

**RFP for Providing Services of Toll Management Systems for Cash/
Mixed toll lanes including CCTV Surveillance, Weigh-in Motion, Static
Weigh Bridge, etc. at NHAI Toll Plazas of Public Funded Projects in
South and West Zones-2015**



**Indian Highways Management
Company Ltd.**

**2nd Floor, MTNL Building, Sector-19, Dwarka,
New Delhi-110075**

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NOTICE INVITING TENDER

(Tender Ref No:) - IHMCL/TMS-WIM/2015-01

Indian Highways Management Company Ltd (IHMCL) intends to engage service providers for “Providing Services of Toll Management Systems for ETC and /or Non-ETC (Cash/ Mixed) toll lanes including CCTV Surveillance, Weigh-in Motion, Static Weigh Bridge, etc. at NHAI Toll Plazas of Public Funded Projects”. The period of engagement shall initially be five years, which may be extended subject to satisfactory services and continued requirement of IHMCL. The Service Provider shall be responsible to provide the services in accordance with the Detailed Scope of Works as mentioned in the Agreement given at Annexure – 1.

Toll Plazas were divided in 4 zones based on geographical locations. Each zone consists of around 25- 30 Toll Plazas. Work in respect of East and North has already been awarded. Bids are now invited for awarding the work for remaining two zones viz. West Zone and South Zone. Any single bidder / consortium can be awarded work of only 1 zone out of 2.

The prospective bidders are hereby invited to submit bids for each zone, comprising Technical and separate Financial Bids for any one zone latest by **(the bid due date)** in the pro-forma prescribed herein. No change in the formats and / or other mode of bid submission is permissible.

SCHEDULE OF IMPORTANT EVENTS / ACTIVITIES

Sl. No.	EVENT(S)	DATE (Unless otherwise notified separately)
1.	Issue of RFP Document	12 January, 2015
2.	Last date for submission of queries/clarifications	16 January, 2015
3.	Pre - bid meeting	19 January, 2015
4.	Last date/ time for submission of bids (i.e. <i>Bid due date</i>)	27 January, 2015 before 15:00 hrs.
5.	Opening of <i>Technical bids</i>	27 January, 2015 at 15:30 hrs.
6.	Opening of Financial bids	Will be intimated separately

ARTICLE-1

TENDER APPLICATION FEE AND BID SECURITY

- 1.1** The Bidder shall pay **Tender Application Fee** (non-refundable) amounting to **INR 25,000/- (Rupees Twenty Five Thousand)** in the form of **DD / Pay Order in Favor of “Indian Highways Management Company Ltd”, payable at New Delhi.**
- 1.2** The Bidder shall furnish **Bid Security / EMD (Earnest Money Deposit)** of **INR 2 Crore (Rupees Two Crore only)** in the form of Bank Guarantee (EMBG) in the prescribed format. IHMCL shall not be liable to pay any interest on the Bid Security/ EMD.
- 1.3** For counting the period of validity of the EMBG, the last date of submission of bids shall be excluded. The EMBG shall remain in force for a period of 180 days (one hundred eighty days) after bid due date. The claim period of EMBG shall be 60 days thereafter.
- 1.4** The EMBG from following banks shall only be accepted:-
- i. State Bank of India or its subsidiaries.
 - ii. Any Indian Nationalized Bank.
 - iii. IDBI or ICICI Bank.
 - iv. A Foreign Bank (issued by a branch outside India) with a counter guarantee from SBI or its subsidiaries or any Indian Nationalized Bank.
 - v. Any Scheduled Commercial Bank approved by RBI having a net worth of not less than INR 500 Crores as per the latest Annual Report of the Bank. In the case of a Foreign Bank (issued by the branch of India) the net worth in respect of the Indian operations shall only be taken into account.
- 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 may be declared unacceptable, if
- i. It does not comply with the requirements stipulated herein above;
 - ii. It's validity is short of the prescribed period;
 - iii. The EMBG is not of requisite amount;
 - iv. There is a material deviation in the format of EMBG from the prescribed format, which is likely to affect the rights of IHMCL in encashment of EMBG for default.
- 1.7** Any bid *not accompanied* by an acceptable Bid Security and / or Tender Application Fee in the prescribed manner shall be summarily rejected.
- 1.8** The Bid Security (EMBG) of unsuccessful bidders shall be returned without interest normally within 30 days after finalization of the tender process i.e. signing of the contract agreement with the successful bidder.

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

1.10 In case the Bidders have submitted the Bank Guarantee for EMD and Performance BG (for successful bidders) for previous Bid and the same has not been returned, the bidders can submit a letter requesting to accept the same EMD for this Tender.

1.11 FORFEITURE OF BID SECURITY:

IHMCL shall be entitled to forfeit and appropriate the Bid Security as Damages, *inter alia* in any of the events specified in herein below. The Bidder, by submitting its Bid pursuant to this RFP, shall be deemed to have acknowledged and confirmed that IHMCL will suffer loss and 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. No relaxation of any kind on Bid Security shall be given to any Bidder.

- i.** If a bidder submits a non-responsive bid:
Subject to, however, that in the event of forfeiture and/ or appropriation of bid security occurring due to operation of this sub para, the damage so claimed by IHMCL shall be restricted to 25% of the value of bid security.
- 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 extended by issuing addendum by IHMCL; or
- iv.** If the bidder tries to influence the evaluation process; or
- v.** If a Bidder having been notified Successful Bidder by IHMCL with the 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; or
 - (ii) 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 Firm established in India or a Company incorporated and registered in India under the Companies Act, 1956. *Documentary proof (copy of certificate of incorporation) shall be submitted as part of the Bid documents.*

OR

2.1.2 A subsidiary Company registered in India of a Foreign Company having requisite experience. For considering the experience of the Parent Company, the subsidiary Company 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 Indian Company;
- ii. Sharing of risks and profits of the Indian Company by the Parent Company; and
- iii. That the Parent Company has sufficient representation in the management of Indian Company to control the activities of the subsidiary.

In such case only, the experience and the details of the Parent Company will be considered, otherwise the details/ experience of Indian Company only, will be considered. Under this concept, there is no involvement of lead bidder; the Indian company (subsidiary) shall be participating as a sole bidder.

OR

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

- i. Maximum number of partners in the JV or Consortium shall be Three;
- ii. The parties in a JV or Consortium shall be jointly and severally liable;
- iii. The Lead Partner in the JV or Consortium shall be single largest Equity holder.
- iv. The eligibility/ experience of JV or Consortium shall be considered cumulatively.
- v. The eligibility/ experience of any partner of JV or Consortium shall be considered only if the partner is proposed to have at least twenty six percent (26%) stakes in the JV/ Consortium.
- vi. The parties in JV or Consortium cannot to be part of any other JV / Consortium or bid individually. Effectively 1 party shall be bidding only once, either as an individual company or as a part of Consortium / JV.

2.1.4 In case the applicant is a 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 of each partner.

- ii.** Brief background of the each JV / consortium partner in format prescribed.
- iii.** Documents substantiating eligibility of each JV / consortium partner.

2.2 Technical Strength: The Bidder should be a company 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 one or more Projects comprising of at least:

- i. 5 ETC Lanes;
- ii. 100 Cash/ Mixed Toll Lanes; and
- iii. 10 Weigh-in-Motion Systems on Toll Plazas

Technical capability statements including details of tolling systems supplied and/or services owned/ controlled by the bidder and Letter of Completion for same, from the clients, need to be provided as part of the eligibility document.

2.3 Financial Strength:

- i.** The Bidder should have average annual turnover of more than INR 10 (Ten) Crore during last three financial years i.e. FY2011-12 to 2013-14.
- ii.** The bidder shall have Positive net worth for the year ended 31st March, 2014.
- iii.** In case of a JV or consortium, the combined financial turnover shall be considered in the proportion of stakes of the constituents in the JV or consortium.
- iv.** ***Documentary proof in the form of a certificate from the statutory auditor/ chartered accountant as per the specified format shall be submitted as part of the technical bid.***

2.4 The bidder shall be expected to offer and provide services on complete range of toll plaza equipment/ systems and sub-systems viz. Complete Toll Collection & Management System, and CCTV Surveillance for Toll Plaza, Weight-in-Motion, Static Weigh Bridge, etc. including system integration thereof and integration with existing systems, if any, and integration with Central data center for real time data transfer, to ensure end- to-end services on any toll plaza. Those bidders who offer to provide services on select few toll systems/ sub-systems only, shall be technically disqualified and shall not be shortlisted for opening of financial bids.

ARTICLE-3
INSTRUCTIONS TO BIDDERS

3.1 General terms of Bidding

- 3.1.1** The Bid and its copy 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 initiated. All the alterations, omissions, additions or any other amendments made to the Bid shall be initiated by the person(s) signing the Bid.
- 3.1.2** No Bidder shall submit more than one Bid for a particular zone. A Bidder bidding individually or as a member of a JV/Consortium shall not be entitled to submit another bid either individually or as a member of any Consortium, as the case may be.
- 3.1.3** Bid documents shall be properly bound in a manner such as to avoid 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 Eligibility and 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 summarily 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 or 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 draft Service Provider Agreement 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.
- 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 favor of the Lead Member in the prescribed format.
- 3.1.12** Any condition or qualification or any other stipulation contained in the Bid, shall render the Bid liable to rejection as a non-responsive Bid.
- 3.1.13** The Bid and all communications in relation to or concerning the Bidding Documents shall be in English language. The documents, including this RFP and all attached

documents, provided by IHMCL, are and shall, remain the property of IHMCL and are transmitted to the Bidders solely for the purpose of preparation and the submission of a Bid in accordance herewith. Bidders are to treat all information as strictly confidential and shall not use it for any purpose other than for preparation and submission of their Bid. The provisions of this Clause 2.1.14 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.

3.1.14 A Bidder shall not have a conflict of interest (the “**Conflict of Interest**”) that affects the Bidding Process. Any Bidder found to have a Conflict of Interest shall be disqualified.

3.1.15 In the event of disqualification due to this clause, IHMCL shall be entitled to forfeit and appropriate the Bid Security or Performance Security, 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 Member or Associate (or any constituent thereof) and any other Bidder, its Member or any Associate thereof (or any constituent thereof) have common controlling shareholders or other ownership interest; provided that this disqualification shall not apply in cases where the direct or indirect shareholding of a Bidder, its Member or an Associate thereof (or any shareholder thereof having a shareholding of more than 5% (five per cent) of the paid up and subscribed share capital of such Bidder, Member or Associate, as the case may be) in the other Bidder, its Member 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.
- ii. a constituent of such Bidder is also a constituent of another Bidder; or
- iii. such Bidder, its Member or any Associate thereof receives or has received any direct or indirect subsidy, grant, concessional loan or subordinated debt from any other Bidder, its Member or Associate, or has provided any such subsidy, grant, concessional loan or subordinated debt to any other Bidder, its Member 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 Consortium, then the term Bidder as used in this Clause 2.1.16, shall include each Member of such Consortium.

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

3.1.17 A Bidder shall be disqualified and Bid Security or Performance Security, 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.

3.2 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 Authority during the Bid Stage, only where:

- (a) The Lead Member continues to be the Lead Member of the Consortium;
- (b) the substitute is at least equal or more, in terms of Technical Capacity and Financial Capacity, to the Consortium Member who is sought to be substituted and the modified Consortium shall continue to meet the pre - qualification and short-listing criteria for Applicants; and
- (c) the new Member(s) expressly adopt(s) the Application already made on behalf of the Consortium as if it were a party to it originally: and
- (d) The New Member is not an Individual Applicant, Member/ Associate of any other 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, in writing. The Bidder must submit its application for change in composition of the Consortium at least 15 (fifteen) days prior to the Bid Due Date.

3.2.3 The modified/ reconstituted Consortium shall submit a revised Jt. 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 The Consortium / JV Members shall, hold the equity share capital, not less than 26% (twenty six per cent) of the subscribed and paid-up equity of the Service Provider, for a minimum of 3 years, from the date of Signing of 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 Member or an Associate 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 same 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 It shall be deemed that by submitting a Bid, the Bidder has:
- (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 thereunder.

