Request for proposal (RFP) for Selection of Master ETC Service Provider at National Highways Fee Plazas

Tender Ref No.   : IHMCL/Master ESP/2020/01

Date   : 25 June 2020

INDIAN HIGHWAYS MANAGEMENT COMPANY LTD.
(a company promoted by NHAI)

DISCLAIMER

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

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

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

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

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

IHMCL may, in its absolute discretion but without being under any obligation to do so, update, amend or supplement the information, assessment or assumptions contained in this RFP.

The issue of this RFP does not imply that IHMCL is bound to select and short-list one of the Applications for Bid Stage or to appoint the selected Bidder or Concessionaire, as the case may be, for the Project and IHMCL reserves the right to reject all or any of the Applications or Bids without assigning any reasons whatsoever.

The Applicant shall bear all its costs associated with or relating to the preparation and submission of its Application including but not limited to preparation, copying, postage, delivery fees, expenses

associated with any demonstrations or presentations which may be required by IHMCL or any other costs incurred in connection with or relating to its Application. All such costs and expenses will remain with the Applicant and IHMCL shall not be liable in any manner whatsoever for the same or for any other costs or other expenses incurred by an Applicant in preparation or submission of the Application, regardless of the conduct or outcome of the Bidding Process.

Table of Content

1. NOTICE INVITING TENDER

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

Name of the Work	EMD/ Bid Security	Document Fee (non-refundable)	Closing date and time for Online bid Submission
Request for proposal (RFP) for Selection of Master ETC Service Provider at National Highways Fee Plazas	INR 4,00,00,000/- (Rupees Four Crores Only)	INR 10,000/- (Rupees Ten Thousand Only)	17 August 2020 (Upto 1500 Hrs IST)

2. The complete Bidding Documents can be viewed / downloaded from e-procurement portal http://etenders.gov.in. The Bids shall be liable for summarily rejection unless accompanied by the requisite EMD as indicated above. IHMCL shall not be responsible for any postal delay, or network/system failure at bidder's end, as applicable. Bids submitted after the closing date/time shall be summarily rejected.

3. IHMCL reserves the right to accept or reject any or all bids received before signing of Contract Agreement without thereby incurring any financial or other liability to the affected Bidders.

Address for communication:

General Manager,

Indian Highways Management Company Limited (IHMCL)

2nd Floor MTNL Building

Sector 19, Dwarka

New Delhi 110 075

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

2. DEFINITIONS AND ABBREVIATIONS

2.1. Definition

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

i. **"Applicable Law"** means the laws, rules or regulations and any other instruments, having the force of law in Republic of India, as in force from time to time.

ii. **"Authorized Representative"** means any person/agency authorized by IHMCL.

iii. **"Bidder" or "Applicant"** means, an entity/company which participates in the Bid process and submits its proposal/bid pursuant to this RFP, including the Sole Bidder and each member of the Consortium.

iv. **"Commencement date"** means the date upon which the Successful bidder receives the notice to commence the work issued by IHMCL.

v. **"Contract"** shall mean & include RFP, Notice for Inviting Tender (NIT), the tender documents and letter of acceptance thereof and the formal agreement, to be executed between IHMCL and the Successful bidder together with the complete documents referred to therein including the conditions with appendices and any special conditions, the specifications, designs, drawings, bill of quantities with rates and amounts. All these documents taken together shall be deemed to form one Contract and shall be complementary to each other.

vi. **"ETC"** means Electronic Toll Collection

vii. **"NHAI'** means National Highways Authority of India

viii. **"IHMCL"** means Indian Highways Management Company Limited.

ix. **"Law" or "Legislation"** - shall mean any Act, notification, bye law, rules and regulations, directive, ordinance, order or instruction having the force of law enacted or issued by the Government of India or State Government or regulatory authority.

x. **"Letter of Award (LOA)"** means the issue of a signed letter by IHMCL to Successful Bidder conveying its intention to accept the offer of Successful Bidder and awarding the work mentioning the total Contract Value.

xi. **"Local Currency"** means the Indian Rupees.

xii. **"MoRTH"** means Ministry of Road Transport and Highways.

xiii. **"Party"** shall mean IHMCL or Bidder individually and "Parties" shall mean IHMCL and Bidder collectively.

xiv. **"Personnel"** means persons hired by the Successful bidder as employees and assigned to the performance of the Services or any part thereof.

xv. **Purchaser" or "Authority"** means Indian Highways Management Company Limited (IHMCL), as applicable.

xvi. **"RFID"** means Radio Frequency Identification.

xvii. **"RFP"** shall mean this Request for Proposal dated 25 June 2020, including the written clarifications & Corrigendum/Addendum issued by IHMCL in respect of the RFP from time to time.

xviii. **"RFID"** means Radio Frequency Identification

xix. **"Services"** means requirements defined in this RFP including all additional services associated thereto to be delivered by the Successful Bidder.

xx. "**Successful Bidder"** means the Master ETC Service Provider (**Master ESP**), who, after the complete evaluation process, has been issued the Letter of Award by IHMCL.

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

2.2. **Abbreviations**

ASB	:	Amber Siren Beacon
ALB	:	Automatic Lane Exit Barrier
AVC	:	Automatic Vehicle Classifier
CCTV	:	Closed Circuit Television
CLSD	:	Canopy Lane Status Display
CSC	:	Contactless Smart Card
CSCRW	:	Contactless Smart Card Reader/Writer
DDR	:	Dual Data Rate
NVR	:	Network Video Recorder
ECC	:	Error Correcting Code
ETC	:	Electronic Toll Collection
FSW	:	Emergency Footswitch
GBIC	:	Gigabit Interface Converter
HP&MC	:	High Personage & Military Convoy
IHMCL	:	Indian Highways Management Company Limited
ISCU	:	Intercom Slave Communication Unit
ITB	:	Instructions to Bidders
IUID	:	Integrated User Information display
LC	:	Lane Computer-Industrial PC
LGD	:	Load Gauge Detector
LoA	:	Letter of Award
LSDU	:	Lane Status Display Unit
MBC	:	Manual Booth Controller
MCBF	:	Mean Cycle Between Failures

MCU	:	Master Communication Unit
MLB	:	Manual Lane Entry Barrier
MTBF	:	Mean Time Between Failures
MTTR	:	Mean Time to Repair
NHAI	:	National Highways Authority of India
OHLS	:	Over Head Lane Sign
PDB	:	Power Distribution Board
POS	:	Point of Sales
RAID	:	Redundant Array of Inexpensive Disks
RFID	:	Radio Frequency Identification
RFP	:	Request for Proposal
RPR	:	Receipt Printer
SFTP	:	Secure File Transfer Protocol
Staff Id	:	Staff Identification
T&G	:	Touch & Go
FCC	:	FES Control Centre
TCD	:	Toll Collector Display
TCK	:	Toll Collector Keyboard
TCT	:	Toll Collector's Terminal
TL	:	Traffic Light
TLC	:	Toll Lane Controller
TOD	:	Tour of Duty
UPS	:	Uninterrupted Power Supply

3. INSTRUCTIONS TO BIDDERS

3.1. Scope of Bid

3.1.1. IHMCL invites proposals/bids from eligible entities having the requisite technical and financial capabilities.

3.1.2. The Bids would be evaluated on the basis of the evaluation criteria set out in this Request for Proposal (RFP) Document in order to identify the Successful Bidder for providing the services envisaged under this RFP.

3.1.3. Terms used in this RFP Document which have not been defined herein shall have the meaning recognized thereto in the draft Contract Conditions.

3.1.4. Pursuant to the release of this RFP Document, IHMCL shall receive bids, prepared and submitted in accordance with the terms set forth in this RFP Document and other documents provided by IHMCL pursuant to this RFP Document including annexure/ Appendix hereto (collectively referred to as the "Bid Documents"), as modified, altered, amended and clarified from time to time by IHMCL.

3.1.5. This RFP Document and all attached documents are and shall remain the property of IHMCL and are transmitted to the Bidders solely for the purpose of preparation and the submission of their respective bids in accordance herewith. Bidders shall not use it for any purpose other than for preparation and submission of their bids.

3.1.6. The statements and explanations contained in this RFP Document are intended to provide an understanding to the Bidders about the subject matter of this RFP Document and shall not be construed or interpreted as limiting, in any way or manner whatsoever, the scope of services, work and obligations of the Successful Bidder to be set forth in the RFP or IHMCL right to amend, alter, change, supplement or clarify the scope of service and work, the Contract conditions to be awarded pursuant to the RFP Document including the terms thereof, and this RFP Document including terms herein contained. Consequently, any omissions, conflicts or contradictions in the Bid Document are to be noted, interpreted and applied appropriately to give effect to this intent and no claim on that account shall be entertained by IHMCL.

3.1.7. Bidders may note that IHMCL will not entertain any material deviations from the RFP Document at the time of submission of the Proposal or thereafter. The Proposal to be submitted by the Bidders will be unconditional and the Bidders would be deemed to have accepted the terms and conditions of the RFP Document with all its contents including the terms and conditions of the draft Master Service Agreement. Any conditional Proposal is liable for outright rejection.

3.1.8. Conditional or incomplete proposals are liable to be treated as non-responsive and, therefore may be rejected at the sole discretion of IHMCL.

3.2. Eligibility/Pre-Qualification criteria

3.2.1. The bidder qualifying the following criteria shall be considered eligible to bid for this RFP. The Technical Proposals of the Bidders shall be evaluated for meeting the eligibility/pre-qualification criteria based on the parameters listed below:

Sl #	Requirement Parameter	Eligibility Criteria	Supporting Documents to be provided
1.	Legal Entity	The bidder shall be one of the following: a) A business entity ("**Sole Bidder**") incorporated under the Companies Act 1956/2013 or Limited Liability Partnerships Act 2008 or equivalent law/Act in the country of jurisdiction. OR, b) A Consortium of business entities ("**Consortium**"), where each Member of the Consortium shall be incorporated under the Companies Act 1956/2013 or Limited Liability Partnerships Act 2008 or equivalent law/Act in the country of jurisdiction, subject to following points: i. members of the Consortium shall nominate one member as the lead member (the "**Lead Member**"), who shall be responsible for all interactions with IHMCL; ii. maximum number of members in the Consortium shall be **two (2),** including the Lead Member; iii. the members in the Consortium shall be jointly and severally liable; iv. any entity who has submitted Proposal for this RFP in its individual capacity or as part of a Consortium cannot participate as a member of any other Consortium;	**For Sole Bidder or the Lead Bidder and all other Members of Consortium:** • Copy of Certificate of Incorporation / Registration under Companies Act, 1956/2013 or any equivalent foreign act, as applicable • Power of Attorney for Lead Member of Consortium as per the format enclosed at Annexure 5 and Annexure 6 • In case of a Consortium, Memorandum of Understanding (MoU), as per the format provided under Annexure 10 • GST Registration Certificate

SI #	Requirement Parameter	Eligibility Criteria	Supporting Documents to be provided
		v. the members of the Consortium shall execute a Power of Attorney for Lead Member of Consortium;	
		vi. the members of the Consortium shall enter into a Memorandum of Understanding (MoU) for the purpose of submission of the Proposal.	
		The Sole Bidder / all members in case of a Consortium should be registered with GST in India. In case any Consortium member is a foreign entity, the Bidder can give an undertaking along with the Proposal that in case of award of Contract, the foreign entity shall register with the GST Authority within 30 days of Award of Contract.	
2.	**Annual Turnover**	The Sole Bidder or the Lead Member in case of Consortium should have an average annual turnover of minimum **Rs. 500 crores** during the last three (03) financial years, i.e. FY 2016-17, FY 2017-18 and FY 2018-19 For the purpose of this criterion, annual turnover of only the bidding entity will be considered. Annual turnover of any parent, subsidiary, associated or other related entity will not be considered.	**For Sole Bidder or the Lead Bidder of Consortium:** a) Relevant extracts of audited financial statements for the last three financial years FY 2016-17, FY 2017-18 and FY 2018-19 **AND** b) Certificate from the Statutory Auditor on turnover details over the last three (3) financial years FY 2016-17, FY 2017-18 and FY 2018-19 As per format provided in Annexure 4.
3.	Net worth	The Sole Bidder or each member, in case of a Consortium must have **positive** Net worth in Indian Rupees as on 31 March 2019. For the purpose of this criterion, net-worth of only the bidding entity will be considered. Net-Worth of any parent, subsidiary,	**For Sole Bidder or the Lead Bidder and all other Members of Consortium:** Certificate from the Statutory Auditor clearly specifying the net worth of the firm as on 31 March 2019. As per format provided in Annexure 4.

SI #	Requirement Parameter	Eligibility Criteria	Supporting Documents to be provided
		associated or other related entity will not be considered.	
4.	ICT Project Experience	The Sole Bidder or the Lead Member in case of Consortium should have been successfully awarded and implemented large scale ICT project (s) related to **end-to end IT system Implementation and , Operation & Maintenance** in India or abroad during last five years for Central/State Government departments/entities including PSUs as on the Bid Due Date as below: • At least one project with contract value minimum INR 80 Crore Or, • At least 2 projects with contract value minimum INR 50 Crore Or, • At least 3 projects with contract value minimum INR 40 Crore The project(s) should have been either completed or an ongoing project where deliverable or milestone has been successfully met.	**For Sole Bidder or Lead member in case of a Consortium** a) Work order/ Contract clearly highlighting the relevant scope of work, and contract value, year of execution. AND b) Completion Certificate issued & signed by the competent authority of the client on the entity's letterhead OR, Self-certificate from the bidder signed by authorized signatory for this bid holding written special power of attorney on stamp paper along with the official contact details of the competent authority of the client. IHMCL reserves the right to contact the afore-mentioned competent authority. In case of large orders/orders with operations & maintenance phase, the completion/self-certificate may specify successful execution and in-operation status of a part of the order meeting the requirement. The format of the self-certificate is provided in RFP at Annexure 8.

