable
Hot-swap components	Power supplies, fan modules and hard disk drives
Network interface controller (NIC) Trusted platform module (TPM)	4 × 1 GbE (std.), 2 × 10 GbE Embedded Adapter (slot less opt.)/TPM
PCIe 3.0 Expansion slots (x16/x8)	4 - 6 PCIe ports or 4 PCI-X (CTO) or 2 double-width PCIe (for GPU)
USB ports	2 front/4 back/2 internal
Internal storage	Minimum 8 TB SAS/SATA or Better
Energy-efficiency compliance†	80 PLUS® Platinum and ENERGY STAR® Compliance
Monitor	18.5" LED
Input interface	Keyboard and Mouse

Operating System	Windows Server 2012 Std. or Open source OS such as Linux, Unix flavors, as per requirement of Toll Management System
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1.19 Workstation

To be used by the System Administrator and / or Toll Supervisor to access the system for Admin / Audit purpose. Following are the minimum specification:

Processor	Intel Core i5, Processor 2.4 GHz; 8 MB Cache, 1600 MHz, 4 Cores, Hyper threading, Intel HD Graphics
Memory(RAM)	4 GB or better
Storage	300 GB or better
Network	Integrated NIC
Ports	RJ-45, 1 USB 3.0, 3 USB 2.0
Monitor	18.5"LED
Input interface	Keyboard and Mouse
Antivirus	Yes

1.20 Network Printer

Network Printer shall be required in the Plaza office/Control Room with following minimum specifications:

- i. 25 PPM
- ii. Duplex;
- iii. Fast Ethernet; and Should support Paper size(s): Letter/ Legal/ Executive/ Statement/ 8.50" x 13"/ Envelope No. 10/ Monarch Envelope/ Custom Size.

1.21 Laser Printer

Laser Printer shall be required in the Plaza office/Control Room with following minimum specifications:

- i. 25 PPM
- ii. USB Connectivity; and Should support Paper size(s): Letter/ Legal/ Executive/ Statement/ 8.50" x 13"/ Envelope No. 10/ Monarch Envelope/ Custom Size.

1.22 Broadband Connection with 2 Mbps link facility

1.23 UPS for Plaza System

For Plaza Office separate UPS shall be provided. The power supply to all electronic equipment shall be fed from UPS, which should meet following minimum specification:

UPS with Battery	On line
KVA Rating	6 KVA
Backup	2 Hours minimum
Input Voltage	155-305 VAC
Input Frequency	50H z
Output Voltage	230 VAC
Output Waveform	Sine Wave

1.24 UPS for Lane System

For each lane separate UPS shall be provided. The power supply to all electronic equipment shall be fed from UPS, which should meet following minimum specification:

UPS with Battery	On line
KVA Rating	1 KVA
Backup	2 Hours minimum
Input Voltage	155-305 VAC
Input Frequency	50H z
Output Voltage	230 VAC
Output Waveform	Sine Wave

1.25 LED Display for CCTV Monitoring

The Display shall be a 21" inch professional grade display with wide viewing angle, full HD resolution and shall be suitable for 24x7 indoor application. The monitor shall have high contrast ratio, lightweight design, full high definition 1920x1080 resolution, and anti-glare panel. It shall have inbuilt VGA, DVI, S-Video and HDMI ports for multiple video inputs.

Description	Specifications
Panel Size	21 inch
Light source	LED Backlight
Resolution	1920 X 1080 pixels
Dynamic Contrast Ratio	1400:1
Viewing angle	Horizontal: 178 Degree, Vertical: 178 Degree
Display feature	Full HD; Panel

Response time	Minimum 8ms
Lifetime	Minimum 50,000 Hrs.
Colours	Minimum 16 Million
Brightness	350cd/m ²
Panel thickness	Not more than 65mm

1.26 Network Video Recorder

Network Video Recorder (NVR)- The NVR shall be a hybrid video recorder capable of:

- i. Recording & storing a minimum of one month of video on full load from all cameras;
- ii. Shall have interface to archive the videos for back-up.
- iii. Alarm/event based recording and the facility for high speed searching based on inputs such as date, time, etc.
- iv. Displaying multiple videos simultaneously on a single Monitor/Screen.
- v. Accommodating multiple displays on multiple screens (video monitors).
- vi. Recording with date and time stamping and it shall show date and time over recorded video play;
- vii. Pre-configuring various display layouts and access them at any time with a simple mouse click or automatic switching of different pre-configured layouts based on respective predefined time intervals.