3.6.2 IHMCL reserves the right to reject any Bid and appropriate the Bid Security 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 Member may be disqualified/ rejected. If such disqualification / rejection occurs after the Bids have been opened and the Lowest Bidder gets disqualified / rejected, then the Authority reserves the right to take any such measure as may be deemed fit in the sole discretion of IHMCL, including annulment of the Bidding Process.

3.6.3 In Case it is found that the bidder has made material misrepresentation, or any of the qualification conditions have not been met by the Bidder or bidder has given any materially incorrect or false information, 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 by fax and e-mail 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.
- 3.7.2 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's 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's 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 Envelop shall be marked as **“Providing Services of Toll Management Systems, CCTV Surveillance, Weigh-in Motion and Static Weigh Bridge at NHAI Toll Plazas of Public Funded Projects – Tender Ref: -----”**

4.4.3 The Bid Envelop- shall be addressed to:

ATTN OF: Shri R. C. Palekar
DESIGNATION: CEO
ADDRESS: Indian Highways Management Company Ltd
2nd Floor, MTNL Building, Sector 19, Dwarka, New Delhi– 110075.

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 (Eligibility 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 (Form T-3);
- v. Company Incorporation certificate, MoA / AoA etc
- vi. Documentary proof of shareholding details
- vii. Documentary proof for access to parent company's assets, in case of subsidiaries of foreign companies.
- viii. JV / Consortium Agreements with shareholding details in case of JV / Consortium.
- ix. Power of Attorney in favor of Lead bidder, in case of Consortium.

4.4.5.2 PART 2 (Technical Bid) – Envelope-2

The Documents specified below shall be serially marked, bound and placed in a sealed envelope. The envelope should bear the following identification: “*Technical Bid for Tender Ref:-*”

- i. Documentary proof of Technical eligibility as described in Clause 2.2
- ii. Documentary proof of Financial eligibility as described in Clause 2.3

4.4.5.3 PART 3 (Financial Bid) – Envelope-3

Financial Bid Envelope-3 shall be marked as “Financial Bid for Tender Ref:-_____”

Envelope-3 shall contain separate envelopes, 1 for each zone, containing financial bid forms and shall be marked as “Financial Bid form for zone -xxxx”

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 the Authority, 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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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.

ARTICLE 5
BID EVALUATION

- 5.1 Prior to evaluation of bids, IHMCL shall determine whether each Bid is responsive to the requirements of this RFP. The Technical bid of only those bidders shall be opened who submit documents in True copies / Originals as prescribed under para 3.4.5.1 of this RFP. 'Technical Bid' of non-responsive bidders shall not be opened.
- 5.2 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 of such bids.
- 5.3 In the first stage the Evaluation Committee shall examine the statement of qualification, furnished by the Bidder in support of their fulfillment of eligibility against the criteria prescribed in this RFP. A Bid shall be considered Responsive & Pre-Qualified only if:
- i. The '*prescribed documents*' in prescribed formats, are received by IHMCL on or before the Bid Due Date and time with proper seal and signature.
 - ii. Tender application fee is submitted as prescribed in the RFP document.
 - iii. Bid security is submitted and is of appropriate amount and furnished as specified in this RFP document.
 - iv. The technical bid contains all the required documents and information in the prescribed manner.
 - v. The bidder satisfies the eligibility criteria specified in the RFP document.
 - vi. The bid does not contain any pre-condition, assumption or qualification; and
 - vii. It is not non-responsive in terms hereof.
- 5.4 In the second stage, subsequent to technical evaluation, financial bids of only shortlisted Bidders shall be opened. The financial bids shall be opened in the presence of all bidders (who choose to be present) and the date of opening shall be intimated to pre-qualified bidders.
- 5.5 The "Successful Bidder" shall be chosen as described below, for each zone separately:
- i. Financial bids, for any one zone, of qualified bidders shall be opened.
 - ii. Lowest Bidder for that zone shall be selected as Successful Bidder.
 - iii. Financial bids of the successful bidder in the first zone, shall not be opened for the next zone.
 - iv. Process shall be repeated for both the zones.
- 5.6 The Financial Proposal Evaluation will be based on the "Total Cost", which would be the total payouts including all taxes etc.
- 5.7 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.

- 5.8 The Successful Bidders shall be awarded the work subject to IHMCL verifying the documents submitted by it. Letter of Award (LoA) shall be issued by IHMCL to the Successful Bidders.
- 5.9 IHMCL reserves the right to ask for further clarification and/or justification for the quoted prices from the Lowest bidder of any zone, in case the quoted prices vary highly (more than 25%) from estimated prices of IHMCL or from average quoted prices of other bidders.
- 5.10 In case, the lowest bidder is not able to justify the Quoted prices to IHMCL's satisfaction, when asked for justification with reference to clause 4.9, IHMCL reserves the right to reject the Bid of Lowest bidder and adopt any other method to select another bidder for that particular zone. In this case, the EMD of such rejected bidder shall be forfeited.
- 5.11 Upon receipt of LOA, the Successful Bidder, shall comply with the conditions of LOA and give his written acceptance and Performance Security within the specified time frame, failing which, the LOA shall stand canceled and also lead to annulment of the work award and forfeiture of the Bid Security. IHMCL shall be entitled to take any other remedy as per law.
- 5.12 Upon furnishing of the acceptance by the Successful Bidder, he shall be asked to sign the Contract contained herein at Annexure-1, within 15 days or as per the time frame mentioned in LoA, failing which, the offer will be treated as withdrawn and the Performance Security shall be forfeited.

ARTICLE 6
PERFORMANCE SECURITY

- 6.1 Upon issue of a Letter of Award (LoA) by IHMCL, the Successful Bidder shall be required to furnish an unconditional and irrevocable Performance Security, for an amount equal to 10% of the Total Bid Price (Value of awarded work) in the form of a Bank Guarantee (PBG) in the prescribed format ***within a period of maximum 15 days***. The bid security shall be valid for 5 years. The claim date shall be six months beyond the validity period of the BG.
- 6.2 The PBG from following banks shall only be accepted:-
- i. State Bank of India or its subsidiaries.
 - ii. Any Indian Nationalized Bank.
 - iii. IDBI or ICICI Bank.
 - iv. A Foreign Bank (issued by a branch outside India) with a counter guarantee from SBI or its subsidiaries or any Indian Nationalized Bank.
 - v. Any Scheduled Commercial Bank approved by RBI having a net worth of not less than ` 500 Crores as per the latest Annual Report of the Bank. In the case of a Foreign Bank (issued by the branch of India) the net worth in respect of the Indian operations shall only be taken into account.
- 6.3 The acceptance of the BG shall also be subject to the following conditions:-
- i. The capital adequacy of the Bank shall not be less than the norms prescribed by RBI.
 - ii. The bank guarantee issued by a Cooperative Bank shall not be accepted.
- 6.4 A Bank Guarantee for Performance Security may be declared unacceptable, if:
- i. It does not comply with the requirements stipulated herein above;
 - ii. It's validity is short of the prescribed period;
 - iii. The Bank Guarantee is not of requisite amount;
 - iv. There is a material deviation in the format of Bank Guarantee from the prescribed format, which is likely to affect the rights of IHMCL in encashment of Bank Guarantee in case of a default of the Service Provider.
- 6.5 The Bid Security of the Successful Bidder and other bidders shall be returned without interest, after signing the contract with Successful Bidders.

ARTICLE 7
SCOPE OF WORK & PROJECT DURATION

- 7.1 The service Provider is required to provide following systems and subsystems thereof, on service model
- Toll Collection & management system including AVC and other sub systems.
 - Weigh in Motion system in each Toll Lane integrated with Toll System
 - Static Weigh Bridge on each side of Toll Plaza, integrated with Toll systems
 - IP based, Toll Plaza & Toll Lane CCTV Surveillance System including the Network Video Recorder.
 - Dedicated Internet link of at least 2 MBPS capacity for data transfer and remote access.
- 7.2 The Detailed scope of work along with Technical & Functional requirements is given in the Agreement at Annexure-1.
- 7.3 This is to clarify that IHMCL does not seek/intend to procure any of the equipment, system, sub systems or any components thereof, through this Tender. All the Systems, Softwares, equipments & components supplied under this agreement shall remain property of the Service Provider.
- 7.4 The duration of the Services shall be for 5 years initially and may be extended annually, on mutually agreed terms, subject to satisfactory performance, continued requirement and at sole discretion of IHMCL.

ARTICLE 8

MISCELLANEOUS

- 8.1** This RFP document also includes a format of the Contract Agreement to be executed with the successful bidder for providing stipulated services to IHMCL.
- 8.2** Bidders are advised to study the RFP document along with its amendment/ addendum carefully.
- 8.3** 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.
- 8.4** 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, at his own risk & own cost.
- 8.5** Bids, which fail to comply with all the requirements of RFP document shall be declared non-responsive and shall not be considered for evaluation.
- 8.6** IHMCL will be at liberty to keep the credentials of the bidders submitted by them at bidding stage, in public domain and the same may be uploaded by IHMCL on its web site. The bidders shall have no objection if IHMCL uploads/ hosts the information pertaining to their credentials as well as of their key personnel.
- 8.7** The decision of the Sole Arbitrator in this regard shall be final and binding on the parties.
- 8.8** The bidding process shall be governed by, and construed in accordance with, the laws of India and courts at New Delhi shall have exclusive jurisdiction over all disputes arising under, pursuant to and/or in connection with the bidding process.
- 8.9** IHMCL, in its sole discretion and without incurring any obligation or liability, reserves the right, at any time, to:
- i. Suspend and/or cancel the bidding process and/or amend and/or supplement the Bidding Process or modify the dates or other terms and conditions relating thereto;
 - ii. Consult with any Bidder in order to receive clarification or further information;
 - iii. Retain any information and/ or evidence submitted to IHMCL by, on behalf of, and/ or in relation to any Bidder; and/or;
 - iv. Independently verify, disqualify, reject and/ or accept any and all submissions or other information and/or evidence submitted by or on behalf of any Bidder.
- 8.10** IHMCL is not bound to reply/ respond to any representation/ letter or request for change in scope of work, eligibility criteria or any relaxation in respect of the tender conditions. No correspondence will be entertained on this matter.

- 8.11** 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.
- 8.12** IHMCL reserves the right to verify all statements, information and documents submitted by the Bidder in response to this RFP and the Bidders shall, when so required by 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 Bidders of its obligations or liabilities hereunder nor will it affect any rights of IHMCL thereunder.
- 8.13** IHMCL reserves the right to reject any Bid and/ or declare it non-responsive, if:
- i. At any time, a material misrepresentation is made or uncovered, or
 - ii. The Bidder does not provide, within the time specified by IHMCL, the supplemental information sought by IHMCL for evaluation of the Bid.
- 8.14** Such misrepresentation/ improper response shall lead to the disqualification of the Bidder. If such disqualification/ rejection occurs after the bids have been opened and the lowest bidder gets disqualified/ rejected, then IHMCL reserves the right to take any such measure as may be deemed fit in the sole discretion of IHMCL including, but not limited to, annulment of the Bidding process.
- 8.15** A prospective Bidder requiring any clarification regarding the RFP may notify IHMCL in writing using the format prescribed and send to IHMCL on e-mail².
- 8.16** Any modification in the RFP document shall be made by IHMCL separately through issue of an Addendum/ Amendment.
- 8.17** At any time prior to the bid due date, IHMCL, may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder, modify the conditions specified in the RFP document by an amendment.
- 8.18** Any amendment/ addendum thus issued shall be part of the RFP document and shall be communicated by hosting the same on IHMCL's web site only and should be taken into consideration by the prospective bidders while preparing their Bids.
- 8.19** In order to give prospective Bidders reasonable time to take any such amendment into account in preparing their bid, IHMCL may, at its discretion, extend the bid due date.