SI #	Requirement Parameter	Eligibility Criteria	Supporting Documents to be provided
5.	**Certification**	The Sole Bidder or the Lead Member in case of a Consortium, should be a CMMi level 5 organization.	**For Sole Bidder or the Lead Bidder, in case of Consortium:** Valid copy of relevant certificate
6.	**Undertaking of Blacklisting**	The Sole Bidder or the Lead Member and each member of the Consortium, in case of a Consortium, should not have been blacklisted by any State / Central Government Department or Central /State PSUs in India or Abroad as on Bid Due Date.	**For Sole Bidder or the Lead Bidder and all other Members of Consortium:** Affidavit certifying non-blacklisting as per format given in Annexure 9.
7.	**Undertaking on Conflict of Interest**	The Bidder or the bidder's parent / subsidiary /sister concern company should NOT be currently engaged by NHAI for user fee collection or tolling operations at any NH Fee plazas across the country as on RFP release date. The successful bidder shall further undertake that it shall not be take up activities such as user fee collection, tolling operations at NH fee plazas allocated to it during the Contract Period.	**For Sole Bidder or the Lead Bidder and all other Members of Consortium:** Declaration & Undertaking in the Bid Cover Letter Annexure 1

3.2.2. **Additional Requirements for Bid/Proposal Submitted by a Consortium**

The MoU between Consortium members should, *inter alia,*

    i.   convey the intent to form a Joint Venture ("JV") with the minimum shareholding pattern obligation as in Clause 3.2.3

   ii.   clearly outline the proposed roles and responsibilities of each member of the Consortium;

  iii.   include a statement to the effect that all members of the Consortium shall be liable jointly and severally for the Project in accordance with the terms of the Concession Agreement; and

  iv.   clearly refer to the Project for which the arrangement is made.

A copy of the MoU signed by all members should be submitted with the Proposal. The MoU entered into between the members of the Consortium should be specific to the Project and should contain the above requirements, failing which the Proposal shall be considered non-responsive and liable for disqualification.

3.2.3. **Minimum Shareholding Obligation**

   a) The Consortium shall form a JV, incorporated under the Companies Act, 2013, and through the JV shall execute the Contract Agreement within thirty (30) days of the issue of LOA or such time as indicated by IHMCL.

   b) By submitting the Bid, each members of the Consortium shall be deemed to have acknowledged that it was short-listed on the basis of the technical and financial capacity of the Consortium Members such that the Lead Member will own at least 51% of the issued and subscribed equity share capital of the JV throughout the Contract Period.

   c) The Bidder Consortium and each of the Consortium members shall further by submitting the Proposal be deemed to have acknowledged and undertaken that any breach of the shareholding obligation shall, notwithstanding anything to the contrary contained in the Contract Agreement, be deemed to be a breach of the Contract Agreement and dealt with as such thereunder.

3.2.4. The MoU signed by all members should be submitted with the Proposal. The MoU should be specific to the Project and should contain the above requirements, failing which the Proposal shall be considered non-responsive.

3.2.5. For the purpose of this RFP, the net worth ("Net Worth") shall mean the aggregate value of the paid-up share capital and all reserves created out of the profits and securities premium account, after deducting the aggregate value of the accumulated losses, deferred expenditure and miscellaneous expenditure not written off, as per the audited balance sheet, but does not include reserves created out of revaluation of assets, write back of depreciation and amalgamation.

3.2.6. The bidder can use the experience of a company which controls, is controlled by, or is under the common control with such bidder. The 'control' means the ownership, directly or indirectly, of more than 50% (fifty per cent) of the voting shares of such bidder, as on the Bid Due Date. In such case, the bidder shall submit the following documents:

      i.   A certificate from the bidder's statutory auditor/ chartered accountant certifying the relationship between the bidder and the company whose experience is being shown along with the percent of voting shares under common control.

      ii.   A letter of support, in form of undertaking, from the company whose experience is being shown as relevant experience that it will provide necessary technical and financial support to the Bidder in implementation of the project

3.2.7. For projects where contract value or any amount is in any currency other than Indian Rupees, than the foreign currency conversion rate available on Reserve Bank of India's portal as on the date of release of the RFP document shall be used for conversion of amount in foreign currency to Indian Rupees equivalent.

3.2.8. The Bidders must provide all supporting documents specified above in support of each eligibility requirement in line with the criteria stipulated in Clause 3.2 Only those Bidders who meet all the above pre-qualification criteria shall be considered for further evaluation of their Technical Proposals.

3.2.9. No applicant applying individually or as a member of a Consortium, as the case may be, can be member of another Applicant. The term Applicant used herein would apply to both a single entity and a Consortium.

3.2.10. The following conditions shall be adhered to while submitting an Application:

a) Applicants should attach clearly marked and referenced continuation sheets in the event that the space provided in the prescribed forms in the Annexes is insufficient. Alternatively, Applicants may format the prescribed forms making due provision for incorporation of the requested information;

b) Information supplied by an Applicant (or other constituent Member if the Applicant is a Consortium) must apply to the Applicant, Member or Associate named in the Application and not, unless specifically requested, to other associated companies or firms;

3.2.11. Notwithstanding anything to the contrary contained herein, in the event that the Bid Due Date falls within three months of the closing of the latest financial year of an Applicant, it shall ignore such financial year for the purposes of its Application and furnish all its information and certification with reference to the 5 (five) years or 1 (one) year, as the case may be, preceding its latest financial year. For the avoidance of doubt, financial year shall, for the purposes of an Application hereunder, mean the accounting year followed by the Applicant in the course of its normal business.

3.3.   **Change in composition of the Consortium**

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

a) the application for such change is made no later than 15 (fifteen) days prior to the Bid Due Date;

b) the Lead Member continues to be the Lead Member of the Consortium;

c) the substitute is at least equal, in terms of Technical Capacity, to the Consortium Member who is sought to be substituted and the modified Consortium shall continue to meet the short-listing criteria for Applicants; and

d) 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 is not an Applicant/Member/Associate of any other Consortium bidding for this Project.

3.3.2. Approval for change in the composition of a Consortium shall be at the sole discretion of IHMCL and must be approved by IHMCL in writing.

3.3.3. The modified/ reconstituted Consortium shall submit a revised Jt. Bidding Agreement before the Bid Due Date.

3.3.4. Notwithstanding anything to the contrary contained in clause 3.2, a Bidder may, within 10 (ten) days after the Bid Due Date, remove from its Consortium any Member who suffers from a Conflict of Interest, and such removal shall be deemed to cure the Conflict of Interest arising in respect thereof.

3.4. **Number of Applications and costs thereof**

3.4.1. No Applicant shall submit more than one Application for the Project. An applicant applying individually or as a member of a Consortium shall not be entitled to submit another application either individually or as a member of any Consortium, as the case may be.

3.4.2. The Applicants shall be responsible for all of the costs associated with the preparation of their Applications and their participation in the Bid Process. IHMCL will not be responsible or in any way liable for such costs, regardless of the conduct or outcome of the Bidding Process.

3.5. **Power of Attorney**

3.5.1. The Bidder should submit a notarized Power of Attorney in the format provided at Annexure 5 and Annexure 6 authorizing the signatory of the Bid to sign the Bid and all related documents.

3.6. **Content of RFP**

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

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

3.7. **Site visit and verification of information**

3.7.1. Applicants are encouraged to submit their respective Bid/Applications after visiting the Project site and ascertaining for themselves the site/fee plaza conditions, traffic, location, surroundings, climate, availability of power, water and other utilities for construction, access to site, handling and storage of materials, weather data, applicable laws and regulations, and any other matter considered relevant by them. The costs of visiting the site or sites shall be at the Bidder's own expense.

3.7.2. The Bidder shall be deemed to have examined the site or sites and obtain for itself, at its own responsibility and risk, all information that may be necessary for preparing the bid and entering into the Contract.

3.8. **Acknowledgement by Applicant**

3.8.1. It shall be deemed that by submitting the Application, the Applicant has:

   a) made a complete and careful examination of the RFP;

   b) received all relevant information requested from IHMCL;

   c) accepted the risk of inadequacy, error or mistake in the information provided in the RFP or furnished by or on behalf of IHMCL relating to any of the matters referred to in Clause 3.7 above; and

   d) Agreed to be bound by the undertakings provided by it under and in terms hereof.

3.8.2. IHMCL shall not be liable for any omission, mistake or error in respect of any of the above or on account of any matter or thing arising out of or concerning or relating to the RFP or the Bidding Process, including any error or mistake therein or in any information or data given by IHMCL.

3.9. **Right to accept or reject any or all Applications/ Bids**

3.9.1. Notwithstanding anything contained in this RFP, IHMCL reserves the right to accept or reject any Application and to annul the Bidding Process and reject all Applications/ Bids, at any time without any liability or any obligation for such acceptance, rejection or annulment, and without assigning any reasons therefor. In the event that IHMCL rejects or annuls all the Bids, it may, in its discretion, invite all eligible Bidders to submit fresh Bids hereunder.

3.9.2. IHMCL reserves the right to reject any Application and/ or Bid if:

   a) at any time, a material misrepresentation is made or uncovered, or

   b) the Applicant does not provide, within the time specified by IHMCL, the supplemental information sought by IHMCL for evaluation of the Application.

3.9.3. If the Applicant/Bidder is a Consortium, then the entire Consortium may be disqualified/ rejected. If such disqualification/ rejection occurs after the Bids have been opened and the Lowest/Successful Bidder gets disqualified/ rejected, then IHMCL reserves the right to:

   a) invite the remaining Bidders to match the Lowest/Successful Bidder in ascending order sequence; or

b) take any such measure as may be deemed fit in the sole discretion of IHMCL, including annulment of the Bidding Process.

3.9.4. In case it is found during the evaluation or at any time before signing of the Concession Agreement or after its execution and during the period of subsistence thereof, including the concession thereby granted by IHMCL, that one or more of the conditions have not been met by the Applicant, or the Applicant has made material misrepresentation or has given any materially incorrect or false information, the Applicant shall be disqualified forthwith if not yet appointed as the Concessionaire either by issue of the LOA or entering into of the Concession Agreement, and if the Applicant/SPV has already been issued the LOA or has entered into the Concession Agreement, as the case may be, the same shall, notwithstanding anything to the contrary contained therein or in this RFP, be liable to be terminated, by a communication in writing by IHMCL to the Applicant, without IHMCL being liable in any manner whatsoever to the Applicant and without prejudice to any other right or remedy which IHMCL may have under this RFP, the Bidding Documents, the Concession Agreement or under applicable law.

3.9.5. IHMCL reserves the right to verify all statements, information and documents submitted by the Applicant in response to the RFP. Any such verification or lack of such verification by IHMCL shall not relieve the Applicant of its obligations or liabilities hereunder nor will it affect any rights of IHMCL thereunder.

3.10. **Clarifications**

3.10.1. Applicants requiring any clarification on the RFP may notify IHMCL by e-mail (tenders@ihmcl.com). They should send in their queries in .xlsx format before the date specified in the schedule of Bidding Process.. The responses will be sent by published on e-tender portal .

3.10.2. IHMCL shall endeavor to respond to the questions raised or clarifications sought by the Applicants. However, IHMCL reserves the right not to respond to any question or provide any clarification, in its sole discretion, and nothing in this Clause shall be taken or read as compelling or requiring IHMCL to respond to any question or to provide any clarification.

3.10.3. IHMCL may also on its own motion, if deemed necessary, issue interpretations and clarifications to all Applicants. All clarifications and interpretations issued by IHMCL shall be deemed to be part of the RFP. Verbal clarifications and information given by Authority or its employees or representatives shall not in any way or manner be binding on IHMCL.

3.10.4. To facilitate evaluation of Applications, IHMCL may, at its sole discretion, seek clarifications from any Applicant regarding its Application. Such clarification(s) shall be provided within the time specified by IHMCL for this purpose. Any request for clarification(s) and all clarification(s) in response thereto shall be in writing.

3.11. **Amendment of RFP**

3.11.1. At any time prior to the deadline for submission of Application, IHMCL may, for any reason, whether at its own initiative or in response to clarifications requested by an Applicant, modify the RFP by the issuance of Addenda.

3.11.2. Any Addendum thus issued will be published on e-procurement portal.

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

3.12. **Language**

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

3.13. **Bid Validity**

a) Bids shall remain valid for a period of 180 days from the Bid due date. Any Bid valid for a shorter period shall be rejected as non-responsive. IHMCL has sole discretion to extend the period beyond 180 days.

b) In exceptional circumstances, IHMCL may solicit Bidder's consent to an extension of the period of validity. The request and the responses thereto shall be made in writing; however, no modification to such bid shall be permitted.