The NVR should have the upgradeability and scalability for future expansion.

1.27 Network Switch for 24 Ports

For networking the Toll Server, with all other sub-system / equipment on Toll Plaza.

Ports	24 x 10/100/1000 + 4 x Gigabit SFP
Subtype	Gigabit Ethernet
Performance	Switching capacity : 216 Gbps Forwarding performance (64-byte packet size) : 71.4 Mpps
Capacity	Virtual interfaces (VLANs) : 1023
Remote Management Protocol	SNMP 1, RMON 1, RMON 2, Telnet, SNMP 3, SNMP 2c, HTTP, TFTP, SSH, CLI
Authentication Method	Kerberos, Secure Shell (SSH), RADIUS, TACACS+
Flash Memory	128 MB
Status Indicators	Link activity, port transmission speed, port duplex mode, system, status

Interfaces	24 x 10Base-T/100Base-TX/1000Base-T - RJ-45 1 x console - RJ-45 - management 1 x console - mini-USB Type B - management 1 x USB - Type A 1 x 10Base-T/100Base-TX - RJ-45 - management 4 x SFP (mini-GBIC)
Compliant Standards	IEEE 802.3, IEEE 802.3u, IEEE 802.3z, IEEE 802.1D, IEEE 802.1Q, IEEE 802.3ab, IEEE 802.1p, IEEE 802.3x, IEEE 802.3ad (LACP), IEEE 802.1w, IEEE 802.1x, IEEE 802.3ae, IEEE 802.1ae, IEEE 802.3az, IEEE 802.1AX

1.28 Network Switch 16 Port

For networking the Toll Server, with all other sub-system / equipment on Toll Plaza.

Ports	16 x 10/100/1000 + 4 x Gigabit SFP
Subtype	Gigabit Ethernet
Performance	Switching capacity : 216 Gbps Forwarding performance (64-byte packet size) : 71.4 Mpps
Capacity	Virtual interfaces (VLANs) : 1023
Remote Management Protocol	SNMP 1, RMON 1, RMON 2, Telnet, SNMP 3, SNMP 2c, HTTP, TFTP, SSH, CLI
Authentication Method	Kerberos, Secure Shell (SSH), RADIUS, TACACS+
Flash Memory	128 MB
Status Indicators	Link activity, port transmission speed, port duplex mode, system, status
Interfaces	24 x 10Base-T/100Base-TX/1000Base-T - RJ-45 1 x console - RJ-45 - management 1 x console - mini-USB Type B - management 1 x USB - Type A 1 x 10Base-T/100Base-TX - RJ-45 - management 4 x SFP (mini-GBIC)
Compliant Standards	IEEE 802.3, IEEE 802.3u, IEEE 802.3z, IEEE 802.1D, IEEE 802.1Q, IEEE 802.3ab, IEEE 802.1p, IEEE 802.3x, IEEE 802.3ad (LACP), IEEE 802.1w, IEEE 802.1x, IEEE 802.3ae, IEEE 802.1ae, IEEE 802.3az, IEEE 802.1AX

1.29 CCTV Camera for Plaza Building

The Dome Cameras are to be installed in Plaza office/Control Room, each toll both and Point-of-Sale on a toll plaza. The video shall be captured via Fixed Dome Cameras and stored in NVR. The Video Camera shall be resistant to vandalism and be weather-proof. The mounting and equipment housing shall be able to withstand adverse weather conditions. It should have minimum following specifications:

<u>High Resolution IP Fixed Dome Type Colour Camera:</u>	
High resolution IP colour camera shall have day & night mode, fixed dome type, suitable for indoor surveillance with minimum following features.	
The camera shall meet the following requirements.	
Image device	1/3" High Sensitivity CCD Sensor
Effective pixels	720x576 or better
Sensitivity	0.01 Lux @30 IRE, 0.00001 (Sens Up) / F1.2
Automatic lens control	DC Iris
Day & Night Operation	Day and Night visibility with color.
Audio/Two-way	1 In/ 1 Out G.711
IP address	IPV4
Video Encoder	H.264 and Motion JPEG simultaneously
Video Profile	176 x 112(NTSC), 176 x 114(PAL), 352 x 240(NTSC), 352 x 288(PAL) 704 x 480(NTSC), 704 x 576(PAL), 720 x 480(NTSC), 720 x 576(PAL)
Frame Rate	Up to 25fps for PAL mode to 30fps for NTSC mode
Streaming	Dual Streaming (H.264/H.264 & H.264/MJPEG)
Privacy Mask	Minimum 8 editable areas
Audio Encoder	8 bit PCM (G.711-u-low), Sampling rates 8KHz, Mono Audio
Supported Protocols	HTTP, RTP/RTSP, Multicast, TCP/IP, ARP, ICMP, Telnet, Ftp, PPPoE, SMTP, DHCP, NTP, UPnP, SNMP, IGMP
Security	Password protection, IP address filtering, user access log
Alarm Triggers	Intelligent video motion detection and Alarm Notification to e-mail CGI Call by event or schedule

Motion Detection	minimum 100-areas video motion detection
Alarm Events	Motion detection / Alarm Sensor / Camera Connect, Disconnect / Boot Finished Serial Input [Alarm Service] Up to 5.6M memory for Pre/Post alarm buffer E-Mail, FTP, IP notification, Alarm Notification to e-mail CGI Call by event or schedule
Video Buffer	Pre- and post- alarm buffering
PoE	IEEE 802.3af
Lens Type	3.5~12.0mm Vari-Focal Auto IRIS Lens
Connectors	RJ-45 10BaseT/100BaseTX; DC jack; 1 alarm input and 1 output; RS485; Audio in and out
Video Output	Composite 1.0Vp-p(75Ω load)
Other Features	WDR, Motion Detection, BLC, AGC, White Balance.
Operating Temperature	0°C ~ 50°C
Operating Humidity	0~95% RH (Non-Condensing)
Certifications	UL, CE, FCC & ONVIF

1.30 Toll Management Software

- The Toll Management System (TMS) shall be responsible for capturing & processing Toll transactions into information, that will be used to verify toll collections, provide toll collector control, cash-up and shall include a host of management tools and reports for the effective administration of the toll operation under close loop toll collection.
- The TMS shall also assist in auditing the toll collection operation. It shall be a modular system with the capability for various modules and functions to perform independently at different levels of the toll collection operations.
- The TMS shall have various customizable reports.
- The TMS shall have financial management and traffic analysis tools to assist the toll operator in planning operations.
- The Service Provider shall ensure that security updates and latest service packs, “patches” are loaded on the Lane / AVC Controllers as well as Toll Plaza Servers. Industry standard operating systems shall be utilized and all user licenses shall be provided.
- The database shall be an industry standard relational database management system and shall be supplied with all the latest service packs and patches, including required user licenses.
- Toll Management System should be able to support all kind of Fare structures & Payment methods including, but not limited to, Daily Pass, Return Pass, Monthly Pass, Discounted tariffs, Exemptions, Open / Closed fare schemes etc and shall

meet the Tolling System requirements of the respective Concession Agreement, including subsequent regulation / notification thereon by NHA/ MoRTH.

- Fully integrated with all other peripherals and systems such as WIM, SWB etc.
- Shall be able to send data to Central data center designated by IHMCL for Toll Management system and Hybrid ETC system.

.....End.....