² tenders@ihmcl.com

ARTICLE 9
FORMATS FOR BID DOCUMENTS

9.1 Bid Covering Letter

(To be prepared on letterhead of the Bidder)

To
CEO
Indian Highways Management Company Ltd
2nd Floor, MTNL Building
Sector-19, Dwarka,
New Delhi - 110075

Subject: RFP for Providing Services of Toll Management Systems for ETC & Non-ETC (Cash/ Mixed) toll lanes including CCTV Surveillance, Weigh-in Motion, Static Weigh Bridge, etc. at IHMCL Toll Plazas on Public Funded Projects – Tender Ref No: _____

Dear Sir,

1. I/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. I/We confirm that if selected, I/We shall offer and provide services on complete range of toll plaza equipments/ systems and subsystems viz AVC, CCTV Surveillance, Weight-in-Motion, Static Weigh Bridge, etc. including system integration thereof, integration with existing systems, if any and integration with NHAI HQ data center for real time data transfer, to ensure end-to-end services on any toll plaza.
3. I/We offer to execute the work in accordance with the Scope of work and the Conditions of Contract of this RFP both explicit and implied.
4. I/We undertake that, in competing for (and, if the award is made to us), for executing the above contract, we will strictly observe the laws against fraud and corruption in force in India namely “Prevention of Corruption Act 1988”.
5. I/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 Bid Security, 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 canceled. IHMCL is not bound to accept any/ all 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. I/We declare that :

- 6.1** I/We have not been *declared ineligible* by IHMCL, NHAI or Ministry of Road Transport & Highways, Government of India or any other agency for indulging in corrupt or fraudulent practices.
- 6.2** I/We also confirm that I/We have not been *declared as non-performing or debarred* by IHMCL, NHAI or Ministry of Road Transport & Highways, Government of India.
- 6.3** I/We *haven't been blacklisted* by a Central/ State Government institution/ Public Sector Undertaking/ Autonomous body and there has been *no litigation* with any Government Department/ PSU/ Autonomous body on account of similar services.
- 6.4** I/We have *not* directly or indirectly or through an agent *engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice*, as defined in the Contract Agreement, in respect of any tender or request for proposal issued by or any Contract entered into with IHMCL or any other Public Sector Enterprise or any Government, Central or State;
- 6.5** I/We hereby certify that we have taken steps to ensure that in conformity with the provisions of the RFP document, no person acting for us or on our behalf has engaged or will engage in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice.
- 6.6** I/We have not been convicted by a Court of Law or indicted or adverse orders passed by a regulatory authority which could cast a doubt on our ability to undertake the subject work or which relates to a grave 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 CEO 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 my knowledge and belief. Nothing has been omitted which renders such information misleading; and all documents accompanying my/our bid are true copies of their respective originals.
- 6.10** I/We shall be liable for disqualification or termination of contract at any stage, if any information/declaration is found to be incorrect or false.

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

8. I/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 envisaged in the RFP document and marked appropriately.
10. I am the Director / Authorized Signatory of the aforesaid company / firm and I am authorized to sign this bid on behalf of the firm / company.
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,

Name

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

9.2 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, proprietorship / partnership firm etc.
(e) 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/ Proprietors/ Partners
.....
.....
2. Address for correspondence with Telephone/ Fax numbers/ e-mail address:
(a) Complete postal address:
(b) Fixed telephone number
(c) Mobile telephone number
(d) E-mail address
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.....

3

These details are required for refund of Bid Security.

9.3 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 Toll Management Systems for ETC & Non-ETC (Cash/ Mixed) toll lanes including CCTV Surveillance, Weigh-in Motion, Static Weigh Bridge, etc. at IHMCL Toll Plazas on Public Funded Projects*”, 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, 2015

For
(Signature, name, designation and address)

Witnesses:

1.

2.

Notarised

Accepted

.....

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

Notes:

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

9.4 Format for Earnest Money Bank Guarantee (EMBG)

(Refer Clauses 1.2 & 1.3)

B.G. No.

Dated:

To,
The CEO,
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, 1956) 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 *“Providing Services of Toll Management Systems for ETC & Non-ETC (Cash/ Mixed) toll lanes including CCTV Surveillance, Weigh-in Motion, Static Weigh Bridge, etc. at IHMCL Toll Plazas on Public Funded Projects”* 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 20000000/- (Rupees Two Crore)** only, and we undertake to pay you, upon your first written demand and without cavil or argument, and without reference to the Bidder, any sum or sums within the limits of **INR 20000000/- (Rupees Two Crore)** only as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.
5. Any such written demand made by the Authority stating that the Bidder is in default of the due and faithful 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 Authority stating that the amount claimed is due to the Authority 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 Authority and the Bidder, and agreed to by the Bank, and shall continue to be enforceable till all amounts under this Guarantee have been paid.

8. We, the Bank, further agree that the Authority shall be the sole judge to decide as to whether the Bidder is in default of due and faithful 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 Authority that the Bidder is in default as aforesaid shall be final and binding on us, notwithstanding any differences between the Authority and the Bidder or any dispute pending before any Court, Tribunal, Arbitrator or any other Authority.

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

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

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

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

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

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

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

16. For the avoidance of doubt, the Bank's liability under this Guarantee shall be restricted to **2 crore (Rupees Two Crore)**. The Bank shall be liable to pay the said amount or any part thereof only if the Authority serves a written claim on the Bank in accordance with 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: _____

9.5 Format of Certificate in respect of Bidder's Annual Turnover and Net worth
(To be submitted separately for each constituent in case of a Joint Venture/ Consortium)

Dated: /...../2015

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 Year ⁴	Amount in figures	Amount in words
FY 2011-12		
FY 2012-13		
FY 2013-14		
Average		

2. Annual Net Worth

Amount in INR (Lakhs)

Financial Year	Amount in figures	Amount in words
FY 2013-14		

(Signature of Statutory Auditor/ Chartered Accountant)

Name:

Seal:

⁴ A period from 1st April of preceding year to 31st March of the succeeding year

9.6 Format for Financial Bid Submission

(For sample only, actual Format to be downloaded from e-tender portal for on-line submission)

Subject: Financial Bid for Zone – x for

RFP for Providing Services of Toll Management Systems for ETC & Non-ETC (Cash/ Mixed) toll lanes including CCTV Surveillance, Weigh-in Motion, Static Weigh Bridge, etc. at NHAI owned Toll Plazas of Public Funded Projects. Tender Ref No _____

Dear Sir,

I/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 RATES for Zone – South/West

S. N.	Item Description	Unit	Qty.	Duration	Rate /Unit (Rs.)	Amount (Rs)
	(A)	(B)	(C)	(D)	(E)	(F)=(C) x (D) x (E)
1	Providing Services of complete Toll Management System (Cash/Mixed Lane), with AVCC and Lane Incident Capture Camera and License Plate Capture Camera and Toll Booth Monitoring Camera.	(Per Quarter/ toll lane)	100 toll lanes	20 Quarters		
2	Providing services of Weigh-in-Motion including system integration with the Toll Management Systems provided by Service Provider/ existing toll system at IHMCL Toll Plazas. <i>(One Weigh-in-Motion System is required in each toll lane)</i> i) ETC lane ii) Cash/Mixed Lane	(Per Quarter/ lane)	50 50	20 Quarters		
3	Providing services of Static-Weigh-Bridge including system integration with the Toll Management Systems provided by Service Provider/ existing toll system at IHMCL Toll Plazas as per TOR. <i>(One Static-Weigh-Bridge is required in each direction of traffic at every toll plaza)</i>	(Per Quarter/ Unit)	50 Nos.	20 Quarters		
4	Providing services of CCTV surveillance system and system integration with Toll System including items for control center, and cameras.	(Per Quarter/ Plaza)	25 Plazas	20 Quarters		

RFP for Providing Services of Toll Management Systems for Cash/ Mixed toll lanes including CCTV Surveillance, Weigh-in Motion, Static Weigh Bridge, etc. at NHAI Toll Plazas of Public Funded Projects.

5	Operational/User Training at toll plaza site to personnel of toll collection agency / IHMCL for 3 day's Training session, on "Train The Trainer model". (Every Toll Plaza will have 1 Training Session every year.)	(Per Training/ Plaza)	25 Plazas	5 Years		
6	TOTAL BID PRICE					

1. I/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. I/We understand that IHMCL reserves the right to award work at any toll plaza for all the components i.e. 1 to 6 above, or any combination thereof as per its toll plaza specific requirement. I/We understand that IHMCL reserves the right to award the work in stages.
3. I/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. I/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. I/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. I/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. I/We do hereby confirm that my/ our bid price includes all statutory taxes/ levies but excluding service tax. Service tax shall be reimbursed separately on proof of payment.
7. I/We also declare that any tax, surcharge on tax and / or any other levies, if altered in future and payable under the law, the same shall be borne by me/ us.
8. This bid is **valid** for a period of **180 calendar days** from the bid due date.
9. I/We understand that the applicable service tax shall be reimbursed by IHMCL separately on production of proof of payment;
10. I/We understand that the applicable TDS will be deducted against payments as per Applicable Law.

- 11.** In case of any difference in figures and words, the amount mentioned in words will prevail.

Yours sincerely,

Name

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

9.7 FORMAT OF PERFORMANCE BANK GUARANTEE

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

1. 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 “*Providing Services of Toll Management Systems for ETC & Non-ETC (Cash/ Mixed) toll lanes including CCTV Surveillance, Weigh-in Motion, Static Weigh Bridge, etc. at IHMCL Toll Plazas on Public Funded Projects*” (hereinafter called the “Contract”).
2. 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.
3. AND WHEREAS we have agreed to give the Service Provider such a Bank Guarantee:
4. 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.
5. We hereby waive the necessity of your demanding the said debt from the Service Provider before presenting us with the demand.
6. 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 thereunder 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.
7. 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.
8. 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.

9. 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.

10. This bank guarantee shall be valid from

11. 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 _____, 2015.

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 _____. 2015 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 any
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

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 Managment 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 “**reorganisation**” 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, reorganisation, 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, authorisation, 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 5 (five) years 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 further extended annually, at mutually agreed terms, subject to satisfactory performance, continued requirement and sole discretion of IHMCL.

3.TIME SCHEDULE

- 3.1** The Service Provider shall commence the Services, in respect of deploying the manpower for auxiliary works & starting delivery of equipments on sites, within fifteen (15) days of date of LOA.
- 3.2** IHMCL shall notify the Service Provider to commence work on the Specified Toll Plaza Sites after the Site is ready in terms of PQC, Lanes, Toll Booths, Control Room / Server Room.
- 3.3** The Service Provider shall complete the Installation, Integration and Commissioning of TMS, WIM and Plaza Surveillance System on such Specified Sites within 30 days of the Notification.
- 3.4** The Land availability for Static Weigh Bridge may be notified at a later stage and Service Provider shall complete the Installation, Integration & commissioning of Static Weigh Bridge within 15 days of such notification.
- 3.5** The Service Provider shall ensure that the Services are undertaken and completed in accordance with the time schedules in this Agreement. In case of any deviation from the schedule, IHMCL reserves the right to terminate the Agreement and/or recover Liquidated Damage therefrom.
- 3.6** 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.
- 3.7** The Service Provider, if faced with problems in timely commencement of the Services, other than those mentioned in Clause 3.3 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.

3.8 Damages For Delay / SLA:

In case of delay in providing required services at any toll plaza site, liquidated damages @0.05% of the cost of assignment⁵ for that site for each day of delay, subject to a maximum of 25% of the cost of assignment for that site, shall be levied from the Service Provider. However, in case the delay is due to reasons beyond the control of the Service Provider, based on request of the Service Provider, suitable extension of time for commencement of Services may be granted by IHMCL on case to case basis without imposing liquidated damages.

In case, the deductions imposed as Liquidated Damages, reach 25% of the cost of assignment for that site, IHMCL may consider termination of this Agreement or 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.