3.14. **Bid Security**

a) The Bidder shall furnish, as part of the Bid, Earnest Money Deposit (EMD) /Bid Security for an amount INR 4,00,00,000/- (Rupees Four Crores Only). The Successful Bidder's EMD will be returned, without any interest, upon the Successful Bidder signing the Contract and furnishing the Performance Security in accordance with the provisions thereof. IHMCL may, at the Successful Bidder's option, adjust the amount of EMD in the amount of Performance Security to be provided by him in accordance with the provisions of the Contract.

b) The Earnest Money shall be in the form of a demand draft / pay order drawn in favor of "Indian Highways Management Company Limited." Drawn on any Scheduled bank payable at New Delhi.

c) Any bid not accompanied by an acceptable Earnest Money Deposit and Document Fee shall be rejected by IHMCL as non-responsive.

d) The Earnest Money Deposit of unsuccessful bidders will be returned upon written request from the unsuccessful bidder, after expiry of the period of Bid Validity prescribed by IHMCL or Signing of Contract Agreement between IHMCL and successful bidder.

e) The Earnest Money Deposit of the Successful Bidder will be discharged when the Successful Bidder has furnished the required Performance Security and signed the Contract Agreement.

f) The Bid Security / Earnest Money will be forfeited:

   i.   if the Bidder withdraws or modifies the Bid during the period of Bid validity;

   ii. if the Bidder does not accept the correction of the bid price, pursuant to clause pertaining to imbalance bid;

   iii. in the case of a Successful Bidder, if the Bidder fails within the specified time limit to -

iv. sign the Contract; and/or

v. Furnish the required Performance Security; or

vi. if the Bidder is found to be engaged in corrupt or fraudulent practices.

3.15. Alternative Proposals by Bidders

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

3.16. Submission, Format and signing of Application

3.16.1. All documents including Application Fee, EMD, Power of Attorney, relevant annexures, eligibility documents etc. need to be submitted on e-tender portal. The Bidder shall submit the scanned copy of the original documents as mentioned in the RFP along with the bid on or before due date of submission. Evaluation of bids shall be carried out with the available scanned copy of original document submitted by bidder on e-portal as per RFP requirement. However, the successful bidder has to submit the original documents physically with IHMCL before the issue of LOA. There shall be no physical submission of application.

3.16.2. The Applicant shall provide all the information sought under this RFP. IHMCL will evaluate only those Applications that are received in the required formats and complete in all respects. Incomplete and /or conditional Applications shall be liable to rejection.

3.16.3. The Application/Bid Documents uploaded on e-tender portal shall be typed or written in indelible ink and signed by the authorized signatory of the Applicant who shall also initial each page. In case of printed and published documents, only the cover shall be initialed. All the alterations, omissions, additions or any other amendments made to the Application shall be initialed by the person(s) signing the Application.

3.17. Deadline for Submission of Bid

a) Complete Bid documents as specified in the RFP must be uploaded as specified on or before the date and time specified under "Key Dates". In the event of the specified date for the submission of Bids being declared a Non-working day for IHMCL, the Bids will be received up to the specified time on the next working day.

b) IHMCL may, at its discretion, extend the deadline for submission of Bids by issuing an amendment in which case all rights and obligations of IHMCL and the Bidders previously subject to the original deadline will thereafter be subject to the deadline extended.

c) Offer by fax / e-mail will not be accepted and shall be treated as void ab-initio.

3.18. Late Applications

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

3.19. **Modifications/ substitution/ withdrawal of Applications**

3.19.1. The Applicant may modify, substitute or withdraw its Application after submission, provided that written notice of the modification, substitution or withdrawal is received by IHMCL prior to the Bid Due Date. No Application shall be modified, substituted or withdrawn by the Applicant on or after the Bid Due Date.

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

3.20. **Opening and Evaluation of Applications**

3.20.1. IHMCL shall open the Applications as per Key Timelines mentioned in RFP, at the place specified in RFP and in the presence of the Applicants who choose to attend.

3.20.2. Applications for which a notice of withdrawal has been submitted in accordance with Clause 3.19 shall not be opened.

3.20.3. IHMCL will subsequently examine and evaluate Applications in accordance with the provisions set out in this RFP.

3.20.4. Applicants are advised that selection of Applicants will be entirely at the discretion of IHMCL. Applicants will be deemed to have understood and agreed that no explanation or justification on any aspect of the Bidding Process or selection will be given.

3.20.5. Any information contained in the Application shall not in any way be construed as binding on IHMCL, its agents, successors or assigns, but shall be binding against the Applicant if the Project is subsequently awarded to it on the basis of such information.

3.20.6. IHMCL reserves the right not to proceed with the Bidding Process at any time without notice or liability and to reject any or all Application(s) without assigning any reasons.

3.20.7. If any information furnished by the Applicant is found to be incomplete, or contained in formats other than those specified herein, IHMCL may, in its sole discretion, exclude the relevant project from computation of the Eligible Score of the Applicant.

3.20.8. In the event that an Applicant claims credit for an Eligible Project, and such claim is determined by IHMCL as incorrect or erroneous, IHMCL shall reject such claim and exclude the same from computation of the Eligible Score, and may also, while computing the aggregate Experience Score of the Applicant, make a further deduction equivalent to the claim rejected hereunder. Where any information is found to be patently false or amounting to a material representation, IHMCL reserves the right to reject the Application and/ or Bid.

3.21. **Examination and Evaluation of Bids**

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

b) IHMCL shall open Technical Bids as per schedule specified in Key Dates, in the presence of the authorized representatives of the Bidders, who choose to attend. IHMCL will examine and evaluate the Bids in accordance with the provisions of this RFP.

c) During evaluation and comparison of bids, IHMCL may, at his discretion, ask the bidder for clarifications on the bid. The request for clarification shall be given in writing via email, asking the Bidder to respond by a specified date, and also mentioning therein that, if the Bidder does not comply or respond by the date, his tender will be liable to be rejected. No post bid clarification at the initiative of the bidder shall be entertained. The shortfall information/ documents shall be sought only in case of historical documents which pre-existed at the time of the bid opening and which have not undergone change since then.

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

a) The Technical Bids will be evaluated by an Evaluation Committee. The Bidder shall have to fulfil all the Eligibility Criteria as specified in the RFP. Following documents shall be evaluated as per part of Pre-Qualification stage: - Document Fee, EMD/Bid Security, PoA and other Eligibility Documents and Annexures.

b) The Bidder shall have to submit all the required documents as per various formats provided in Annexures. These documents will be scrutinized in this phase of evaluation. Those Bidders who do not fulfil the terms and conditions of Eligibility Criteria as specified in this tender will not be eligible for further evaluation.

c) Evaluation of Technical Bids by the Evaluation Committee shall not be questioned by any of the Bidders. IHMCL may ask Bidder(s) for additional information, visit to Bidder's site and/ or arrange discussions with their professional, technical faculties to verify claims made in Technical Bid documentation from the Bidder on the already submitted Technical Proposal at any point of time before opening of the Financial Proposal.

d) Based upon the evaluation of these documents and the conditions specified in the RFP, IHMCL shall announce the names of the Bidders who have qualified for Phase-2 Technical Qualification. It is hereby clarified that Technical Qualification evaluation of only such Bidders who are declared qualified as stated herein shall be performed.

3.21.2.**Phase - 2: Technical Qualification: -**

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

Section #	Evaluation Criteria	Total Marks
A	Sole bidder/Lead Member Profile	25
B	Relevant Project Experience	50
C	Approach & Methodology	15
D	Key Project Team Profile	10
Overall Technical Score Total		100

3.21.3. Evaluation Parameters for Technical Proposal

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

Sl. #	Technical Evaluation Criteria	Maximum Marks	Supporting Document required
A.	**Sole bidder/Lead Member Profile**	**25**	
A1	Average annual turnover of the Sole Bidder or Lead member, in case of Consortium, during the last three (03) financial years, i.e. FY 2016-17, FY 2017-18 and FY 2018-19 Marks shall be allotted as given below: • >INR 1000 = 25 marks • >INR 750 and up to INR 1000 Crore = 20 marks • >= INR 500 and up to INR 750 Crore = 10 marks For the purpose of this criterion, annual turnover of only the bidding entity will be considered. Annual turnover of any parent, subsidiary, associated or other related entity will not be considered.	25	• Certificate from the Statutory auditor clearly specifying the annual turnover for the specified years
B.	**Relevant Project Experience**	**50**	
B1	The Sole Bidder or the Lead Member in case of Consortium should have been successfully awarded and implemented large scale ICT project (s) related to **end- to end IT system Implementation and Operation & Maintenance** in India or abroad during last five years for Central/State Government departments/entities including PSUs as on the Bid Due Date as below: Marks shall be allotted as given below: • Each project with contract value minimum INR 80 Crore = 15 marks • Each project with contract value minimum INR 50 Crore = 7.5 marks	25	**Sole Bidder or Lead Member of Consortium:** a) Work order/ Contract from the Public Authority/Client clearly highlighting the relevant scope of work, and contract value, year of execution **AND** b) Completion Certificate issued & signed by the competent authority of the Public Authority/client on the entity's letterhead

Sl. #	Technical Evaluation Criteria	Maximum Marks	Supporting Document required
	• Each project with contract value minimum INR 40 Crore = 5 marks		OR, Self-certificate from the bidder signed by authorized signatory for this bid holding written special power of attorney on stamp paper along with the official contact details of the competent authority of the Public Authority/Client. IHMCL reserves the right to contact the afore-mentioned competent authority. In case of large orders/orders with operations & maintenance phase, the completion/self-certificate may specify successful execution and in-operation status of a part of the order meeting the requirement. The format of the self-certificate is provided in RFP.
B2	The Sole Bidder or any Consortium member (in case of Consortium) should have experience of **Electronic Toll Collection (ETC) System implementation, installation and O&M** for commercial operations **during last ten years** (as on the Bid Due Date) Marks shall be allotted as given below: **a) In terms of No. of ETC Projects –** • Each ETC Project with contract value minimum INR 25 Cr = 18 marks • Each ETC Project with contract value minimum INR 20 Cr = 15 marks	25	**Sole Bidder or Lead Member of Consortium:** a) Work order/ Contract from the Public Authority/Client clearly highlighting the relevant scope of work, and contract value, year of execution **AND** b) Completion Certificate issued & signed by the competent authority of the Public Authority/client on the entity's letterhead

Sl. #	Technical Evaluation Criteria	Maximum Marks	Supporting Document required
	• Each ETC Project with contract value minimum INR 15 Cr = 12 marks • Each ETC Project with contract value minimum INR 10 Cr = 10 marks **OR,** **b) In terms of No. of ETC Lanes –** Implementation ETC lanes in India and/or Abroad • >500 ETC lanes = 25 marks • >450 ETC lanes up to 500 ETC lanes = 20 marks • >375 ETC lanes up to 450 ETC lanes = 18 marks • > 300 ETC lanes up to 375 ETC lanes = 15 marks • >250 ETC lanes up to 300 ETC lanes = 12 marks • Up to 250 ETC lanes = 10 marks For the purpose of evaluation, ETC project shall be defined as a project for a Government Organisation in India or abroad, based on any one or more technology/solution of the following: • RFID-based Electronic Toll Collection • Global Positioning System (GPS)/Global Navigational Satellite System (GNSS) • Dedicated Short Range Communication (DSRC) • Multi-Lane Free Flow Tolling • Automatic Number Plate Recording *Please note w.r.t. (a) & (b) above, marking shall be done either in terms no. of projects OR no. of ETC lanes, and shall not be combined.*		OR, Self-certificate from the bidder signed by authorized signatory for this bid holding written special power of attorney on stamp paper along with the official contact details of the competent authority of the Public Authority/Client. IHMCL reserves the right to contact the afore-mentioned competent authority. In case of large orders/orders with operations & maintenance phase, the completion/self-certificate may specify successful execution and in-operation status of a part of the order meeting the requirement. The format of the self-certificate is provided in RFP.

Sl. #	Technical Evaluation Criteria	Maximum Marks	Supporting Document required
C	**Approach & Methodology** • Demonstrated level of understanding of the scope of work and other aspects of the project – 10 Marks • Project implementation plan, Work Break Down Schedule, Manpower Deployment Plan, Strategy for compliance to SLA defined – 5 marks	15	Assessment to be based on Proposal Submitted & Presentation made by Bidder before the Tender Evaluation Committee.
D	**Key Project Team Profile**	**10**	
D 1	Project Director	5	CV to be attached in the Technical Proposal as per format provided in Annexure 12
D 2	Project Manager (to be full-time based onsite at client location)	5	CV to be attached in the Technical Proposal as per format provided in Annexure 12

3.21.4. **The Minimum technical score to qualify for Financial Proposal evaluation is 75 marks out of total 100 marks.**

3.21.5. **Key Position Criteria:** -

a) The Master ESP shall provide adequate number of personnel, each responsible for a specific role within the project.

b) Following table indicates the minimum qualification required for Key Positions for evaluation for this project.

c) However, the Master ESP shall independently estimate the teams size required to meet the requirements of service Levels as specified as part of this RFP Document.