⁵Cost of assignment for any site shall be 20 times that of quarterly rates (for the items supplied for that site)

4. PRICES AND PAYMENTS

- 4.1** Interest Free Advance Payment of 2% 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 inclusive of all Taxes & duties except Service tax, which shall be paid separately, at actuals.
- 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, without any change in unit price quoted by Service Provider.
- 4.7** In case any clarifications / checks etc. is required for calculating deduction which is likely to take some time, IHMCL shall release 80% of the invoice amount within 30 days of receipt of the same and the balance 20% shall be settled after completion of clarifications/ checks etc. (however, in not more than additional 30 days).
- 4.8** Payment will be subject to deductions against downtime as prescribed under Service Level Requirements.
- 4.9** 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.
- 4.10** 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.
- 4.11** Service Tax over and above the quoted price, shall be released separately, at actuals, only after submission of proof of payment of the service tax.
- 4.12** Applicable statutory deductions such as TDS, Cess etc shall be deducted from all the Payments.
- 4.13** The Format for BG will be shared after award of Contract. The BG for advance should be Valid for a Minimum Period of 2 Years, and claim period shall be 6 Months beyond the Validity Date.
- 4.14** The Advance shall be recovered in equal installments, from Quarterly Payments over a Period of 2 Years. 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. SCOPE OF WORK

5.1 Background:

As per directions of Government of India, pan-India inter-operable Electronic Toll Collection (ETC) System is to be implemented. For this purpose, Indian Highways Management Company Ltd. (IHMCL) has been incorporated by NHAI. IHMCL is spearheading the nation-wide ETC implementation program. As part of the endeavor, IHMCL has issued work order for installation of ETC equipment on 20 public funded toll plazas to M/s Tecsidel India Pvt. Ltd. For another 82 public funded toll plazas work of ETC equipment installation is assigned to M/s VaaaN Infra Pvt. Ltd. by IHMCL. On the same lines, IHMCL has been mandated to award work for Providing Services of Toll Management Systems for ETC & Non-ETC (Cash/ Mixed) toll lanes including CCTV Surveillance, Weigh-in Motion, Static Weigh Bridge, etc. at NHAI Toll Plazas on Public Funded Projects.

Through amendment dated 16.12.2013 to Fee Rules; a provision has been made to charge 10 times of applicable fee, in case a vehicle is found overloaded. In order to implement the said amendment to Fee Rules, there is a requirement to install Weigh-in-Motion system in each toll lane and one Static-Weight-Bridge in each direction of travel near the Toll Plaza on all Public Funded Project Stretches.

To cater to the above requirement, IHMCL intends to engage a Service Provider, who shall be required to not only provide services of End to End Toll Management System, Weigh-in-Motion system and Static-Weight-Bridges, but also integrate these systems with the existing and ETC Systems as well as Real time Data Transfer to Central Data Center, as per requirement of IHMCL.

The toll plaza of public funded projects typically comprise of 4-6 lanes. The locations where these services are required are spread across the country. The details of National Highway stretches under public funded scheme may be seen on URL <http://www.nhtis.org> [As per initial estimates, in about 100 toll plaza locations, there will be requirement of about 600 WIM systems and approximately 200 Static-Weigh-Bridges, which shall be required to be installed and integrated with the ETC Systems & Toll Systems.]

In addition, there will be around 200 toll lanes where ETC Systems (Dedicated /Hybrid Lane) provided by other service provider, are in use and the service provider selected through this tender shall be required to install WIM and Static Weight Bridge and do the system integration with the existing Toll Management Systems to provide required services. The system integrator is also required to install CCTV Surveillance System on such toll plazas.

5.2 Objective:

The Service Provider shall be required to study the existing toll systems/ ETC systems at the toll plazas and undertake, inter-alia, responsibilities for installation, testing, commissioning, configuration and system integration of all required hardware / Software / Equipment/ Sub-system (hereinafter called toll systems) in a time bound manner and provide round the clock maintenance for the same during entire period of operations such that the required services are available at the toll plazas as per service level requirements.

As the services required correspond to the toll plazas already in operation, the service provider is required to install, test & commission their systems without disturbing existing system and operations of the toll plazas.

This tender is calling for bids purely for services and IHMCL / NHAI will not be procuring any of the equipments / systems required for provision of such services as mentioned herein.

5.3 DETAILED SCOPE OF WORK

5.3.1 Providing Services of Weigh-in-Motion (WIM) including the required civil and electrical work:

a) As per the amendment dated 16.12.2013 to the Fee Rules, any mechanical vehicle which is loaded in excess of permissible load for its category shall not be permitted to use National Highways or cross the Toll Plaza until the excess load has been removed from such vehicle and the driver or owner or a person in charge of such vehicle shall be liable to pay fee, for entering the overloaded vehicle on National Highways to the toll collecting agency, equal to 10 times the fee applicable to such category of mechanized vehicle.

b) For effective implementation and enforcement of the above provision of Fee Rules, the Service Provider shall provide a WIM system, in 2 Lanes in each Direction, on every specified Toll Plaza, fully integrated with the Toll Management System, along with all accessories / software.

c) The WIM system shall be able to provide data to the Toll system / ETC System.

d) WIM shall be able to work as a stand alone system and store the Axle and Gross Weight data for each vehicle, in standalone Controller / Lane PC, for further auditing and analysis.

e) The WIM system shall be able to send the WIM data for all vehicles simultaneously to the central data center designated by IHMCL.

f) The Service Provider may be asked to provide the service for WIM systems at designated BOT based Toll Projects at same quoted prices with same scope of work as mentioned in this RFP, provided such order is placed on Service Provider within 6 Months of issue of LOA to Service provider.

g) Technical & Functional Specifications of WIM for Slow Speed WIM in Cash Lanes

Functional Requirements:

- In case of separate indicator, W&M Approved model with IP55 or better rated enclosure.
- WIM indicator shall be placed in such a way where it is clearly visible to the vehicle drivers.
- Least count verification 20 Kgs +/- on Full Scale Output – 120 Tonnes
- On Site Calibration
- Existing surface on the Toll Plaza area are with a Gradient of up to 3%.
- Department of Weights & Measures (W&M) Approved Model
- Should be Stamped & Sealed on Site by Department of W&M

Minimum Technical Specifications:

Platform size dimension	Normal Lane : 3000 mm x 700 mm
Capacity of the Platform	40 Ton/Axle
Structure	Plate - MS I-Beam; Duly certified for Structural Analysis And Design (STAAD)-III complying BIS 2062
Number of Load cells	4
Stationary Accuracy	±0.05% FSR
In Motion Accuracy	±1% FSR up to speed 5 Km/h; and ±2% FSR up to speed 10 Km/h; and ±3% FSR above speed 15 Km/h
Overload capacity of the platform	150% of rated capacity
Protection Class for the Load Cell and Controller/ Indicator	IP 68 Operational Temp: -10 to 65 Degrees
Vehicle separator	IR Based curtain housed in Weather Proof IP65 Rated pillars with proper sealing
Controller Housing	Water/ weather proof with anti-rust coating; IP65 rated
Approval/ Certification	Weights & Measures Approved Model, Duly stamped & sealed by W&M Department on Installation
Re-calibration/ Stamping & Verification	Every 12 (Twelve) months
Downtime allowed for Periodic Maintenance	Maximum 24 (Twenty-Four) hour/ Quarter

h) Technical Specifications of WIM for Medium Speed WIM in ETC Lanes

Service Provider shall provide WIM for Medium Speed application to be used in ETC lanes with following specifications:

Capacity of the Platform	30 Ton/Axle
Stationary Accuracy	±0.1% FSR
In Motion Accuracy	±7% FSR up to speed 50 Km/h; and
Overload capacity of the platform	150% of rated capacity
Vehicle separator	IR Based curtain housed in Weather Proof, IP65 Rated pillars with proper sealing
Controller Housing	Water/ weather proof with anti-rust coating; IP65 rated
Approval/ Certification	Weights & Measures Approved Model, Duly stamped & sealed by W&M Department on Installation
Re-calibration/ Stamping & Verification	Every 12 (Twelve) months
Downtime allowed for Periodic Maintenance	Maximum 24 (Twenty Four) hour/ Quarter

5.3.2 System Integration of WIM with Toll Management Systems (ETC/Non ETC) already provided by other service provider:

The Service Provider shall also be responsible for system integration of Weigh-in-Motion with ETC equipment / toll system software, such that :

- a) The weight⁶ of vehicles approaching the toll booth is automatically detected without the vehicle having to stop and also in Stop & Go scenarios.
- b) This detected weight shall not be displayed on the computer terminal of toll collector until the Toll Collector Classifies the vehicle.
- c) If the vehicle is found to be overloaded based on Toll Collector Classification, the Weight information shall be displayed as “Overweight Warning” and appropriate toll receipts with 10 times the fare, shall be generated automatically.
- d) The excess fee charged against such overloaded vehicles shall also be separately printed on toll fee receipts of such vehicles.
- e) In case of ETC Lanes, the service provider has to work with ETC system provider so that the WIM shall be able to give weight information to the ETC system, in mutually agreed format.
- f) The WIM controller shall be able to work and also store the data independently of the Toll Lane Controller / Toll Server and shall also send the WIM data for each transaction to the Central Control Room as designated by IHMCL.
- g) MIS reports shall be available for IHMCL, on numbers of overloaded vehicles crossing any toll plaza as per prescribed format.

⁶ Gross Vehicle Weight

5.3.3 To undertake & complete all required civil & electrical work:

The service provider is supposed to undertake all civil / electrical works, at his own cost, required for provision of the said services, except major civil works such as PQC & Canopy of Toll Lane Area.

Specification:

PQC Grade: M30

Baucheme Grade: Super Drying Agent

5.3.4 Providing Services of Static-Weigh-Bridge (SWB):

In each direction of traffic, after the toll plaza, in a separate area having facility of parking of overloaded vehicles, a Static-Weigh-Bridge is required to be installed, for ensuring that an overloaded vehicle do not move further on the National Highway. As soon as a vehicle passes through the Weigh-in-Motion system in the toll lane and is detected to be overloaded, the vehicle is directed to move towards the designated area after charging appropriate fee for entry of overloaded vehicle on the NH. The vehicle is weighed again on the SWB for confirmation of the Overload weight. The overloaded vehicle is allowed to park in the designated area and unload some of the material to bring the load to the permitted level. On the declaration of the driver of such vehicle that extra load on the vehicle has been removed, the vehicle is weighed again on the SWB for confirmation of the permissible Gross Vehicle Weight before it is allowed to move further on the National Highway.

The SWB system shall be able to capture Toll Transaction Number with Date and Time, Vehicle Registration Number, Category of Vehicle, Permissible Weight, and Gross Vehicle Weight along with date/ time of weighing, and the receipt printed by the SWB system shall contain these information. This system shall also be integrated with the toll system and generate a closure report.

Providing space for SWB, Guiding Vehicle to SWB, Unloading / Loading of goods from vehicle is not in scope of Service Provider.

Technical Specifications of SWB

Minimum Technical Specification to be adhered by the Service Provider for SWB shall be as under:

Type	Site specific (Pit / Pit less / Mobile)
Body/Platform	Steel
Size	18 meter x 3 meter
Capacity	120 Tonnes
Structure	I-Beam complying BIS 2062. Top Plate - 10 mm or more – Steel as per BIS 2062
Structure	Duly certified for Structural Analysis And Design (ST AAD)-III
Number of Load cells	8

Type of Load Cells	Compression Type/Double Ended Shear Beam – Stainless Steel 17-4 Ph
Protection Class for the Load Cells	IP 68 or better, Operational Temp: -10 to 65 Degrees
Protection Class for the Weighing Indicator	IP 65 or better, Operational Temp: -10 to 65 Degrees
Overload capacity	150% of rated capacity
Accuracy Class	OIML - C-IV
Accuracy Tolerance	Up to 0.02%
Painting	Anti-rust & anti-corrosion painting
BIS Specification	IS-9281(Part-III)
Compliant	Legal Metrology Act 2009 (1 of 2010) & Rules framed thereunder from time to time - Duly sealed by the Weights & Measures Dept.
Approval/ Certification	Weights & Measures Approved Model

3.3.5 System Integration of SWB with Toll Management System:

The Service Provider shall also be responsible for system integration of SWB with ETC toll system software, such that :

- a) The SWB system shall be connected with Toll Plaza system and shall be able to pull out the transaction of the Overweight vehicle, based on the Transaction Number from Toll fee receipt.
- b) The SWB station shall have a CCTV camera for capturing image of vehicle while weighing.
- c) After the vehicle weight is checked at SWB, the SWB system supervisor shall be able to confirm or remove the Overweight comment on that vehicle.
- d) If the vehicle is found to be overloaded, than the SWB system shall confirm the Overweight comment in the Toll transaction and the transaction shall be closed for Cash up with excess overweight fee.
- e) In case the vehicle weight is found to be under permissible limits, the SWB system shall be able to remove overweight comment from the Toll Transaction and the transaction shall be closed for Cash up without the excess overweight fee.
- f) The SWB transactions shall be linked with the Toll transactions and saved in the same Toll Plaza server for easy accessibility & audit.
- g) The SWB shall be enabled with Hand held RFID Reader for confirming weight of ETC enabled vehicles.
- h) In case the ETC vehicle is found underweight, the SWB system shall be able to generate charge back transaction.
- i) Monthly MIS reports shall be available for IHMCL, such as
 - o Actual Over loaded vehicles
 - o Total Overweight Vehicles (WIM) vs Actual Overweight vehicles (SWB) etc.