Sl. #	Position	Minimum qualifications
1	Project Director	a) Education: Full-Time MBA/MCA/M. Tech & B. Tech/B.E. from a reputed institute b) Total Experience: At least 15 years in IT/ITS sector c) Should have more than 8 years of experience of handling such large projects
2	Project Manager	a) Education: Full Time MBA/MCA/M. Tech & B. Tech/B.E. from a reputed institute b) Experience: Minimum 10 years of experience in areas related to Electronic Tolling System/ Intelligent Transport System/ Smart City c) Should have more than 5 years of experience of handling such large projects as a project manager d) Should preferably have PMP or Prince2 certification

3.21.6. **Replacement of Key Resources– Project Director and Project Manager**

a) The Master ESP shall not be allowed to replace resources, Project Director and Project Manager as proposed in the Bid without prior approval from IHMCL.

b) In case any proposed resource resigns, then the Master ESP has to inform IHMCL within one week of such resignation. The Master ESP shall promptly initiate a search for a replacement to ensure that the role of any member of the Key Resource is not vacant at any point in time during the contract period, subject to reasonable extensions requested by Master ESP to IHMCL.

c) Before assigning any replacement member of the Key Personnel to the provision of the Services, Bidder shall provide Purchaser with:

a. a curriculum vitae and any other information about the candidate that is reasonably requested by IHMCL; and

b. an opportunity to interview the proposed candidate.

d) The Master ESP has to provide replacement resource of equal or better qualification and experience as per the requirements of this RFP.

e) If IHMCL objects to the appointment, Bidder shall not assign the individual to that position and shall seek an alternative candidate in accordance with the resource requirements of this RFP.

f) The bidder needs to ensure at least 4 weeks of overlap period in such replacements. Master ESP will not be responsible for any knowledge transition to the replacement resource and any impact/escalation of cost incurred by the bidder due to resource replacement

3.21.7. **Phase – 3: Financial Bid Evaluation:**

a) The Financial Bids of ONLY the Bidders who are declared as technically qualified will be evaluated. The Financial Bid Evaluation will be based on the "*Quoted Value"* quoted by the bidder which would be inclusive of all levies and taxes like Excise Duty, Custom Duty, packing, forwarding, freight and insurance, Octroi/Entry Tax, etc. or as applicable taxes, but exclusive of GST.

b) The financial Bids that are not as per the format provided in Annexure - 11 shall be liable for rejection.

c) The bidder that has quoted the lowest *Quoted Value* ("**L1 Bidder"**) shall be declared as the successful bidder for that Zone.

d) If there is a discrepancy between words & figures, the amount in words shall prevail. If the bidder does not accept the correction of errors, its Bid shall be rejected and the EMD will be forfeited.

3.22. **Award Criteria**

a) Award of Work shall be carried out in Zone-wise sequence i.e. the Successful Bidder of Zone 1 shall be identified/awarded first and thereafter that in Zone-2, and so on.

b) The maximum number of Zones that can be awarded to any Bidder is limited up to 2 (Two), subject to condition set out in (d) below.

c) In case of Zone 3 & 4, if the Successful Bidder, who had already been awarded 2 zones, has quoted the lowest Quoted Value, then in that case, IHMCL shall invite the Bidders having quoted for the Zone -3 & 4 respectively, in the ascending sequence of their Quoted Value for the Zone 3 & 4 to match the Lowest Quoted Rate of L1 Bidder of that zone (i.e. Zone 3 or 4), till the time the Successful Bidder for that Zone is identified.

d) In the event that two or more Bidders quote the same lowest Quoted Value, IHMCL may

    i. Declare the Bidder with higher technical score as the Preferred Bidder for the Zone; or,

ii. Take any such measure as may be deemed fit at its sole discretion

e) In case, the Successful Bidder for any Zone is not identified at the end of the above process, IHMCL, in its sole discretion, may sequentially,

i. invite all the Bidders of all Zones to match the Lowest Quoted Value for that Zone, or

ii. award the Zone to any other Successful Bidder of other Zone(s) with the lowest quoted Value, or

iii. invite fresh bids for that Zone only, or

iv. take any other measure as may be deemed fit, including annulment of the bidding process.

3.23. Confidentiality

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

3.24. Tests of responsiveness

3.24.1. Prior to evaluation of Applications, IHMCL shall determine whether each Application is responsive to the requirements of the RFP. An Application shall be considered responsive only if:

a) If the Authorized Signatory holding Power of Attorney and Signatory are not the same

b) If a bidder submits a conditional bid or makes changes in the terms and conditions given in this RFP document

c) Failure to comply with all the requirements of RFP document by a bidder

d) If the financial bid is not submitted in the formats prescribed in the RFP document

e) If any requisite document/ certificate is not in the prescribed format the same shall not be considered while evaluating the Bids and the same may lead to Bid being declared as non-responsive.

and

f) The bid contains any pre-condition, assumption or qualification

g) it is not non-responsive in terms hereof.

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

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

3.25. **Imbalanced Bid**

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

3.26. **Submission of Bids**

a) The Bidders will be requested to submit a Bid in the form and manner to be set out in the Bidding Documents.

b) IHMCL is likely to provide a comparatively short time span for submission of the Bids for the Project. The Applicants are therefore advised to visit the site and familiarize themselves with the Project by the time of submission of the Application. No extension of time is likely to be considered for submission of Bids pursuant to invitation that may be issued by IHMCL.

3.27. **Proprietary data**

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

3.28. **Correspondence with the Applicant**

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

3.29. **Notification of Award of Contract**

a) Prior to the expiration of the Bid validity, IHMCL will notify the Successful Bidder that his Bid has been accepted. IHMCL will mention the contract value in the LOA.

b) The Contract will incorporate all agreements between IHMCL and the Successful Bidder. It will be signed by IHMCL and the Successful Bidder after the performance security is furnished by the Successful Bidder. IHMCL will issue notice to commence the work after signing of Contract Agreement or submission of Performance Security as the case maybe.

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

3.30. Signing of Contract

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

3.31. Performance Security

a) Within 15 (Fifteen) days of the receipt of the Letter of Award, the Successful Bidder shall submit an irrevocable and unconditional Bank guarantee issued in the name of IHMCL for an amount equal to **INR 18 (Eighteen) Crore for each Zone awarded,** issued by a Bank described under this RFP which shall be verified at any branch located in the National Capital territory of Delhi and through SFMS mode as performance security for the due performance of its obligations under the Contract.

b) The aforesaid Bank Guarantee shall be as per the format given in format provided in this RFP and will be valid for a period of 180 days after the expiry of Contract period and shall also have a minimum claim period of 1 year. Format for submission of Performance Bank Guarantee is placed at Annexure 7.

3.32. Bank Guarantee (BG)

a) The Bank Guarantee in the name of IHMCL issued by the following banks would only be accepted: -

    i.   Any Nationalized Bank

    ii.   Any Scheduled Commercial Bank approved by RBI having a net worth of not less than Rs. 500 crores as per the latest Audited Balance Sheet of the Bank. In the case of a Foreign Bank (issued by a branch in India), the net worth in respect of the Indian operations shall only be taken into account

    iii.   III. A Foreign Bank (issued by a branch outside India) with a counter guarantee from any Indian Nationalized Bank.

    iv.   Export Import Bank of India

b) The acceptance of the Bank Guarantees shall also be subject to the following conditions: -

    i.   The capital adequacy of the Bank shall not be less than the norms prescribed by RBI

    ii.   The bank guarantee issued by a Cooperative Bank shall not be accepted.

3.33. **Corrupt or Fraudulent Practices**

a) IHMCL will reject a proposal for award and appropriate the EMD or the Performance Security, as the case may be, if it determines that the Bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question.

b) IHMCL will declare the Bidder ineligible, either indefinitely or for a stated period of time, to be awarded a contract by IHMCL if it at any time determines that the Bidder has engaged in corrupt or fraudulent practices in competing for the contract, or during execution.

c) "Corrupt practice" means the offering, giving, receiving, or soliciting of anything of value to influence the action of a public official or employee of IHMCL in the procurement process or in Contract execution.

d) "Fraudulent Practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of IHMCL and includes collusive practice among Bidders (prior to or after bid submission) designed to establish bid process at artificial non-competitive levels and to deprive IHMCL of the benefits of free and open competition.

3.34. **Conflict of Interest**

3.34.1. A Bidder shall not have a conflict of interest that may affect the Selection Process or the Solution delivery (the "Conflict of Interest"). Any Bidder found to have a Conflict of Interest shall be disqualified. In the event of disqualification, the Purchaser shall forfeit and appropriate the EMD, if available, as mutually agreed genuine pre-estimated compensation and damages payable to the Purchaser for, inter alia, the time, cost and effort of the Purchaser including consideration of such Bidder's Proposal, without prejudice to any other right or remedy that may be available to the Purchaser hereunder or otherwise.

3.34.2. The Purchaser requires that the Master ESP provides solutions which at all times hold the Purchaser's interests paramount, avoid conflicts with other assignments or its own interests, and act without any consideration for future work. The Master ESP shall not accept or engage in any assignment that would be in conflict with its prior or current obligations to other clients, or that may place it in a position of not being able to carry out the assignment in the best interests of the Purchaser.

3.34.3. Without limiting the generality of the above, a Bidder shall be deemed to have a Conflict of Interest affecting the Selection Process, if:

a) the Bidder, its consortium member (the "Member") or Associates (or any constituent thereof) and any other Bidder, its consortium member or Associate (or any constituent thereof) have common controlling shareholders or other ownership interest; provided that this disqualification shall not apply in cases where the direct or indirect shareholding or ownership interest of an Bidder, its Member or Associate (or any shareholder thereof having a shareholding of more than 5 per cent of the paid up and subscribed share capital of such Bidder, Member or Associate, as the case may be) in the other Bidder, its consortium member or Associate is less than 5% (five per cent) of the subscribed and paid up equity share capital thereof. For the purposes of this Clause, indirect shareholding held through one or more intermediate persons shall be computed as follows:

– where any intermediary controlled by a person through management control or otherwise, the entire shareholding held by such controlled intermediary in any other person (the "Subject Person") shall be taken into account for computing the shareholding of such controlling person in the Subject Person; where a person does not exercise control over an intermediary, which has shareholding in the Subject Person, the computation of indirect shareholding of such person in the Subject Person shall be undertaken on

– a proportionate basis; provided, however, that no such shareholding shall be reckoned under this Sub-clause if the shareholding of such person in the intermediary is less than 26% (twenty six per cent) of the subscribed and paid up equity shareholding of such intermediary; or

3.35. **Miscellaneous**

a) The Bidding Process shall be governed by, and construed in accordance with, the laws of India and the Courts at New Delhi shall have exclusive jurisdiction over all disputes arising under, pursuant to and/ or in connection with the Bidding Process.

b) IHMCL, in its sole discretion and without incurring any obligation or liability, reserves the right, at any time, to;

   i. suspend and/ or cancel the Bidding Process and/ or amend and/ or supplement the Bidding Process or modify the dates or other terms and conditions relating thereto;

   ii. consult with any Bidder in order to receive clarification or further information;

   iii. retain any information and/ or evidence submitted to IHMCL by, on behalf of, and/ or in relation to any Bidder; and/ or

   iv. independently verify, disqualify, reject and/ or accept any or all submissions or other information and/ or evidence submitted by or on behalf of any Bidder.

c) It shall be deemed that by submitting the Bid, the Bidder agrees and releases IHMCL, its employees, agents and advisers, irrevocably, unconditionally, fully and finally from any and all liability for claims, losses, damages, costs, expenses or liabilities in any way related to or arising from the exercise of any rights and/ or performance of any obligations hereunder, pursuant hereto and/ or in connection with the Bidding Process and waives, to the fullest extent permitted by applicable laws, any and all rights and/ or claims it may have in this respect, whether actual or contingent, whether present or in future.

d) If the Bidder has committed a transgression under this RFP such as to put its reliability or credibility into question, IHMCL shall be entitled to blacklist and debar such Bidder for any future tenders/contract award process in its sole and absolute discretion.

4. PREPARATION AND SUBMISSION OF APPLICATION

a) Bid must be submitted online only at http://etenders.gov.in during the validity of registration with the e-Tendering Portal being managed by National Informatics Centre (NIC), i.e. http://etenders.gov.in. To participate in e-tendering, the intending participants shall register themselves in the website of URL.

b) Bidders/Applicants are advised to go through the FAQs, guidelines, instructions, manuals, policies, system setting procedures etc. as provided in the e-Procurement portal.

c) Tender form and relevant documents will not be sold /issued manually from offices.

d) Bidders are required to upload scanned copies of Bid Security, proof of online payment of cost Bidding Documents, Power of Attorney and other relevant document on the e-procurement portal.

e) All documents including Application Fee, EMD, Power of Attorney, relevant annexures, eligibility documents etc. need to be submitted on e-tender portal. The Bidder shall submit the scanned copy of the original documents as mentioned in the RFP along with the bid on or before due date of submission. Evaluation of bids shall be carried out with the available scanned copy of original document submitted by bidder as per RFP requirement. However, the successful bidder has to submit the original documents physically with IHMCL before the issue of LOA.

f) The date and time for online submission as mentioned in the section RFP document shall be strictly followed in all cases. The bidder/Applicants should ensure that their tender is submitted online before the expiry of the scheduled date and time. No delay on account of any cause will be entertained. Tender(s) not submitted online will not be entertained.

g) If for any reason, any interested bidder fails to complete any online stages during the complete tender cycle, IHMCL shall not be responsible for that and any grievance regarding that shall not be entertained.

4.1. **KEY DATES**

Sl. No.	Event Description	Date
1.	Invitation of RFP	25 June 2020
2.	Last date for receiving queries	10 July 2020
3.	Pre-Bid meeting [1]	13 July 2020
4.	IHMCL response to queries latest by	23 July 2020
5.	Bid Due Date	17 August 2020 (Up to 15:00 Hrs IST)
7.	Opening of Technical Bids	18 August 2020 (16:00 Hrs IST)
8.	Declaration eligible / qualified Bidders	Within 20 days from Bid Due Date
9.	Opening of Financial Bid	Within 30 days from Bid Due Date
10.	Letter of Award (LOA)	Within 60 days of Bid Due Date
11.	Validity of Bid	180 days from Bid Due Date
12.	Signing of Agreement	Within 45 days of award of LOA

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

5. CONDITIONS OF CONTRACT

5.1. Conditions of Contract

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

5.2. Governing Language

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

5.3. Applicable Law

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

5.4. Interpretation

5.4.1. In interpreting these Conditions of Contract, singular also means plural, male also means female or neuter, and the other way around. Headings have no significance. Words have their normal meaning under the language of the Contract unless specifically defined.

5.4.2. The Bidders are expected to examine all terms and instructions included in the RFP Document. During preparation of the technical proposal, the bidders shall make their own assessment of staff to undertake the assignment.

5.5. Right to Amend Project Scope

5.5.1. IHMCL retains the right to amend the Project Scope, including decrease or increase of fee plazas up to 50% of project scope as in the RFP, without assigning any reason at any time during the Contract Period. IHMCL makes no commitments, express or implied, that the full scope of work as described in this RFP will be commissioned.

5.5.2. IHMCL, may at any time, at its sole discretion defer the implementation at certain fee plazas as per its requirements.

5.6. Payment Terms

5.6.1. Payments will be made in Indian Rupees only.

5.6.2. The Master ESP shall submit invoice to IHMCL on a monthly basis.

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

5.6.4. The Master ESP shall submit all supporting documents/reports etc. as required to validate the work.

5.6.5. Payments to Master ESP

The payment shall be made on a monthly basis for all fee plazas in the zone operated & managed by the Master ESP, the payment to the Master ESP shall be calculated as below:

a) Payments for Operations & Maintenance at Live Fee Plazas

$$\text{Total Monthly Payments} = x * \{(E_{TP1} * AF_1) + (E_{TP2} * AF_2) + \ldots + (E_{TPn} * AF_n)\} - D$$

where,

i. **x** = Quoted Value for the Zone by the successful bidder for processing one ETC transaction (count) at fee plaza operated & maintained by the Master ESP

ii. $E_{TP1,2,3,\ldots n}$ = Total number of ETC Transactions (count) processed in the reported month for each fee plaza 1,2,3,…n, where n is the total no. of fee plazas operated and maintained by Master ESP in the allocated Zone.

Note: ETC count shall be based on number ETC transactions process via FASTag or any other digital modes as provisioned by Government of India from time to time. FASTag count data shall be based on the CCH/NPCI report.

iii. $AF_{1,2,3,\ldots n}$ = Adjustment Factor corresponding to the **cumulative** uptime of critical Equipment/Software in the reporting month for each fee plaza 1,2,3….n, where n is the total no. of fee plazas operated and maintained by Master ESP in the allocated Zone. The Adjustment Factor shall be determined as below:

Cumulative Uptime of all critical Equipment/Software at a Fee plaza in the reporting month	Adjustment Factor
99.5% - 100%	1
98.5% - 99.5%	0.95
97.5% - 98.5%	0.90
Less than 97.5%	Per 1% or part thereof drop in Cumulative Uptime of all Critical Equipment/Software **shall result in 0.05%** drop in Adjustment Factor

> **Cumulative Uptime of all critical Equipment/Software at a Fee plaza in the reporting month of <97.5% for a period of 3 consecutive months at any fee plazas may lead to descoping of the fee plaza from the scope of work at discretion of IHMCL.**

Cumulative Uptime of all Critical Equipment/Software shall be calculated on the basis of daily average uptime (combined) of all Critical Equipment/Software at the fee plaza. The Critical Equipment/Software at Fee plaza for the purpose of Cumulative Uptime calculation as above are as under:

(a) RFID Reader

(b) Toll Lane Controller System

(c) Automatic Vehicles Classification Controller and Sensor

(d) License Plate Image Capture Camera

(e) Incident Capture Camera

(f) Toll Management Software application

Cumulative uptime calculation shall exclude any scheduled downtime, subject to agreed schedule, vandalism damage, accidental damage, Force Majeure events or any other situation which is not attributable Master ESP's to failure to exercise due care in performing its responsibilities.

Illustration of calculation of cumulative uptime of Critical Equipment/Software at a Fee plaza (For a 30-day month)

Critical Equipment/Software	Day 1	Day 2	Day 3	…..	Day 30
RFID Reader	100.00%	99.50%	100.00%		100.00%
Toll Lane Controller System	99.50%	98.00%	100.00%		100.00%
Automatic Vehicles Classification Controller and Sensor	99.00%	99.50%	100.00%		100.00%
Automatic Boom Barrier	100.00%	99.70%	100.00%		98.00%
License Plate Image Capture Camera	100.00%	99.80%	100.00%		98.00%
Toll Management Software application	100.00%	100.00%	100.00%		100.00%
Average Combined Uptime for the Day	99.75%	99.42%	100.00%		99.33%

Cumulative Uptime of all critical Equipment/Software at the fee plazas for the reporting month = Average of (99.75%, 99.42%, 100.00%, ……, 99.33%)

iv. **D** = Other deductions, if any for breach in SLA as defined in the Section 6 of the RFP.

5.6.6. **Payments for CAPEX Reimbursement**

The CAPEX Cost reimbursement shall be paid as below:

Milestone	Description	Payment Percentage
For New Fee Plaza allocated for ETC infrastructure installation during Contract Period		
1st Milestone	Upon delivery of ETC equipment/system at site location/fee plaza.	40% of total CAPEX cost of line items delivered at the site/fee plazas
2nd Milestone	After successful installation and integration with Central Clearing House1 (CCH) for each fee plaza	40% of the CAPEX cost for the fee plaza Gone - Live
3rd Milestone	On successful acceptance of Site Acceptance Test (SAT) by IHMCL, or concerned PD/RO or its authorised representatives	Remaining 20% of the CAPEX cost for the fee plazas

5.6.7. The unit rates for the CAPEX line items shall be as per the L1 rates discovered by IHMCL and shall remain fixed for three years w.e.f. the date of signing of the Contract. The latest discovered L1 rates of BoQ line items are provided at Annexure – 13. After completion of three years, the L1 rates may be revised as per new L1 rates discovered by IHMCL through tendering.

5.7. **Prices**

5.7.1. GST as applicable, which will be levied on the goods and services invoiced by the Successful bidder to IHMCL, will be reimbursed on actual basis.

5.7.2. IHMCL reserves the right to ask the Successful bidder to submit proof of payment against any of the taxes, duties, levies indicated.

5.7.3. All payments shall be made subject to adjustment of applicable damages.

5.7.4. No amount or cost shall be payable for holding discussion, as considered necessary by IHMCL, for any purpose with IHMCL's Officials at IHMCL's Head Office or elsewhere, prior, during or after the conduct of an assignment.

5.7.5. Quoted Value by the bidder shall be excluding GST and fixed for the entire Contract period.

5.8. **Start of Assignment**

5.8.1. Successful bidder shall commence installation/ takeover of fee plazas for operationalizing ITS equipment as the case may be from the date of signing of contract agreement or date of issuance of instruction for commencement notice issued by IHMCL.

5.8.2. The Successful bidder shall have sufficient teams to complete the assignment and submit the deliverables as per scope of work defined in RFP. Non-fulfillment of this requirement or delay in submission of reports would attract penalties.

5.9. **Damages**

5.9.1. As defined in Section 6 of this RFP.

5.10. **Contract Period**

5.10.1. The Contract Period for the Project shall be Five (05) years from date of signing of Contract Agreement.

5.10.2. The period of Contract duration may be further extendable up to additional 5 years at the sole discretion of IHMCL on the same terms and conditions as defined in RFP.

5.11. **Insurance**

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

5.12. **Force Majeure**

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

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

5.13. **Indemnification**

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

5.13.2. The Successful Bidder shall indemnify IHMCL Indemnified Persons from all legal obligations in respect of professionals deployed by the Successful Bidder. IHMCL Indemnified Persons shall also stand absolved of any liability on account of death or injury sustained by the Successful Bidder's workmen, staff/employees during the performance of their work and also for any damages or compensation due to any dispute between the Successful Bidder and its workmen, staff/employees.

5.13.3. In addition to the aforesaid, the Successful bidder shall fully indemnify, hold harmless and defend IHMCL Indemnified Persons from and against any and all direct loss, damage, cost and expense of whatever kind and nature (including, without limitation, legal fees and other expenses incurred in connection with any suit, action or proceeding or any claim asserted, as such fees and expenses are incurred), joint or several, that arise out of, or are based upon any demands, claims, suits or proceedings arising out of claims of infringement of any domestic or foreign patent rights, copyrights or other intellectual property, proprietary or confidentiality rights with respect to any materials, information, design or process used by the Successful Bidder or by its Agents in performing the Successful bidder's obligations or in any way incorporated in or related to this Contract. If in any such suit, action, claim or proceedings, a temporary restraint order or preliminary injunction is granted, the Successful bidder shall make every reasonable effort, by giving a bond (of the type and value as required) or otherwise, to secure the revocation or suspension of the injunction or restraint order and continue to perform its obligations hereunder. If the Successful bidder is unable to secure such revocation within a reasonable time, it shall, at its own expense, and without impairing the Specifications and Standards, shall rectify such defaults and shall also be liable for damages to IHMCL for the corresponding loss during the interim period on this account.

5.13.4. The provisions of Clause 5.13 shall survive Termination.

5.13.5. The remedies provided under Clause 5.13 are not exclusive and shall not limit any rights or remedies that may otherwise be available to IHMCL Indemnified Persons at law or in equity.

5.14. **Termination**

5.14.1. **ON EXPIRY OF THE CONTRACT**: Subject to the condition mentioned under Clause Contract Period5.10, the Agreement shall be deemed to have been automatically terminated on the expiry of the Contract Period unless IHMCL has exercised its option to further renew the Contract Period in accordance with the provisions, if any, of the Contract.

5.14.2. **ON ACCOUNT OF FORCE MAJEURE:** Either Party shall have the right to terminate the Contract on account of Force Majeure, as set forth in Clause 5.12.

5.14.3. **ON BREACH OF CONTRACT:** IHMCL may terminate the Contract if the Successful bidder causes a **Fundamental Breach** of the Contract. **Fundamental Breach** of Contract includes, but shall not be limited to, the following:

a) The Successful bidder fails to carry out any obligation under the Contract.

b) The Successful bidder submits the IHMCL a statement which has a material effect on the rights, obligations, or interests of the IHMCL and which the Successful Bidder knows to be false.

c) The Successful bidder without reasonable excuse fails to commence the work in accordance with relevant clauses.

d) Has failed to furnish the required securities or extension thereof in terms of the Contract.

e) The Successful bidder stops work and the stoppage has not been authorized by IHMCL;

f) The Successful bidder at any time during the term of the Contract becomes insolvent or winds up its business or makes a voluntary assignment of its assets for the benefit of its creditors.

g) If the Successful bidder, in the judgment of the Employer, has engaged in the corrupt or fraudulent practice in competing for or in executing the Contract.

h) Repeated occurrence of any SLA parameter as mentioned in Section 6.7 of this RFP.

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

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

5.14.6. Notwithstanding the above, IHMCL may terminate the Contract in its sole discretion by giving 30 days prior notice without assigning any reason.

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

a) appropriate the entire Performance Security or part thereof as Damages; and

b) Debar/Blacklist the Successful bidder from participating in any other project/assignment/work of IHMCL for a period as determined by IHMCL in its sole discretion.

5.15. **Appropriation of Performance Security**

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

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

5.16. **Change Control Note (CCN)**

5.16.1. This applies to and describes the procedure to be followed in the event of any proposed change to contract, site Implementation, and Service levels. Such change shall include, but shall not be limited to, changes in the scope of services provided by Master ESP and changes to the terms of payment.

5.16.2. Change requests in respect of the contract, the site implementation, or the Service levels shall emanate from the Parties' representative who shall be responsible for obtaining approval for the change and who shall act as its sponsor throughout the Change Control Process and shall complete Part A of the CCN (Annexure 18). CCNs shall be presented to the other Party's representative who shall acknowledge receipt by signature of the authorized representative of the Purchaser.

5.16.3. Master ESP and Authority while preparing the CCN, shall consider the change in the context of whether the change is beyond the scope of Services including ancillary and concomitant services required

5.16.4. The CCN shall be applicable for the items which are beyond the stated/implied scope of work as per the RFP document.

5.17. Insurance

5.17.1. Insurance during the Contract Period

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

(a) Hardware delivered and installed to the extent possible at the replacement value with IHMCL as beneficiary.