5.3.6 Providing Services for complete end-to-end Toll Management Systems including AVCC:

The work shall include supply, installation, testing, commissioning, operation & maintenance of complete end-to-end solution of Toll Management Systems including all peripherals and or sub-systems on any Toll Plaza. The service provider shall be responsible for system integration so that the Toll Management Systems including the sub-system(s) and above supporting system(s) work coherently and are able to exchange data/ information electronically, among themselves as well as with Central Data Center.

Brief list of the items to be covered:

Toll Management Systems	<u>Plaza Equipment (Common)</u> <ol style="list-style-type: none"> 1. Plaza Server with Adequate Server Rack, with Fan and adequate power points and cable management adjustable for caster /wall mount. 2. Electronic Display Board(s) (VMS) – 2 Nos. 3. Admin / Audit Workstation – 6 Nos. 4. Network Laser Printer (Black & White) - 2 5. Network Switch/es for Lane & Plaza system(s) 6. Intercom Master & slave units 7. UPS for plaza system . 8. Provision of Dedicated Internet connection (minimum 2Mbps link) with Central Data Center. 9. Firewall
	<u>Software/ Licenses</u> <ol style="list-style-type: none"> 1. Toll Management System supporting all features including but not limited to Fee Change configuration options, fully integrated with all other systems / peripherals. 2. Server Operating Systems – Preferably Open Source (Linux / Unix) 3. Lane / Admin Workstations Operating System Licenses 4. MS-Office on Admin Workstations. 5. RDBMS 6. Intrusion Prevention System Gateway 7. Anti virus and Anti-Spam 8. Integration with Central Data Center for Real Time Data Transfer

	<p><u>Toll Lane Equipment for Cash/Mixed Lane</u></p> <ol style="list-style-type: none"> 1. Toll Lane Controller with required software/ licenses. 2. Automatic Vehicle Classification System (AVC) 3. Transaction Signal / Traffic Light 4. Overhead Lane Signal (OHLS) 5. Toll Fare Indicator / User Fare Display 6. Automatic Boom Barrier 7. Fog Light 8. Violation Light & Violation Alarm 9. UPS for Toll lane Equipments & Servers 10. Toll Lane Monitor 11. Customized Key Board 12. Thermal Receipt Printer 13. Bar Code Reader 14. Intercom Slave Unit 15. Cash Tray
Miscellaneous Works	<ol style="list-style-type: none"> 1. Structured Cabling, Networking including configuration of LAN set up and toll system. 2. Data storage, backup and retrieval etc. of entire data being created on the plaza. 3. Provision of adequate UPS for uninterrupted power supply to all equipment.
Civil & Electrical Works	Civil and Electrical work required for erection installation/ commissioning of toll systems, WIM and other peripherals on the plaza.

Note: The provision of Electric power supply/diesel Generator shall not be part of the scope of the services provided by the Service Provider under this contract.

5.3.7 Technical Specifications of Toll Equipment⁷

a) Plaza Server

The Plaza Server should have 1+1 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

⁷ It may be noted that the prescribed technical specifications are minimum specification; the Service Provider shall be responsible to ascertain & provision for the required equipment (quantity & specification) for each site so as to ensure desired service level.

b) Admin / Audit Work Stations

To be used by the System Administrator and / or Toll Supervisor to access the system for Admin / Audit purpose. At least 6 work stations / laptops should be provided in the Plaza office/Control Room with following 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

c) Network Laser Printer (Black & White)

At least 2 Network Printer shall be required in the Plaza office/Control Room with following minimum specifications:

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

d) Network Switch (Layer 2) for Lane & Plaza

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

e) Lane Communication System (Intercom)

- Voice communication installed in the toll booths shall provide “hands free” two-way verbal communication between the supervision staff in the toll control room and the toll collectors.
- The toll collector shall be able to attract the attention of the Supervisor in the control room by pressing a single button on the intercom slave unit in the toll booth.
- The equipment shall also have the facility to allow the supervision staff to monitor communication in the toll booth between the toll collector and the user or between any of the toll booths without alerting the toll collector.
- The voice communication system shall operate independently of the Lane Computer System. It shall also be implemented in various rooms of the plaza building and at building access points.
- Two-way communications shall be possible as soon as the Supervisor responds by selecting the appropriate lane button on the Master Communication unit.
- One-way communication shall be possible from the Control Room intercom to all lanes simultaneously (broadcast). It consists of the following:

Intercom Master

For use by the Supervisor in the control room to facilitate him monitor audible indication of any particular booth and can handle the situation. The Master unit, shall be at control room wherein the authorized person shall respond to the toll operator call or can origin the call to any/ all booths.

Features:

- Press-to talk or handset with voice actuation
- Handset and Speaker
- LCD Monitor
- Status LED
- Directory cards and covers
- Speed dial buttons
- Microphone
- OFF button, TALK button and SETTING button
- Dial keys

Intercom Slave

It shall be placed in each toll booth close to toll operator for hands free operation. Toll Collector can interact with the Control room in case of any emergency requirement through Intercom.

Features:

Press-to talk

Speaker

Transmit LED (red)

Call/Talk LED (red)

f) UPS for Plaza System

For Plaza Office / Control Room, separate UPS (at least 2 Nos.) shall be provided. The power supply to all electronic equipment (indoor and outdoor) shall be fed from UPS, which should meet following minimum specification:

UPS with Battery	On line
KVA Rating	125 percent of the total connected load
Backup	2 Hours minimum
Input Voltage	155-305 VAC
Input Frequency	50H z
Output Voltage	230 VAC
Output Waveform	Sine Wave

g) Internet connectivity (minimum 2 Mbps Dedicated line) with Central Data Center

h) Firewall: As per requirement envisaged by the Service Provider to ensure security of the system.

i) 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.
- 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 NHAI/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, in real time.

j)Toll Lane Controller along with required software / licenses

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, WIM & 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:

- Industrial Motherboard with CPU (Min Core i5, quad core with Hyperthreading Tech)
- RAM 4 GB or more
- Hard Drive 500 GB or more
- Data Communication ports - USB/Serial/Parallel/PCI
- Digital I/O port
- Power Distribution
- Surge & Lightning Protection
- Industrial Grade I/O Device
- Relays
- Cooling Fan
- Display HDMI/DVI
- Ethernet LAN Port –10/100/1000 Base – T
- Redundant Power Supply
- TLC Enclosure - IP 65 rated Enclosure Industrial Grade, Lockable, Secure, Vandal Proof, MS Powder coated

k) Automatic Vehicle Classification (AVC) system including all peripherals

Functional Requirements:

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

- i. 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.
- ii. This class information shall be transmitted to the Lane Computer on completion of the post transaction Automatic Vehicle Classification (AVC).
- iii. The Lane Computer shall check that this information matches the classification entered by the toll collector.
- iv. 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.
- v. The digital image and discrepancy information shall be communicated to the supervisory console for further processing by the toll supervision staff.
- vi. In case of network or lane computer failure, the AVC system shall function independently and store data directly to the Plaza Server.
- vii. The system shall be able to detect the vehicle moving in wrong direction.
- viii. The system shall also assist in auditing the toll collection operation.
- ix. 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.
- x. The reports from this system shall assist in identifying problems with operations, fraud or over/under collection of tolls.
- xi. 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.
- xii. Any new technology, meeting the requirements specified in these specifications, are 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

Sick / Banner / equivalent sensors for Profiler

I) Transaction Signal / Traffic Signal/ Traffic Light

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

m) Overhead Lane Sign (OHLS)

The Overhead Lane Sign (OHLS) shall be mounted on the leading edge of the canopy covering the toll lanes above the centre of the lane. A Red Cross signal would indicate that the lane is closed, whilst a green arrow would indicate that the lane is open to traffic. The OHLS system shall have night dimming function and shall meet following Technical Requirements:

Technology	LED
Colors	Red, Green (Synchronized with TLC)
Red LEDs Intensity	8000mcd
Green LEDs Intensity	12000mcd
Enclosure Environmental protection	IP 65 (LEDs sealed Retrofit Kit) ventilated to dissipate internal heat fitted with a sun-hood constructed from a corrosion resistant material
Electronic components	Industrial grade components and connectors
Lane closed	Red cross
Lane open	Green arrow
Dimension	larger than 300mm dia LED Aspect

n) Toll Fare Indicator / User's Fare Display Unit

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	LEDs type-Ultra Bright LEDs LED Intensity- 8000mcd min. Viewing Angle-30° C Display Area- 620mm (w) x 155mm (H) ± 8 % Display color- Amber Pixel Pitch- 5mm Number of Lines- 2 Lines Character per line- 12 characters Character height- 60 mm Character width- 40mm
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

o) 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

- Supply Voltage Range: 85 V - 260 V, +/-5%,

- Frequency: 50Hz with 100 percent duty cycle.
- Temperature range: -5°C to 50°C
- Ingress protection: IP54
- Open / Close time: 0.9 Second
- Boom Arm Length: 3000 mm
- MTBF: 5 million cycles

Extra Features

- Swing open on impact
- Constant speed / time under variable wind speeds
- Smooth Landing of Boom arm without swaying

p) 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

q) Violation Light & Violation Alarm

The siren operates in conjunction with a “violation” and acts as a warning device. The purpose of the siren is to alert the Plaza staff of a ‘run-through’ through the lane. Visual indication is via a strobe light. It shall meet the following requirements:

Violation light:

Technology	Motor Driven
Operating Voltage	230VAC
Color	Amber
Dimension	142mm x 118mm

Violation Alarm:

Volume	112 dB at 1 meter
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Hearing distance	500 meter
Protection	IP65

r) Toll Lane Monitor

Display	18.5" TFT Color Monitor – Anti Glare
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s) Customized Key Board

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

t) Toll Fee Receipt Printer

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

Specifications:

Print method	Thermal line Printing
Font	9 × 17 / 12 × 24
Column Capacity	56 / 42 columns
Character Size (W x H)	0.99 × 2.4 mm / 1.41 × 3.39 mm
Character Set	95 Alphanumeric, 18 set International, 128 × 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 × 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

u) Bar Code Reader

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. The barcode readers shall confirm to IS: 14700: Part 6: Sec 3; 2002.

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)

v) UPS for Toll Lane Equipment

UPS with Battery	Online
Rating	As per power requirement (125% of connected load)
Backup	2 Hours
Input Voltage	155-305 VAC

Input Frequency	50H z
Output Voltage	230 VAC
Output Waveform	Sine Wave

5.3.8 CCTV Surveillance System

IHMCL intends to install IP (Internet Protocol) network based CCTV Surveillance System at Toll plaza which shall be monitored centrally at IHMCL Headquarters. The system shall be used to monitor the lane area, inside toll booth and plaza building areas such as POS, Cash Up Room, Server Room etc.

The requirement calls for a complete working system with all equipment and required accessories alongwith necessary power supplies, connectors, patch connectors, patch leads, IP 66 junction boxes, mounting and fitting hardware, Poles, plugs, sockets and any hardware/software, etc. as required for complete installation of the System under this contract.