(b) Master ESP's all risk insurance with JSCL as co-beneficiary;

(c) Comprehensive third party liability insurance with the IHMCL as co-beneficiary;

(d) Workmen's compensation insurance with the IHMCL as co-beneficiary;

(e) Any other insurance that may be necessary to protect the Master ESP, its employees and the Project against loss, damage or destruction at replacement value including all Force Majeure Events that are insurable and not otherwise covered in items (a) to (d) with IHMCL as beneficiary/co-beneficiary;

5.17.2. Evidence of Insurance Cover

(a) The Master ESP shall, from time to time, provide to IHMCL copies of all insurance policies (or appropriate endorsements, certifications or other satisfactory evidence of insurance) obtained by it in accordance with Contract Agreement.

(b) If Master ESP shall fail to effect and keep in force the insurance for which it is responsible pursuant hereto , IHMCL shall have the option to take or keep in force any such insurance, and pay such premium and recover all costs thereof from Service Provider or to forfeit deposit/ Performance guarantee from the Master ESP and pay or restoration for the same.

5.17.3. Application of Insurance Proceeds

(a) All moneys received under insurance policies shall be promptly applied by the Master ESP towards repair or renovation or restoration or substitution of the Project or any hardware/equipment/device thereof which may have been damaged or required repair/modification.

(b) The Master ESP shall carry out such repair or renovation or restoration or substitution to the extent possible in such manner that the Project, or any part thereof, shall, after such repair or renovation or restoration or substitution be as far as possible in the same condition as they were before such damage or destruction, normal wear and tear excepted.

(c) For insurance policies where IHMCL is the beneficiary and where it received the insurance proceeds, only such sums are required from the insurance proceeds for restoration, repair and renovation of the Project

5.17.4. Validity of Insurance Cover

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

5.18. Miscellaneous

5.18.1. Standard of Performance

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

5.18.3. Representations and Warranties of the Parties

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

   i.   it is duly organized and validly existing under the applicable laws, and has full power and authority to execute and perform its obligations under this Contract and to carry out the Scope of Work/transactions contemplated herein this Contract and nothing material has been concealed by the Successful bidder;

   ii. it has taken all necessary corporate and other actions under applicable laws to authorize the execution and delivery of this Contract and to validly exercise its rights and perform its obligations under this Contract;

   iii. this Contract constitutes its legal, valid and binding obligation, enforceable against it in accordance with the terms hereof, and its obligations under this Contract will be legally valid, binding and enforceable obligations against it in accordance with the terms hereof;

   iv. the information furnished in the Bid and as updated on or before the date of this Contract is true and accurate in all respects as on the date of this Contract;

v. the execution, delivery and performance of this Contract will not conflict with, result in the breach of, constitute a default under, or accelerate performance required by any of the terms of its Memorandum and Articles of Association [or those of any member of the Consortium] or any Applicable Laws or any covenant, contract, agreement, arrangement, understanding, decree or order to which it is a party or by which it or any of its properties or assets is bound or affected;

vi. there are no actions, suits, proceedings, or investigations pending or, to its knowledge, threatened against it at law or in equity before any court or before any other judicial, quasi-judicial or other authority, the outcome of which may result in the breach of this Contract or which individually or in the aggregate may result in any material impairment of its ability to perform any of its obligations under this Contract;

5.18.4. **Waiver of immunity**

a) Each Party unconditionally and irrevocably:

i. agrees that the execution, delivery and performance by it of this Contract constitute commercial acts done and performed for commercial purpose;

ii. agrees that, should any proceedings be brought against it or its assets, property or revenues in any jurisdiction in relation to this Contract or any transaction contemplated by this Contract, no immunity (whether by reason of sovereignty or otherwise) from such proceedings shall be claimed by or on behalf of the Party with respect to its assets;)

iii. waives any right of immunity which it or its assets, property or revenues now has, may acquire in the future or which may be attributed to it in any jurisdiction; and

iv. consents generally in respect of the enforcement of any judgment or award against it in any such proceedings to the giving of any relief or the issue of any process in any jurisdiction in connection with such proceedings (including the making, enforcement or execution against it or in respect of any assets, property or revenues whatsoever irrespective of their use or intended use of any order or judgment that may be made or given in connection therewith).

5.18.5. **Waiver**

a) Waiver, including partial or conditional waiver, by either Party of any default by the other Party in the observance and performance of any provision of or obligations under this Contract:

i. shall not operate or be construed as a waiver of any other or subsequent default hereof or of other provisions of or obligations under this Contract;

ii. shall not be effective unless it is in writing and executed by a duly authorized representative of the Party; and

iii. shall not affect the validity or enforceability of this Contract in any manner.

b) Neither the failure by either Party to insist on any occasion upon the performance of the terms, conditions and provisions of this Contract or any obligation there under nor time or other indulgence granted by a Party to the other Party shall be treated or deemed as waiver of such breach or acceptance of any variation or the relinquishment of any such right hereunder.

5.18.6. **Liability for review of Documents**

a) Except to the extent expressly provided in this Contract:

i.   no review, comment or approval by IHMCL, any document submitted by the Successful bidder nor any observation or inspection of the Services performed by the Successful bidder nor the failure to review, approve, comment, observe or inspect hereunder shall relieve or absolve the Successful bidder from its obligations, duties and liabilities under this Contract, the Applicable Laws and applicable permits; and

ii.   IHMCL shall not be liable to the Successful bidder by reason of any review, comment, approval, observation or inspection referred to in Sub-clause (a) above.

5.18.7. **Exclusion of implied warranties etc.**

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

5.18.9. **Survival**

a) Termination shall:

i.   not relieve the Successful bidder or IHMCL, as the case may be, of any obligations hereunder which expressly or by implication survive Termination hereof; and

ii.   except as otherwise provided in any provision of this Contract expressly limiting the liability of either Party, not relieve either Party of any obligations or liabilities for loss or damage to the other Party arising out of or caused by acts or omissions of such Party prior to the effectiveness of such Termination or arising out of such Termination.

b) All obligations surviving Termination shall only survive for a period of 3 (three) years following the date of such Termination.

5.18.10. **Entire Agreement**

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

5.18.11. **Severability**

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

5.18.12. No partnership

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

5.18.13. Third parties

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

5.18.14. Successors and assigns

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

5.18.15. Dispute resolution procedure

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

ii. The Parties agree to use their best efforts for resolving all Disputes arising under or in respect of this Agreement promptly, equitably and in good faith. In the first instance, the Dispute shall be referred to the Chairman of the IHMCL and the Chairman of the Board of Directors (or equivalent) of the Successful Bidder or their nominees for amicable settlement, and upon such reference, the said persons shall meet no later than 7 (seven) business days from the date of reference to discuss and attempt to amicably resolve the Dispute. If such meeting does not take place within the 7 (seven) business day period or the Dispute is not amicably settled within 15 (fifteen) days of the meeting or such longer period as may be mutually agreed by the Parties, either Party may refer the Dispute to arbitration.

iii. Any Dispute which is not resolved amicably shall be finally settled by arbitration to be conducted in accordance with the rules of arbitration of the Society For Affordable Redressal Of Disputes (SAROD).

iv. The venue of such arbitration shall be Delhi.

v.   The rights and obligations of the Parties shall remain in full force and effect, pending the Award in any arbitration proceedings hereunder. The parties unconditionally acknowledge and agree that notwithstanding any dispute between them, each Party shall proceed with the performance of its respective obligations, pending resolution of Dispute in accordance with the procedure agreed herein.

5.18.16.   **Compensation for Breach**

a) **Compensation for default by the Successful Bidder**

   i.   In the event of the Successful Bidder being in breach of this Contract, unless such default or delay is on account of Force Majeure, the Selected Bidder shall pay to IHMCL, by way of compensation, all direct costs suffered or incurred by the IHMCL as a consequence of such breach, within 30 days of receipt of the demand from the IHMCL.

   ii.   Without limiting generality of the Clause 5.16.17 (i), the Successful Bidder shall pay to IHMCL by way of compensation, all direct costs suffered or incurred by IHMCL incurred as a result of any and all losses, claims, damages and liabilities (including, without limitation, legal fees and other expenses incurred in connection with any suit, action or proceeding or any claim asserted, as such fees and expenses are incurred), joint or several, that arise out of , or based upon:

   a) any untrue statement or misrepresentation of a material fact provided by the Successful Bidder or an omission to state a material fact required to be communicated.

   b) any non-performance or breach of the roles, responsibilities, representations, warranties, undertakings, and declarations contained herein by the Successful Bidder or its directors, employees, personnel or representatives, as the case may be.

   c) Negligence, fraud or misconduct of the Successful Bidder or any of its employees, agents, affiliates or advisors.

5.18.17.   **Limitation of Liability**

The Successful Bidder's liability under this Contract shall be determined as per Applicable law. The Successful Bidder shall be liable to IHMCL for loss or damage occurred or caused or likely to occur on account of any act of omission on the part of the Successful Bidder its affiliates, subsidiaries, stockholders, subcontractors, suppliers, directors, officers, employees, assigns and agents, including loss caused to IHMCL on account of defect in goods or deficiency in services on the part of Successful Bidder or his agents or any person / persons claiming through or under said Successful Bidder.

5.18.18.   **Intellectual Property Rights**

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

5.18.19. **Notices**

a) Any notice or other communication to be given by any Party to the other Party under or in connection with the matters contemplated by this Contract shall be in writing and shall:

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

  ii. in the case of IHMCL, be given by facsimile or e-mail and by letter delivered by hand and be addressed to the [•] of IHMCL with a copy delivered to IHMCL Representative or such other person as IHMCL may from time to time designate by notice to the Successful bidder; provided that if the Successful bidder does not have an office in Delhi it may send such notice by facsimile or e-mail and by registered acknowledgement due, air mail or by courier; and

  iii. any notice or communication by a Party to the other Party given in accordance herewith shall be deemed to have been delivered when in the normal course of post it ought to have been delivered and in all other cases, it shall be deemed to have been delivered on the actual date and time of delivery; provided that in the case of facsimile or e-mail, it shall be deemed to have been delivered on the working day following the date of its delivery

5.18.20. **Sub-Contracting**

The Successful bidder shall not sub-contract any assignment (excluding minimum permissible civil work with written intimation to IHMCL) to a third party. The Successful bidder shall remain solely responsible for all works under this Agreement.

5.18.21.   **Confidentiality of the Assignment/Findings**

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

5.18.22.   **Modification**

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

5.18.23.   **Language**

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

6. Scope of Work

6.1. Project Background

6.1.1. Phase I of Nation-wide Electronic Toll Collection (NETC) Program was launched in 2014 with ICICI bank operating at approx. 340 NH fee plazas. Subsequently, in phase II, in order to enable inter-operability, Multiple-Issuer-Multiple-Acquirer model was adopted in December 2016. In phase II, National Payments Corporation of India (NPCI) is functioning as the Central Clearing House (CCH). Currently, 27 banks (including Public and Private sector banks) are certified as issuer Banks to issue FASTag to road users and 10 acquirer banks are certified to process transactions at fee plazas.

6.1.2. In July 2019, the Ministry announced the FASTag mandate of declaring all lanes of NH fee plazas as "FASTag lane of Fee Plaza" w.e.f. 1st Dec 2019 onwards. As a result, toll collection via FASTag has grown significantly. As a result, the daily ETC collection via FASTag has touched Rs. 70 crores in February 2020, averaging daily ETC collection of Rs. 62.49 Cr, as compared to average daily ETC collection of Rs. 19.6 Cr in July 2019.

6.1.3. The Electronic Toll Collection (ETC) infrastructure comprising ETC readers, TMS software, Servers, Internet connectivity, etc. at user fee plazas are supplied, installed, tested, commissioning and managed by different System Integrators (SI) across over 550 NH fee plazas.