The CCTV Surveillance System comprises of field equipment & control centre equipment. Field equipment comprises cameras, camera pole, surge protector and cabinet. Control centre equipment comprises of Network Video Recorder (NVR), PTZ Key board, display monitor/TV, surge protector and equipment for integration with Toll Management Systems as well as other equipment as required.

The Surveillance System shall be fully integrated with the Toll System and shall store / tag specific Images / frames of video, from the Lane and License plate camera during the transaction. Toll Supervisor / Admin shall be able to pull up the relevent Images / Frames of for auditing a particular Toll Transactions.

The CCTV Surveillance system shall have following features:

- Booth/Plaza Surveillance System consist of a NVR, Video stream from all Surveillance cameras will be continuously recorded in FIFO logic with date and time stamping.
- It shall record video in standard formats considering the ease of storage & accessibility over Internet (like .avi, .mpeg4, .mkv, 4CIF etc.)
- NVR should have enough storage capacity to store video and voice for at least 1 month.
- Booth/Plaza Surveillance System shall have one Video Monitor for live streaming of the Video in the control room for the all cameras. It shall have feature like video Matrix Functionality.
- Operator shall be able to export parts of the recorded video and copy same on external media.
- NVR shall have option to assign the address for remote monitoring purpose.
- Each Camera shall be assigned with a unique number corresponding to its location, so that during live monitoring as well as during playback of recorded video, one can easily identify the camera and its location.
- The stored video / Live Feed shall be accessible from anywhere over Internet, in access controlled manner.

a) NVR Software Features:

- This shall be a enterprise level software solution that can be scaled to required numbers of cameras, that can be added on a unit-by-unit basis.
- The network video management software shall be licensed and shall operate on open architecture and should require no proprietary hardware. It should allow for seamless integration of third party security infrastructure where ever possible.
- The network video management software should allow for video to be streamed on a video mosaic wall.
- The user with administrative rights shall create clients (users) and give access to the software client application and stored videos based on predefined user access rights.
- The system shall allow the recording, live monitoring, playback of archived video and data simultaneously.
- Option of configuring monitoring situation (site maps and workspace).
- Programming of alarm-triggered automatic events in various alarms configuration.
- Each camera's bit rate, frame rate and resolution shall be set independently from other cameras in the system, and altering these settings shall not affect the recording and display settings of other cameras.
- The software should be able to do video recording on any of the following options - inbuilt hard disks on the server, direct attached storage boxes attached to servers, network attached storage, storage area network.
- The software should be capable of handling camera and alarm icons on area maps. The area map should be configurable to pop up upon the receipt of an alarm received from a camera on the map. This can be on the same or other monitors on the PC.
- The software shall be able to select the required recording based on the time recording was activated, the duration of recording, operator activated recording, event activated recording, scheduled recording.
- The software shall offer a plug and play type hardware discovery service with the function of automatically discover devices as they are attached to the network.
- The software shall provide a reporting utility for tracking for the following minimum options.
 - Video and images shall be stored with reports for documenting events
 - Alarms
 - Incidents
 - Operator logs
- The software shall have the facility to export the desired portion of clipping of video from a desired date/time to another desired date/time on DVD/ on any client/ network storage device.
- The software database server shall maintain a catalog of settings for all the clients, servers, and IP cameras & IP enabled cameras in the system. If database management & recording can not be managed by single server, in such cases, additional server should be provided.
- The software shall detect signal loss, low signal to noise ratio etc. and have the capability to alert the systems administrator.

- The software shall receive all incoming events (motion detection and triggered digital input and relay output) in the system and take appropriate actions based on user-defined event/action relationships.
- The software shall create an audit trail of all events and user activities.
- The software shall support a built-in Virtual Video Matrix Switcher
- The Virtual Matrix Switch shall provide a full matrix operation of IP video to analog output.
- The Virtual Matrix Switch shall provide a full matrix operation of IP video to digital monitors.
- The Virtual Matrix Switch shall have the capability of creating camera sequences with the following functionalities:
 - Each camera in the sequence shall have its own individual dwell time, from 1 to 60 seconds.
 - Each entry in a sequence shall have the capacity to trigger PTZ camera presets, patterns or auxiliaries.
 - Multiple users shall be able to view the same camera sequence simultaneously, not necessarily synchronized one with the other.
- The software shall provide alarm management module.
- The alarm management shall be able to set any monitor or groups of monitors to automatically display cameras in response to alarm inputs.
- The alarm management shall be able to reset automatically or manually alarmed video.
- The software shall support absolute redundancy.
- It shall be possible to search for recordings in the software by camera, date and time. If a date and time is specified, playback shall commence from that date and time. It shall be possible to playback more than one camera simultaneously.
- The software should support at least 4 monitors in one server/ workstation for displaying live video. It should allow minimum 5 levels of user and alarm prioritisation. It should allow minimum 25 cameras to be replayed simultaneously.

b) Security

Camera housing locking arrangement shall require a special tool or key to access the camera. It shall not be possible to normally open the camera housing without this special tool (without any damage to the camera housing). The PTZ Cameras shall be conveniently mounted so that full view of the Toll Plaza and the booth operations are captured.

c) Maintenance accessibility

The housings / camera / circuit boards shall be so designed to provide ease of access to all electronic components for maintenance purposes.

5.3.9 Plaza Control Center Equipment

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

- Recording & storing a minimum of one month of video on full load from all cameras;
- Shall have interface to archive the videos for back-up.
- Alarm/event based recording and the facility for high speed searching based on inputs such as date, time, etc.

- Displaying multiple videos simultaneously on a single Monitor/Screen.
- Accommodating multiple displays on multiple screens (video monitors).
- Recording with date and time stamping and it shall show date and time over recorded video play;
- 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.

b) PTZ Keyboard

The PTZ Keyboard shall be connected to NVR to perform its functions like, selection of camera or Camera presets and PTZ operation through a joystick on all the connected cameras. Its keypad shall be based on electromechanical technology.

c) Display Monitor/ Video Monitor

The Video monitor shall be 42" inch LED TV, with 3D digital comb filter and de-interlacing of high quality video and shall be designed for 24/7 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.

Resolution	1920 x 1080 pixels
Dynamic Contrast Ratio	1000000:1
View Angle	Horizontal: 178 Degree, Vertical: 178 Degree
Display Feature	Full HD; Panel
HDMI	Minimum 2 Nos.
USB	Minimum – 1 Nos.
Component Video Input	Component/Y Pb (Cb) Pr (Cr): 1
Audio Out	Coaxial Audio Output: 1
Headphone Out	Earphone jack
Other Connections	Radio frequency input (RF): 1; Audio L/R for component input: 1; AV input: 2; VGA input: 1; Audio L/R for VGA input: 1; Video RCA output: 1

d) CCTV Rack

Service Provider shall also provide a suitably designed rack in which NVR & a 18" monitor can be easily accommodated and it shall also have some space availability for future equipment installation or expansion. Service Provider may also use a single rack for Toll Server & NVR.

e) Compatibility

The complete solution i.e. the NVR, PTZ Keyboard, Display Monitor with video recording capabilities, and the NVR Management Software should preferably be from the same manufacturer to overcome any compatibility issues.

5.3.10 Field Equipment

a) PTZ Camera to be installed on each side of plaza – 2 Nos.

PTZ Camera with high zooming feature, shall be installed on each sides of plaza, to monitor entire plaza operations and should have minimum following specifications:

Speed Dome High Definition IP PTZ Camera with 20X optical zoom with Day and Night visibility, or better: (Outdoor monitoring of larger areas)	
o 20x optical zoom and 12x digital zoom, up to 240x total zoom or better, with Built-in Image Stabilizer	
o Camera should be able to view upto 1 Km in each direction, and face / number plate identification upto 300 mtrs	
o 4CIF, 25 fps supporting 5 users simultaneous access	
o Images with wide dynamic range can be obtained	
o High speed preset at 360 °/sec with manual speed of 0.05° ~ 360°/sec (zoom proportional), scan: 1° ~ 360°/sec	
o Built-in web browser for easy configuration	
Image Sensor	1/2.8" Exmor CMOS Sensor
Minimum Illumination	1.02 lux (color) & 0.1 lux (B/W) or better @ 30 IRE
Day / Night	Day & Night visibility with color
Electronic Shutter	1/1 ~ 1/10000 sec
Signal-to-Noise Ratio	>= 50dB(AGC Close)
AGC	Auto/Manual/Max Gain Limit
Aperture Range	F1.6(wide)~F3.5(tele)
Focal Length	f=4.7mm~94 mm or better
Angular Field of View(H)	55°(wide)-1.5°(tele)
Angular Field of View(V)	42°(wide)-1.0°(tele)
Range	Pan: 360° (endless), Tilt: 90°
Preset Positions	300 or more presets with labels
Groups	128 groups (Max. 20 entries per group)
White Balance	Manual/Auto/Indoor/Outdoor/ATW/One Push/Sodium Vapour Lamp (fix auto)
Wide Dynamic	Auto/Manual
Zoom	20x Optical Zoom, 12x Digital Zoom or better

Protocol	IPv4 - ONVIF,TCP/IP, UDP/IP, RTP(UDP), RTSP, NTP, HTTP,HTTPS, SSL,DNS, DDNS, DHCP, FTP, SMTP, ICMP, SNMPv1/v2c/v3(MIB-2) IPv6 - TCP/IP, HTTP, HTTPS, DHCP Security - HTTPS(SSL), Digest Authentication(ID/PW)
Other Features	Power Up Action, Home Position Setting, Auto Flip, Parking Action
Compression	Triple Codec,H.264/MPEG4/MJPEG
Resolution	All Codec: 1080p, 720p;, D1, CIF ; MJPEG: QCIF
Audio Support and Compression	Two way, G.711 PCM. μ -law 64kbps 8kHz
Frame Rate	Max. 30 fps for 1080p/720p/D1/CIF/QCIF
Streaming	Muti Streaming Constant and Variable bit rate
Security	Password protection, IP address filtering
Users	Minimum 5 simultaneous unicast users
Ethernet	10/100M auto negotiation
Alarm Events	Alarm Buffer by Event or schedule
Video Buffer	Pre- and post- alarm buffering
Local Storage	SDHC Card slot
Analog Video Out	1.0 Vp-p BNC
Power Consumption	23W (Heater Off), 55W (Heater On) High PoE IEEE 802.3at (40W)
Environmental Protection	IP 66 with Heater & Blower
Operating Temperature	0 deg to 50 deg C
Safety Certification	UL listed
Operating Humidity	95% RH Max

b) Camera Pole

Service Provider shall use suitable camera Pole design according to site conditions; preferably, it shall be Hot Dipped Galvanized, Octagonal in shape, 8 meters long, along with necessary camera mounting arrangements. Also the pole earthing shall be provided separately to avoid any lightning damage.

c) Surge Protector

The Surveillance Systems shall be fully surge protected i.e. camera, video, data & power signals shall be surge protected at camera as well as NVR ends. So Service Provider shall use suitable design for signal surge protection accordingly.

d) Cabinet

The cabinet shall be installed near every camera pole/ or on the pole using the pole cutout. It shall accommodate camera power supply, surge protector; other field equipment and all field cable termination shall be done inside the cabinet. Cabinet shall be made up of Mild Steel and it shall be

powder coated and rust proof. The Service Provider shall use a suitable cabinet design as per site requirement.

e) POS/Cash-up High Speed Dome Camera

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 beter
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

f) Lane 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 × 960), 25 fps (1280 x 720), 25 fps (704 x 576), 25 fps (640 x 480), 60 Hz: 30 fps (1280 × 960), 30 (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

g) License Plate 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 (1920×1080), 60Hz:30fps (1920 × 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.

5.3.11 Other Miscellaneous Works (Civil /Electrical)

The scope will also include Civil, Electrical, Networking works required to complete erection installation / commissioning of Toll Management Systems, WIM, SWB & Surveillance System and its peripherals on the plaza. Major civil works such as PQC on Toll Lane Area, Construction / Modifications of Toll Booths and Plaza Building structure, Provision of Electricity Connection, Diesel Generator set are excluded from the scope of this contract.