6.1.4. A system Integrator (SI) or ETC system Service Provider is an important stakeholder in NETC programme, and some operational roles of System Integrators are as follows: -

   a) Capturing and processing ETC (FASTag) transactions and other mode of transactions through ETC system

   b) Capture violation transactions and wrong class transaction with picture image

   c) Facilitate toll collection agency with automation of transaction processing, revenue settlement, minimizing fraud transaction etc.

   d) Installation, Commissioning and Integration of ETC equipment's in Fee Plaza

6.1.5. As on date, over 15 different System Integrators have been engaged by different entities such as NHAI, IHMCL, Concessionaire etc. to provide ETC services at various fee plazas. The service models are different based on Contract Agreement mainly as below:

   a) CAPEX + O&M model

   b) OPEX model `

6.2. **Scope Overview**

6.2.1. The broad responsibilities of The Master ESP in its allocated zone are as below:

a) Overall responsibility for overall maintenance and functioning of ETC system at fee plazas in its allocated Zone.

b) Deploy standardized **Toll Management Software (TMS)** conforming to the Proprietary TMS of IHMCL or deploy the Proprietary TMS of IHMCL, as per requirement of IHMCL. Compliance to ICD 2.5 specification or latest to enable real-time based transaction processing.

c) Replacement/upgradation of critical ETC equipment at existing fee plazas which has exceeded pre-defined end-of-life or end-of-support or damaged.

d) Supply, Installation and Commissioning of ETC system at fee plazas (for new green field plazas or at fee plazas where Contract with existing vendor has expired) as required.

e) **Real-time monitoring** of toll collection and health status of critical equipment at fee plazas,

f) Shall provide data feed for all fee plazas to the central Toll Monitoring & Control Centre (TMCC) at IHMCL HQ/IHMCL for **monitoring and remote viewing** of all fee plazas under each zone.

g) Provide **uniform system generated MIS reports** to IHMCL, IHMCL and concerned PD/RO

h) Scalability and adaptability to **emerging mode of payments** like card-based payments, mobile-payments, QR based payment etc.

i) Prompt support in time-bound redressal of customer complaints pertaining to ETC transaction generated from fee plazas

6.3. **Geographic Coverage of the Project**

The Master ESP shall be responsible for providing services in its allocated Zone only. The Zone-wise distribution of fee plazas is as below and detailed list is placed at Annexure 15:

Zone	No. of Live Fee Plazas (as on date)	States
Zone 1	129	• Delhi • Haryana • Himachal Pradesh • Jammu & Kashmir • Punjab • Uttar Pradesh • Uttarakhand

Zone	No. of Live Fee Plazas (as on date)	States
Zone 2	156	• Gujarat • Rajasthan • Maharashtra
Zone 3	132	• Assam • Bihar • Chhattisgarh • Jharkhand • Madhya Pradesh • Odisha • West Bengal
Zone 4	157	• Andhra Pradesh • Karnataka • Kerala • Tamil Nadu • Telangana

6.4. Detailed Scope of Work

6.4.1. Operation & Maintenance of ETC system

a) The Master ESP shall take over all ETC equipment on **As-Is** basis at the allocated toll plazas and carryout proactive and reactive maintenance, repair and replacement of defective components (IT and Non-IT/ Hardware and Software), or replacement as required to maintain the SLAs in the RFP throughout the Contract Period. The cost for repair and replacement shall be borne by the Master ESP and shall be deemed to be factored in the quoted value by the Master ESP.

b) The Master ESP shall be deemed to have visited and examined the site(s) and taken stock of the existing ETC equipment/system, Make & Model, working condition, balance service life etc. and accordingly factored aby cost as such in the project cost (Quoted Value) before bidding.

c) The Master ESP shall start operation & maintenance of ETC system at fee plazas after a smooth transition from the existing vendor within 15 days of the handover of the fee plaza to Master ESP.

d) The Master ESP shall it and carryout repair, upgradation or replacement as required to maintain the SLAs of this RFP. The cost of the repair, upgradation or replacement as may be required will be deemed to be included in the quoted cost..

e) The Master ESP shall ensure to keep a proper inventory of the ETC infrastructure installed at fee plazas throughout the Contract period.

f) The Master ESP shall ensure compliance to Circulars/guidelines of IHMCL for NETC programme, as applicable for System Integration services at Fee Plazas, as released by IHMCLIHMCL from time to time.

g) The Master ESP shall ensure availability of seamless internet connectivity requirements (public IP address/static IP address) at fee plazas. No downtime of internet shall be accepted, except case under Force Majeure events. The Master ESP shall provision for primary and secondary internet connection.

h) Post Hand Over Take Over process of ETC system at Fee plazas, the Master ESP shall be fully responsible for the safety of ETC equipment. Any equipment gets non-functional after certification due to any reason whatsoever, excluding scenarios covered under Force Majeure then Successful bidder shall replace/repair as per SLA. The Master ESP should keep spare items of critical ETC equipment such as RFID Reader, Boom Barrier, AVCC system, etc. for quicker turn around time.

i) The time for rectification of fault due to which equipment/lane are down should not exceed permissible downtime as per SLA.

j) Ongoing maintenance, repair and replacement of all hardware, software, peripherals and sub-components of all BOQ items shall be the responsibility of Master ESP without any financial implication to IHMCLIHMCL. Any ETC hardware item shall be replaced within SLA period as defined.

k) The Master ESP shall provide 03 Site Engineers (03 shifts) provisioning for 01 back up at each fee plazas to ensure 24*7 onsite support. The site engineer shall be at least Graduate or Diploma in Engineering, preferably in Electrical/Electronic/IT/Computer Science or equivalent.

l) The Master ESP shall adhere to the maintenance of ETC & TMS Equipment, Periodic Preventive Maintenance of equipment, Timely Corrective Maintenance, Software Maintenance, Remote Software support for the ETC & Toll System.

m) The Master ESP shall take prior approval from respective PIU/IHMCL before updating any version of Lane / Plaza application, for which, a software modification request shall be submitted to PIU/IHMCL for seeking approval.

n) The Master ESP shall promptly update the details of the toll operating agency/Concessionaire in the system in case of any change/roll over as per direction of IHMCLIHMCL.

o) IHMCLIHMCL holds the right to ask Successful bidder to replace any staff if found and proved unsuitable/ indulged in unwanted activities.

p) The Master ESP shall take adequate measures to protect ETC system from any Malware/Ransomware attack at fee plazas.

q) The Master ESP shall provide license-based software/application like Operating System, database, Antivirus etc. The same will be verified during Site Acceptance Test.

r) The Master ESP shall replace such ETC equipment which gets non-functional due to pre-defined OEM end of life or end of support.

s) The Master ESP shall ensure to provide Servo Voltage Stabilizer-3 Phase of Minimum 60 KVA. The liability to provide stable voltage to equipment is with Master ESP. Any equipment fault owing to voltage fluctuation shall be consider under normal equipment downtime and under the liability of Master ESP.

t) The Master ESP shall ensure to provide hardware firewall device to protect against Malware entering the network.

u) The Master ESP shall have to stock and provide adequate onsite and offsite spare parts and spare component to ensure that the uptime commitment as per SLA is met. To provide this service it is important for the Master ESP to have back to back arrangement with the OEMs.

v) The Master ESP shall also maintain records of all maintenance of the system and shall maintain a logbook on-site that may be inspected by the IHMCL or its representatives as required.

6.4.2. Supply, Installation, Commissioning and Go-Live of ETC system at new Fee plazas during Contract Period

a) Supply, Installation, and Integration

i. The Master ESP shall install, integrate, test, commission, operate and maintain ETC System in all the lanes of the Toll Plazas. The list of equipment to be installed and commissioned for ETC System and their minimum technical specifications have been provided in the RFP.

ii. Successful bidder shall complete the Installation, Integration, Commissioning of ETC system and sub systems at allocated toll plaza within **60 days of the receipt of notification/Site readiness**. The Successful bidder shall be responsible for system integration so that the ETC System including the sub-system(s) work coherently and are able to exchange data/information electronically, among themselves (if applicable), as well as with the acquirer bank and central clearing house for ETC program without any financial implication to Toll Operating Agency and IHMCL.

iii. The Master ESP shall commence the Services, in respect of deploying the manpower for auxiliary works & starting delivery of equipment on sites, within fifteen (15) days of date of allocation of work.

iv. IHMCL shall notify the Master ESP 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

v. The Master ESP shall be fully liable for the safety of supplied equipment/sub-equipment/consumable before conducting Site Acceptance, in case any supplied equipment/sub-equipment/consumable gets non-functional/damaged before conducting SAT

then Master ESP shall provide the replacement of damaged ETC equipment item without imposing any extra charges to IHMCL.

vi. The Master ESP shall ensure to complete all pre-requisite minor civil works i.e. pole foundation/ sensor foundation/ cabling chamber/lane ducting, plaza to Lane connectivity, etc. pertains to ETC system. Major civil works i.e. PQC work, toll plaza canopy, Permanent Toll booth, Median Extension etc. are not in the scope of Successful bidder.

b) Operation & Maintenance (O&M) at new plazas

i. O&M will commence from the date of Go-Live for the entire Contract period.

ii. Maintenance, repair and replacement of all hardware, software, peripherals and sub components of all BOQ items shall be the responsibility of Successful bidder without any cost to IHMCL.

iii. Successful bidder shall be fully responsible for the warranty of all items which shall be supplied by them. Successful bidder shall ensure to resolve all faults of equipment/Sub-equipment/consumables which are linked to spare dependency within 24 hours from the time when the fault actual occurs and for this as indicated through equipment monitoring toll or intimated by IHMCL/Toll Operating Agency, adequate spare quantity to be maintained at site level for critical items specially ETC equipment.

iv. All other activities as mentioned in above clause 6.4.1

6.4.3. **Deployment of Proprietary Toll Management Software (PTMS)/ICD 2.5 or Latest**

a) The Master ESP shall integrate, operationalize & maintain the ETC system & sub-systems with TMS software conforming to the standard and specifications of Proprietary TMS (PTMS) of IHMCL within 15 days of toll plaza handover for existing fee plazas. For new fee plazas, PTMS and ICD 2.5 (or latest)shall have to deployed from date of Go-Live.

b) The detailed requirements and specification of PTMS is provided in subsequent section of this RFP.

c) The Master ESP shall ensure implementation of Interface Control Document (ICD) 2.5 or latest version at the allocated fee plaza in co-ordination with concerned Acquirer Bank & the CCH Service Provider National Payments Corporation of India (NPCI).

6.4.4. **Real-Time Monitoring and MIS**

a) The Master ESP shall provide a central system for real-time monitoring of traffic data, equipment health status, AVC accuracy(lane wise & overall), internet speed, Lane downtime & uptime report etc. for all allocated toll plazas within 15 days of start of services at the fee plazas. The central monitoring system shall be used by IHMCL team and other Authority for equipment performance monitoring and tracking of toll data, traffic etc.

b) The Central Monitoring System shall also provide facility to calculate equipment uptime and downtime report (Daily, Weekly, Fortnightly, Monthly and Yearly) for all critical equipment like RFID reader, AVCC, TLCC, LPIC, ICS, ETC Server and internet connectivity.

c) Shall provide data feed for all fee plazas to the central Toll Monitoring & Control Centre (TMCC) at IHMCL HQ/IHMCL for **monitoring and remote viewing** of all fee plazas under each zone.

d) Shall provide **uniform system generated MIS reports** to IHMCL, IHMCL and concerned PD/RO

e) MIS reports – Some key system generated reports required to be submitted by the Master ESP are as below:

   i. Real-time lane-wise traffic count and toll collection (Cash, ETC and other modes of Payments) data – Hourly in the Central Monitoring System

   ii. Critical equipment health (Uptime/Downtime) status – Daily

   iii. Hourly Internet connectivity status – Daily

   iv. Issue Escalation Matrix – weekly

   v. Others, as required by IHMCL from time to time

6.4.5. **Data Retention, Back-up and Restore Operations**

a) 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 Master ESP shall ensure adequate security measure for safeguarding of Toll Transaction data, by providing, off site Disaster recovery or Data Storage mechanism.

b) The Master ESP 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.

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

d) Data Back-up & Restore - Master ESP shall also demonstrate the backup & restore procedure successfully. The Master ESP 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.

6.4.6. **Others**

a) **Project Insurance** - The Master ESP shall get comprehensive insurance from reputed insurance company for the project duration for all ETC equipment / components installed under this project. All such costs shall be factored in the comprehensive insurance of field equipment for the duration of the contract.

b) The Master ESP should provision for scalability and adaptability to emerging mode of payments like card-based (NCMC, Contactless, etc.) payments, mobile-payments, QR based

payment etc. The Master ESP shall assist in integration of these solutions in future as required by IHMCL.

c) The Master ESP shall provide prompt and time-bound redressal of customer complaints pertaining to ETC transaction generated from fee plazas such as double deduction, overcharging, etc. The Master ESP shall provide photo evidence, etc. as required for resolution of customer grievances.

d) Project Handover - Project Hand-over of the system at the end of contractual period along with all documentation required to operate and maintain the system Master ESP will supply to the IHMCL/NHAI the following before the expiry of the contract:

   i.   Information relating to the current services rendered and data relating to the performance of the services; Entire documentation relating to various components of the Project, any other data and confidential information related to the Project;

   ii. All other information (including but not limited to documents, records and agreements) relating to the products & services related to the project to enable IHMCL/NHAI and its nominated agencies, or its replacing Master ESP to carry out due diligence in order to transition the provision of the Project Services.

6.5. IHMCL's Responsibility

a) IHMCL shall observe, undertake, comply with and perform, in addition to and not in derogation of its obligations elsewhere set out in this Agreement, the obligations set forth in this Article:

b) To release payments to Master ESP in accordance with the Agreement

c) To reasonably cooperate with the Master ESP to enable it to render its services in terms of the Agreement.

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

6.6. Successful bidder's Responsibility

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

a) To perform the Scope of Work as set out in Section 6, for Operation & Maintenance of ETC system at the allocated fee plazas;

b) To be responsible for compliance with Applicable Laws;

c) To procure, as required, the appropriate proprietary rights, licenses, agreements and permissions for, inter alia, materials, methods, processes, software, operating systems, designs, trademarks, documents and systems used or incorporated into the ETC system.

d) To provide Performance Security in the form of Bank Guarantee to IHMCL, in accordance with relevant section of RFP;

e) To carry out its obligations hereunder with all due diligence, efficiency and economy, in accordance with generally accepted professional techniques and practices, and to observe sound management practices, and employ appropriate advanced technology and safe and effective equipment, machinery, materials and methods;

f) To keep sufficient accessories, spares, parts, etc., while discharging Scope of Work;

g) To provide onsite support for the complete system;

h) To provide necessary information and reports including those pertaining to problems relating to HETC System to IHMCL and the entities authorized by IHMCL;

i) To be responsible and liable for the security of the overall HETC System as mentioned in RFP while the same are in possession and/or custody of successful bidder for repair and maintenance. The Master ESP shall bear the costs of repair or replacement of all HETC System in such cases;

j) To reasonably cooperate with IHMCL and other stakeholders concerned in relation to the matters covered under this Agreement; and

k) To be responsible for safety and security of its equipment and staff;

l) To deploy adequate number of resources with qualifications and skills commensurate to the job requirement;

m) To maintain adequate insurance covers to safeguards its interest regarding any loss/damage/theft to its equipment and or personal during conduct of the assignment;

n) Indemnify IHMCL against any damage/loss of property or personal of the agency during conduct of assignment.

o) Sign the Non-Disclosure Agreement (NDA) with IHMCL.