5.4 Service Levels Requirements

The Service Provider shall be responsible to ensure 24x7 uninterrupted availability of the complete Toll Management Systems along with other all other systems, sub systems, peripherals, components that are provided under this contract.

5.4.1 Manpower

Technically qualified and experienced manpower shall be provided, to handle any interruption in smooth operations of the supplied systems. Service Provider shall be responsible for ensuring availability and reducing Downtime of the Systems & Services.

Minimum Manpower required on each site:

Engineer - 1 Nos.

Technicians – 1 Nos

All the personal shall be appointed with prior approval of IHMCL and service provider shall be responsible for changing the manpower as & when recommended by IHMCL, in case the person is not suitable for the role assigned or is not performing to the desired efficiency.

5.4.2 Spares:

The agency shall also maintain sufficient spares at each site to address and rectify any malfunctioning / defects leading to possibility of down time.

5.4.3 System Downtime Calculations

The Service Provider shall provide a central system to monitor any down time.

A Toll Lane shall be considered Down in cases where the Lane is not able to operate & process transactions in desired fashion, due to any of following conditions:

- Barrier Not Working
- Receipt Printer Not Working
- Monitor Not Working
- Keyboard Not Working
- Lane Incident Camera not Working
- AVC Not Working
- WIM Not working and transaction not having WIM information.
- Lane Controller Not Working

Lane Downtime

- If Transactions from any lane are having gap of more than 30 Minutes between 2 transactions
- If AVC information is not available in transactions for more than 30 Minutes
- If overall AVC Accuracy is less than 98% for more than 24 Hours
- If WIM information is not available in transactions for more than 30 Minutes
- If overall WIM Accuracy is less than 95% for more than 24 Hour

Deductions = Lane Downtime in Hours * 1% of the Quarterly Service charges for that Lane

Server Downtime:

If the Lanes are working in stand alone mode due to Server or Network issues:

Deductions = Server Downtime in Hours * 1% of the Quarterly Service charges for All Lane.

SWB System Downtime:

If SWB information is not available in Overweight transactions:

Deductions = SWB Downtime in Hours * 1% of the Quarterly Service charges for each SWB.

Surveillance System Downtime:

Video recording of any camera is missing for more than 30 Minutes, will be counted as downtime of surveillance system.

Deductions = Surveillance System Downtime in Hours * 0.1% of the Quarterly Service charges for surveillance system.

Permissible Downtime

Each Lane of Toll System / Sub system / Component causing the downtime of the sub system shall be allowed to have a maximum downtime of 24 Hours per Quarter.

5.4.4 Routine Maintenance

The objective of electronic equipment maintenance shall be to ensure reliability, to enhancing 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.

5.4.5 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 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.

5.4.6 Ownership of Equipment & other conditions:

All the equipment shall be owned⁸ 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.

It may please be noted that procurement of any Toll Systems/ Equipment/ Hardware/Software/ AVCC System / WIM System etc. has not been envisaged through this tender. The Service Provider shall be required to provide the services as per the scope of work prescribed herein.

The bidders are required to offer and propose the latest technologies/ cost effective/ innovative/ best suitable system and equipment for Traffic Scenario on National Highways and conditions at the toll plazas in India.

5.4.7 Statutory and Others:

IHMCL shall reserve the right to get the security / compliance audit of the 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.

5.4.8 Miscellaneous:

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The Service Provider may take back his equipment after completion of contract and/or termination of services (as the case may be). However, the data generated in the system shall be handed over to IHMCL in readable format.

Providing services of comprehensive Toll Management System at plaza will imply that if any civil work or electrical work is required to be undertaken for installation, testing and commissioning of toll system at Plaza the same shall be the responsibility of the Service Provider.

5.4.9 Technical Specifications & Standards

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

5.4.10 Acceptance Test and Approvals

The development of the test procedure shall always remain the responsibility of the Service Provider. This test procedure must clearly identify the steps to be followed to demonstrate successful working of the system. The agreed procedure must be followed precisely. However, IHMCL may vary these procedures should unexpected results emerge from the testing.

Minimum requirements for the commissioning and acceptance of the works by IHMCL on site will involve at least the following:

System Integration Test: Submission of design of Toll Management Systems, data transmission system, Toll Management Systems components specifications and interface details with other sub systems, for approval.

Site Acceptance Test: System functionality and performance testing to verify conformance of the system to specification. This will take the form of Testing of random sample of every component of the system working independently and integrated into the whole system.

Test Equipment

The Service Provider shall provide all the required test equipment and materials necessary to carry out the functional and operational tests of the total Works during testing and commissioning of the Works on site.

- **Equipment Unit Testing**

All equipment installed on the site shall be subjected to testing to ensure that the devices are functional and the quality characteristics of the equipment meet the requirements. IHMCL reserves the right to carry out subsets of the full functional testing on selected items of the system.

- **Minimum Functional Tests**

Each system and subsystem must be functionally tested with a minimum set of tests to verify the correct operation of peripherals, set-up and configuration tables and parameters.

- **Hardware Installation Test**

Each item of equipment shall be checked for correct installation and shall be inspected and verified for compliance to the Specifications.

- **Performance Testing**

Performance testing shall cover the individual system processes as well as the integration of all system components as a whole. Each performance criteria in the specifications shall be identified and tested for the defined conditions. The Service Provider shall be required to design these tests and prove its compliance to the IHMCL.

- **Data Validation**

The Service Provider shall prove that all data processed by the system is correct, complete and consistent. The methods used by the Service Provider shall be demonstrated to IHMCL and the onus is on the Service Provider to prove the validity of the data to IHMCL.

- **Report Validation**

The Service Provider shall prove the validity of the information in each and every system generated report. This shall be demonstrated to IHMCL and the onus is on the Service Provider to prove the validity of the information to the IHMCL.

- **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.

5.4.11 System Design Approval Process

The System design approval process shall be as follows:

- **Paper Design**

The Service Provider shall develop the paper design of all the items requiring system design approval and submit them to IHMCL for approval. IHMCL shall evaluate and add or alter the document and return to the Service Provider with all required amendments noted.

- **Design Approval**

IHMCL shall evaluate all components of the Works and notify the Service Provider of any unacceptable aspects of the design and the Service Provider shall correct such unacceptable works. Once the new design has been completed by the Service Provider and is acceptable to the IHMCL, it shall issue an acceptance certificate for the design, which is "System Integration Test" acceptance.

- **Modifications to the Approved Design**

The Service Provider may find it necessary for the approved design to be altered as the works progress. Should this be necessary, the Service Provider shall apply to IHMCL for a new approval as described above.

- **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.

- **Spare Parts**

The Service Provider is required to maintain sufficient spare parts to support the system for the entire duration of contract. In addition, the Service Provider shall be required to identify all the equipment or components in the system that is at risk from obsolescence or the ceasing of production by the manufacturer and make proposals to IHMCL accordingly for its replacement without any extra cost to IHMCL.

5.4.12 Training

The Service Provider shall provide operational training to designated staff members of IHMCL/ Toll Operator such that the trained personnel shall become fully conversant with the operations of the system.

The training shall be in-depth series of sessions, which shall comprise of both classroom type training as well as practical training. A detailed training program and schedule shall be submitted to IHMCL by the Service Provider 4 weeks in advance of the actual training. The on-site training shall be required to be conducted at an interval / frequency as per requirement of the toll plaza operator/ toll collection agency.

Training of Operational Personnel on Train the Trainer Model

The system will be used by the personnel of toll plaza operator/ toll collection agency/OMT Concessionaire. The service provider shall ensure a training program of minimum 3 days, every year, comprising following requirements for training of Operational personnel:

- A start up training program detailing the purpose, usage and functionality of the system. (Theory and Practical training)
- A training program detailing the operation and administration of each level of operations of the equipment, component, sub-system and integrated system. (Theory and Practical training). The equipment manuals shall be referenced and utilized during the training session.
- In case the staffs of toll operator are changed the service provider shall ensure to provide training to the substituted staff.

5.4.13 Standards

Following specifications and standards shall be followed by the Service Provider, wherever applicable:

- Bureau of India Standards (BIS)
- American Associates of Highway and Transportation Officials (AASHTO)
- American Society of Testing Materials (ASTM)
- British Standards (BS)

- The International Organization of Legal Metrology (French: Organisation Internationale de Métrologie Légale – OIML)
- Indian Standard Institute (ISI)

a) General Standards

Where applicable, equipment shall comply with the latest revision of the relevant standards from the following recognized Standards bodies:

EN:	European Standard
CENELEC:	European Electromechanical Standard
ETSI:	European Telecommunication Standard
ISO:	International Standards Organization
ASTM:	American Society for Testing & Materials

Note: The EN standards are listed in the CEN: Catalog of European Standards and their National Implementation.

All equipment shall comply and be installed in accordance with IEC 364, with minimum of CENELEC standards EN 50128 software integrity level 2.

b) Standards for Electromagnetic Interference (EMI)

The standards for electromagnetic interference should comply with the appropriate Indian standard.

The applicable CENELEC standards are:

CENELEC EN 50081-1: 1992: Electromagnetic compatibility – Generic emission standards, Part 1: Residential, Commercial and Light industry.

CENELEC EN 50082-1: 1992: Electromagnetic compatibility – Generic immunity standards, Part 1: Residential, Commercial and Light industry.

c) Lightning Protection for Electronic Installation

The standards for lightning protection should comply with the appropriate Indian standard. The applicable CENELEC standards are:

CENELEC HD 384.5.54 S1:1988: Electrical installations of buildings, Part5: Selection and erection of electrical equipment, Chapter 54: Earthing arrangement and protective conductor. (IEC 364-5-54: 1980).

d) Weather Proofing

CENELEC HD 365 S3: 1985: Classification of degrees of protection provided by enclosure. (IEC 529: 1976 + A2: 1983)

CENELEC EN 60529: 1991: Degrees of protection provided by enclosure (IP code) (IEC 529: 1989). All enclosures exposed to the elements shall be protected to IP65 in terms of this standard.

e) General Standards for Electrical Equipment

For general aspects such as installation of electrical equipment, safety standards, radio interference, etc. the standards should comply with the appropriate Indian standards.

The following CENELEC standards are specified below:

CENELEC HD 323.2.38 S1: 1988: Basic safety publication – Environmental testing, Part 2. Test methods – Test Z/AD: Composite temperature/humidity cyclic test (IEC 68-2-38: 1974)

CENELEC HD 436 S1: 1983: Dimensions of optical fibers. (IEC 693: 1980)

CENELEC HD 418.1 S1: 1982: Low voltage switchgear and control gear Part: Circuit breakers (IEC 157 – 1: 1973)

CENELEC HD 196 S1: 1987: Plug, socket-outlets and couplers for industrial purpose. (IEC 309)

CENELEC HD 420 S2: 1988: Control switches (low voltage switching devices for control and auxiliary circuits, including contactor relays). (IEC 337)

f) Operating Temperature

The equipment to be supplied should be able to operate under the following environmental conditions:

Minimum temperature: -5 degree C

Maximum temperature: +55 degree C

At relative humidity: up to 95%

Vibration frequency range: 10Hz to 55HZ

Should the equipment be unable to function in these conditions, protection or device to regulate the equipment-operating environment shall be provided. The temperature range that is specified is the ambient temperature, which is defined as the temperature of the surrounding atmosphere as determined by an instrument shielded from direct or reflected rays of the sun. This definition is in terms of the American Society for Testing & Materials (ASTM) codes.

5.4.14 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. Once the designs have been vetted/ cleared only then the Service Provider may commence installation works on site. It shall be the Service Provider's responsibility to ensure that all required approvals/ clearance are obtained in time to meet the contractual milestones and completion date by the Service for vetting by IHMCL or its appointed Consultant, should there be any deficiencies in the design, IHMCL shall convey these to the Service Provider and the Service Provider shall modify and resubmit the design for vetting. The maximum duration of this process shall be 7 working days and the Service Provider shall make adequate provisions for sufficient iterations of the process to acquire the required clearance.

b) Electricity Requirements

The Service Provider shall be required to submit the design of the electricity load requirement for the Toll Management Systems / Equipment, which shall include the cabling, distribution boards, and clean earthing system, in regard to its suitability for the Toll Management Systems components. Toll Management Systems equipment earthing shall be separated from the toll plaza utility power earthing. Provision of electrical Power supply shall not be under the scope of the service provider however earthing for TMS shall be the responsibility of the Service Provider.

c) UPS Loads

The Service Provider shall be responsible for the design and sizing of the UPS power distribution equipment. It shall be the responsibility of the Service Provider to design a suitable and rugged scheme. Provision of UPS Power shall be under the scope of the Service Provider.

d) Feeder to UPS

The Control Room and field equipment will be supplied from a Utility / Emergency Power circuit breaker, located at the plaza and the field. The Service Provider shall be required to assess before commissioning the rating and capacity of this breaker based on the calculated loads and the line current for the equipment and its UPS.

e) Cabling to UPS Loads

The Service Provider shall supply, install, terminate and connect all cabling from the power DB to all the field and control room equipment. The cable shall be suitably sized 2-core and earth PVC insulated and steel wire armoured copper cables. Wire armoring may be omitted, if the cables are drawn through a conduit.

f) 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.

g) 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 equipments.

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

6. OBLIGATIONS OF THE SERVICE PROVIDER

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

- 6.1** The Service Provider shall undertake the Scope of Work as mentioned in ARTICLE 4 hereto.
- 6.2** The Service Provider shall strictly comply with the time lines as mentioned in this agreement.
- 6.3** The Service Provider shall strictly comply with the Technical Specifications as mentioned in this agreement.
- 6.4** The Service Provider shall strictly comply with the Service Level Requirements as mentioned in this Agreement.
- 6.5** Installation of the System shall be done with minimal disruption to operations of the Toll Plazas.
- 6.6** The Service Provider shall coordinate the installation with all necessary parties and obtain the necessary approvals before commencing works.
- 6.7** 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.
- 6.8** Technical specifications and architecture principles shall be generic and should be capable of being used to future extensions.
- 6.9** The Service Provider shall demonstrate that his design takes into account remote management and remote monitoring capabilities.
- 6.10** The Service Provider shall coordinate all its systems installation with the overall architect design.
- 6.11** It shall be the obligation of the Service provider to integrate the Toll Management Systems including Weigh-in Motion, Static Weigh Bridge, etc. with the data center of IHMCL or any other data center as and when required by IHMCL.

6.12 Damages for delay

- 6.12.1 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.
- 6.12.2 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.

7. OBLIGATIONS OF IHMCL

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

- 7.1 Supervise the overall management and implementation of this Agreement;
- 7.2 Provide requisite specifications from time to time to the Service Provider for carrying out its obligations under this Agreement;
- 7.3 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 Services.
- 7.4 Extend cooperation for facilitating the Service Provider in the implementation of the Project in accordance with the provisions of this Agreement.

8. REPRESENTATION AND WARRANTIES

8.1 REPRESENTATION AND WARRANTIES OF THE SERVICE PROVIDER

The Service Provider declares, represents and warrants as follows:

- 8.1.1** 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;
- 8.1.2** It has taken all necessary corporate actions under Applicable Laws to authorise the execution and delivery of this Agreement and to validly exercise its rights and perform its obligations under this Agreement;
- 8.1.3** 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;
- 8.1.4** 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;
- 8.1.5** It shall ensure that such approvals, registrations and certifications will remain in force, including, by taking prompt steps for timely renewal of the same;
- 8.1.6** It undertakes to continue to comply with all Applicable Laws with respect to its roles / obligations under this Agreement;
- 8.1.7** 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;
- 8.1.8** It shall at no time sub-contract any of its obligations under this Agreement without the prior permission from IHMCL. Provided that incase the Service Provider proposes to sub-contract any of its obligations under this Agreement, it shall seek written permission alongwith the details of the activities that it proposes to sub-contract to third parties;

8.1.9 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;

8.1.10 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;

8.2 REPRESENTATION AND WARRANTIES OF IHMCL

The IHMCL represents and warrants to the Service Provider that:

8.2.1 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;

8.2.2 It has taken all necessary actions under the Applicable Laws to authorise the execution, delivery and performance of this Agreement;

8.2.3 This Agreement constitutes a legal, valid and binding obligation enforceable against it in accordance with the terms hereof;

8.2.4 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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9. COMPENSATION FOR BREACH

9.1 Compensation for default by the SERVICE PROVIDER

9.1.1 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 Owner, as the case may be, as a consequence of such breach, within 30 days of receipt of the demand supported by necessary particulars thereof.

9.1.2 Without limiting the generality of Clause 7.2.1, 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.

9.2 Compensation for breach by IHMCL

9.2.1 In the event of IHMCL being in breach of this Agreement, unless such default or delay is on account of Force Majeure or through no fault of IHMCL, the IHMCL shall pay to the Service Provider, by way of compensation, all direct costs suffered or incurred by Service Provider, as the case may be, as a consequence of such breach, within 30 days of receipt of the demand supported by necessary particulars thereof.

9.1.2 Without limiting the generality of Clause 7.3.1, the IHMCL shall pay to the Service Provider by way of compensation, all direct costs suffered or incurred by the Service Provider, 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 IHMCL 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 IHMCL or its employees, personnel or representatives.
- (iii) negligence, fraud or misconduct of IHMCL or any of its employees, agents, affiliates or advisors.

Further, it is expressly agreed by the Parties that IHMCL and the Service Provider shall not be liable for any damages to either of the parties, accruing from the deficiency in services of the other Party or failure of another Party to perform its obligations under this Agreement. The liability of IHMCL under this Agreement is restricted only to defaults which are solely attributable to IHMCL.

9.3 Cap on Liability of Parties

Notwithstanding anything stated herein above and under any circumstances, the liability of each Party under this Clause for each toll plaza shall not exceed Rs. 1,00,00,000.00 (Rupees One Crores) only.

9.4 Survival

The provisions of this Article 9 shall survive Termination.

10. INDEMNIFICATION

- 10.1 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, dacoity, robbery, etc., except to the extent that any such suits, proceedings, actions, demands and claims has arisen due to any breach or default of this Agreement on the part of the IHMCL Indemnified Persons.
- 10.2 The Service Provider shall indemnify IHMCL and MoRTH of all legal obligations of its professionals deployed. IHMCL and MoRTH 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.
- 10.3 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.
- 10.4 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.
- 10.5 The provisions of this Article 10 shall survive Termination.

11. TERMINATION

11.1 Termination for Service Provider Default

11.1.1 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 carryout 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 fulfill 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.
- 11.2 Notwithstanding the above, IHMCL may terminate the Agreement for convenience by giving 30 days prior notice without assigning any reason whatsoever.
- 11.3 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.
- 11.4 The Parties to this Agreement shall have the right to terminate the Agreement on account of Force Majeure.

11.5 Consequences of Termination

- 11.5.1 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;
- 11.5.2 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.

11.6 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.

12. FORCE MAJEURE

12.1 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**”)

12.2 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.

12.3 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.

13. DISPUTE RESOLUTION

13.1 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.

13.2 Arbitration

- 13.2.1 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.
- 13.2.2 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.
- 13.2.3 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.

14. MISCELLANEOUS

14.1 Confidentiality

14.1.1 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.

14.1.2 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.

14.1.3 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

14.1.4 The provisions of this clause shall survive the Termination of this Agreement for a period of one year.

14.2 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.

14.3 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.

14.4 Assignment

The Toll Collection Agencies shall be entitled to assign or transfer all of its rights, benefit, under this Agreement only in accordance with their respective Contract Agreement with IHMCL. Upon assignment of this Agreement to the Nominated Company, the Toll Collection Agencies shall immediately intimate to IHMCL and the Service Provider of such assignment. In case of a Specified Toll Plaza being operated by IHMCL, the IHMCL shall be entitled to assign or transfer all of its rights, benefit, under this Agreement to any of its contractor/sub-contractor.

This Agreement shall not be assigned by the Service Provider to any person save and except with the prior consent in writing of the IHMCL, which consent the IHMCL shall be entitled to decline without assigning any reason whatsoever.

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

14.5 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.

14.6 Counterparts

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

14.7 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.

14.8 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.

14.9 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.

14.10 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.

14.11 Contract Period:

The total contract period shall be for FIVE years from the Effective Date, renewable on yearly basis after completion, at the option of IHMCL. However, for renewal of contract period, the service provider shall submit a request to IHMCL six months prior to expiry of the contract period.

14.12 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.

14.13 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:

<Address>

Facsimile: _____

E-mail: _____

Service Provider:

Attention: _____

<Address>

Facsimile: _____

E-mail: _____

14.14 Counterparts

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

14.15 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.

14.6 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 for equipments, systems and personnel provided under scope of this agreement.

15. DEFINITIONS

“Additional Service Provider” shall mean the Service Provider appointed by IHMCL in addition to the Service Provider for providing the Services;

“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 Toll Collection Agencies.

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

“Security Agency/ Agencies” are the entities selected and deployed at a specified Toll Plaza for providing Security to Toll Plaza and equipment installed at the Toll Plaza as well as for CCTV surveillance.

“Toll Collection Agency/Agencies” are the entities selected by IHMCL 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 Managment Company Ltd** by:

(Signature)
(Name)
(Designation)

SIGNED, SEALED AND DELIVERED

For and on behalf of
M/s. _____, Service Provider
by:

(Signature)
(Name)
(Designation)

THE COMMON SEAL OF **M/s.**
_____, has been affixed pursuant to
the resolution passed by the Board of
Directors of **M/s. _____**, at its meeting
held on the _____ day of 2015
hereunto affixed in the presence of
_____,
Director, who has signed these presents in
token thereof and

_____ Company
Secretary/Authorized Officer who has
countersigned the same in token thereof

In the presence of:

1.

2.

ANNEXURE C**List of equipments at the Specified Toll Plaza**

S. No	Item	Quantity*
1	Lane Controller	1 Each Lane
2	AVC Controller	1 Each Lane
3	SS WIM System including sensors & Controller	2 Each Plaza
4	MS WIM System including sensors & Controller	2 Each Plaza
5	AVC sensors including Loops	1 Set - Each Lane
6	Barrier	1 Each Lane
7	Traffic Light	1 Each Lane
8	LED Fare Display	1 Each Lane
9	Lane Incident Capture Camera	1 Each Lane
10	License Plate Capture Camera	1 Each Lane
11	Overhead Lane Signal	1 Each Lane
12	LED monitor	1 Each Lane
13	Thermal receipt printer	1 Each Lane & 1 Each SWB
14	Customized Keyboard	1 Each Lane
15	Lane Alarm Switch	1 Each Lane
16	Lane Siren	1 Each Lane
17	Siren Light – revolving	1 Each Lane
18	Booth Surveillance Camera (Each Toll Booth)	1 Each Lane
19	Plaza Surveillance PTZ Camera	2 Each Plaza
20	Fog Light – Strobe	1 Each Lane
21	Static Weigh Bridge	2 on each plaza
22	Plaza Server	1+1 Each Plaza
23	Plaza Internal Surveillance Cameras	6 on each plaza
24	Workstations – Desktops / Laptops	6 on each plaza
25	External Backup Media – HDD / Tapes	1 set Each Plaza
26	Dedicated Internet Connection of At Least 2 MBPS Capacity	1 Each Plaza
27	Lane UPS	1 Each Lane
28	Plaza Server UPS	1 Each Plaza
29	Network Laser Printer	1 Each Plaza
30	Network Switches	2 Each Plaza
31	Intercom Master	1 Each Plaza
32	Intercom Slave Units	12 Each Plaza
33	Bar Code Reader	1 Each Lane & 1 Each SWB
34	Network Video Recorder Server with NVR Software	1 Each Plaza
35	42” LED TV for Surveillance Control Room	1 Each Plaza
36	PTZ Keyboard for Plaza Surveillance	1 Each Plaza

*The quantity mentioned in the above table may vary as per requirement. The Service Provider shall estimate the required equipments & quantity based on his system design to ensure delivery of service as envisaged in this RFP.