6.7. **Service Levels (SLA)/ Damages**

6.7.1. The Master ESP shall be responsible for adhering to the minimum SLA standards while performing its Scope of Work, failing which it shall be liable for deduction of penalty/damage from its payment as specified in this RFP. The Successful bidder needs to adhere with SLA as defined below, in case of failure in meeting SLA , penalty shall be imposed as applicable.

6.7.1.1. **Delay in Takeover of Fee Plaza: -**

a) The successful bidder shall make toll plaza start operation and maintenance of ETC system within 15 days of hand over.

b) Failure of the successful bidder to complete the above work within 15 days shall attract a penalty as below:

    i.   Up to 7 days of delay - Rs 2,000/- for each day of delay (per fee plaza)

    ii.   After 7 days of delay – Rs. 5,000/ for each day of delay (per fee plaza)

The total levied penalty for this SLA, however, shall not exceed Rs 5,00,000/- for each toll plaza.

6.7.1.2. **Delay in ETC Installation -**

a) The successful bidder shall make toll plaza live with ETC system including installation and other activities and notify IHMCL within a period of **60 days from date of Letter of Commencement** issued by IHMCL.

b) Failure of the successful bidder to complete the Installation, Integration, Commissioning of ETC system and including start of Acquiring services at toll plazas within 60 days shall attract a penalty as below:

    i.   Up to 7 days of delay - Rs 2,000/- for each day of delay (per fee plaza)

    ii.   After 7 days of delay – Rs. 5,000/ for each day of delay (per fee plaza)

The total levied penalty for this SLA, however, shall not exceed Rs 5,00,000/- for each toll plaza.

6.7.1.3. **Delay in establishment of Centralized Real Time Remote Monitoring system**

a) The successful bidder shall provide a Centralized Real Time Monitoring system which shall be installed in IHMCL premises or as decided by IHMCL. The toll plaza system shall be integrated with **Centralized Real Time Remote Monitoring system** within 15 days of start of Operation and Maintenance services.

b) Failure of the successful bidder to provide **Centralized Real Time Remote Monitoring system** by integrating toll plazas within 15 days shall attract a penalty as below:

    i.   Up to 7 days of delay - Rs 2,000/- for each day of delay (per fee plaza)

    ii.   After 7 days of delay – Rs. 5,000/ for each day of delay (per fee plaza)

The total levied penalty for this SLA, however, shall not exceed Rs 5,00,000/- for each toll plaza.

6.7.1.4.   **System Downtime Calculation: -**

a) **Lane Equipment**

i.   The uptime availability of all Critical equipment of ETC system shall be **99.5% per lane per month.**

ii. The downtime for a toll lane shall be calculated at a cumulative level when any of the **critical equipment** as mentioned below is non-operational for that specific lane: -

(a) RFID Reader

(b) Toll Lane Controller System

(c) Automatic Vehicles Classification Controller and Sensor

(d) Automatic Barrier

(e) License Plate Image Capture Camera

(f) Incident Capture Camera

(g) Toll Management Software application

iii. For all other Equipment of ETC System the uptime availability shall be **98% per lane per month.**

iv. Scheduled downtime is defined as a period of time when system will remain unavailable for conducting necessary preventive maintenance, urgent repairs etc.

v.   The formula for calculation of ETC System availability shall be as follows:

System Uptime = [1 − {A/(B − C)}*100], where

> A = Time for which system is down per month basis scenarios
>
> B = Total time in a month
>
> C = Scheduled downtime (as mentioned in clause 6.7.1.4 sub clause (a) (iv))

vi. The Successful bidder shall maintain adequate inventory/spares to ensure the service levels as mentioned in clause 6.7.1.4 sub clause (a) i and iii.

vii. In case of non-adherence to service levels as defined in clause 6.7.1.4 sub clause (a) (iii) of RFP, the penalty for deficiency of services beyond permissible downtime and scheduled downtime shall be imposed as follows: -

- Upto 1 hrs -1% of the monthly payment per plaza

- Upto 1 to 2 hrs -2% of the monthly payment per plaza

- Upto 2 hrs to 3 hrs- 3% of the monthly payment per plaza

- Upto 3 hrs to 5 hrs- 5% of the monthly payment per plaza

- Upto 5 hrs to 10 hrs- 10% of the monthly payment per plaza

- Greater than 10 hrs- 25% of the monthly payment per plaza

viii. **It may be noted that the penalty in deficiency of downtime of the critical equipment as defined in 6.7.1.4 sub clause (a) (i) shall be calculated based on Adjustment Factor as defined in clause 5.6.5 (a) – Payments for Operations & Maintenance at Live Fee plazas. There shall be no duplicity in penalty calculation for system downtime of critical equipment under this clause 6.7.1.4 sub clause (a).**

ix. **Deficiency of services beyond 10 hours of the permissible downtime of any of the critical equipment as listed in (ii) above for a period of 3 consecutive months at a Toll plazas would be deemed to be an event of Fundamental Breach of Contract, and shall be treated as per process defined in Clause 5.14.3.**

b) Plaza Building Equipment

i. The uptime availability of all Critical equipment of plaza building shall be **99% per lane per month.** The details of critical equipment of Plaza building is as mentioned below: -

- ETC Server

- Network Video Recorder

- Master Intercom System

- Plaza UPS system

- Internet connection

- 24 Port Network switch (Layer 3)

ii. For all other Equipment of Plaza Building, the uptime availability shall be 98% per lane per month.

iii. Scheduled downtime is defined as a period of time when system will remain unavailable for conducting necessary preventive maintenance, urgent repairs etc.

iv. The formula for calculation of Plaza Building system availability shall be as follows:

System Uptime = $[1 – \{A/(B – C)\}*100]$, where

A = Time for which system is down per month basis scenarios

B = Total time in a month

C = Scheduled downtime (as mentioned in clause 6.7.1.4 sub clause (b) iii)

v. The Successful bidder shall maintain adequate inventory/spares to ensure the service levels as mentioned in clause 6.7.1.4 sub clause (b) i and ii.

vi. In case of non-adherence to service levels as defined in clause 6.7.1.4 sub clause (b) i and ii of RFP, the penalty for deficiency of services beyond permissible downtime and scheduled downtime shall be imposed cumulatively as follows: -

- Up to 1 hrs -1% of the monthly payment per plaza

- Up to 1 to 2 hrs -2% of the monthly payment per plaza

- Up to 2 hrs to 3 hrs- 3% of the monthly payment per plaza

- Up to 3 hrs to 5 hrs- 5% of the monthly payment per plaza

- Up to 5 hrs to 10 hrs- 10% of the monthly payment per plaza

- Greater than 10 hrs- 25% of the monthly payment per plaza

x. In case the Service level Requirements are violated repeatedly, IHMCL reserves the right to terminate the whole Contract or descope a particular toll plaza by giving a written notice of 30 days to the Successful bidder.

xi. The Successful bidder shall ensure to provide **minimum 98% AVC accuracy** for each lane and if any non-conformity beyond the specified accuracy level is observed, following penalties will be imposed on the Successful bidder:

- 98% and Above each lane – Nil

- Below 98% up to 96 % -1% of the monthly payment for that Lane

- Below 96% up to 94 % -2% of the monthly payment for that Lane

- Below 94% up to 92 % -5% of the monthly payment for that Lane

- Below 92% up to 90 % -10% of the monthly payment for that Lane

- Below 90% - No monthly payment will be paid for that lane

xii. The Successful bidder shall ensure that all ETC transactions shall be uploaded and downloaded as per ICD 2.5 document and PG Guidelines, as amended from time to time. In case of any deficiency in adherence of ICD 2.5 document and PG Guidelines, the Successful bidder shall be fully responsible to provide settlement to the toll agencies for any rejection or non-uploading of ETC transaction. In case, settlement is not provided to toll agencies, IHMCL shall recover the same amount from monthly payment.

xiii. The successful bidder shall ensure implementation of ICD 2.5 document as and when intimated by IHMCL within 30 days of handover of fee plazas, delay in implementation shall attract penalty as below:

- Up to 7 days of delay - Rs 5,000/- for each day of delay (per fee plaza)

- After 7 days of delay – Rs. 10,000/ for each day of delay (per fee plaza)

The total levied penalty for this SLA, however, shall not exceed Rs 5,00,000/- for each toll plaza.

xiv. The Successful bidder along with the Toll Operating Agency shall ensure that all transaction files of the ETC systems are uploaded as per the service levels defined in the NETC program.

xv. The successful bidder shall provide system generated reports in support of above-mentioned SLA as per required by IHMCL.

6.7.1.5. **Systems Maintenance**

The minimum required activities to be performed at site/fee plaza to meet the service level requirements with respect to system maintenance as provided as below. This shall include minimum following elements:

a) Scheduled/Routine Maintenance of ETC system

b) Breakdown/Corrective Maintenance

c) Software Upgrades - From time to time

d) Verify and perform System Calibration - Calibration *(if required)* shall be performed at least once per year on relevant equipment.

e) Software Support Service & Network Solution Service

f) Technical Support

6.7.1.6. **Downtime tracking**

The successful bidder should provide login credential to Toll Operating/PIU for reporting system related issue on portal for each plaza. Each issue highlighted on portal to be tracked for downtime. Supporting photograph as evidence along with brief description for rectification of issue to be provided to be provided by successful bidder for closing the issue. Option to download plaza wise downtime tracking report should be made available in system.

6.7.1.7. **Spares**

Successful bidder shall ensure availability of sufficient spares at each plaza to meet the SLA. Penalty of Rs. 5,000/- to maximum of Rs. 50,000/- per incidence per plaza shall be imposed.

Monthly spare availability and consumption report should be made available to IHMCL.

6.7.1.8. **Preventive Maintenance**

The successful bidder should provide preventive maintenance schedule for each plaza not later than 3rd working day of each month. The preventive maintenance schedule of equipment should be bifurcated on daily, weekly, bi-monthly and monthly basis. Supporting photographs to be submitted for preventive maintenance.

In case of visit of IHMCL/NHAI it is observed that proper preventive maintenance of equipment are not carried out by successful bidder, penalty of Rs. 50,000/- per plaza shall be imposed. In case of any maintenance activity is performed without proper intimation of IHMCL/NHAI, penalty of Rs. 50,000/- per incidence shall be imposed.

6.7.1.9. **Manpower**

The successful bidder shall ensure availability of manpower as mentioned in RFP. In case of unavailability of manpower or shortfall in attendance (in shift) at site is brought to the notice of IHMCL, penalty shall be imposed as under:

- Absence of shortfall in attendance - Rs 1000/- per shift per fee plaza

  (Day shall have 3 shifts of 8 hours each)

6.7.1.10. **24X7 Support**

a) 24x7 availability of a contact center to escalate any system/ operational issue. Monitoring of entire process from lodging complaints up to resolutions through a CRM and generate system reports in support of SLA compliance.

b) 24x7 operation of the complete ETC system and deploy competent personnel to perform maintenance of ETC system as specified under the Service Level Requirements.

c) 24x7 uninterrupted availability of the complete systems, subsystems, peripherals, components commissioned at the fee plaza.

6.7.1.11. **Penalty for events of Double Deductions, non-reading of valid FASTag**

a) **Double deduction/Overcharging in FASTag**

The successful bidder shall ensure for efficient functionality of RFID readers in lanes, a single FASTag should not have two successful transactions within time difference of less than or **equal to 15 minutes** in same direction and less than or **equal to 10 minutes** in any direction at same toll plaza. There should not be any case of double/multiple deduction of FASTag account owing to multiple processing of transaction through RFID reader/ ETC application to Acquirer Bank.

In case of any deviance, penalty shall be imposed as below –

- Up to 100 cases of double deduction/over-charging reported in a calendar month **– Rs 500 per case**

- More than 100 cases of double deduction/over-charging reported in a calendar month – **Rs 1000 per case**

In addition to above, Master ESP shall also be liable to pay for all the losses incurred by the concessionaire/toll plaza operators.

b) **Non-reading FASTag – Free Passage**

Gazette GSR 427(E), dated 7 may 2018 provisions –

"Provided also that if a vehicle user with a valid, functional FASTag or any such device with sufficient balance in the linked account crossing a fee plaza installed with Electronic Toll Collection infrastructure, is not able to pay user fee through FASTag or any such device owing to malfunctioning of Electronic Toll Collection infrastructure, the vehicle user shall be permitted to pass the fee plaza without payment of any user fee. An appropriate zero transaction receipt shall be issued mandatorily for all such transactions".

The successful bidder shall ensure for proper functionality and alignment of Fixed RFID readers in lanes, no case shall be found where a valid FASTag is not read by fixed RFID reader.

In case of any deviance, penalty shall be imposed as below –

In cases where vehicle user have been permitted to pass the fee plazas without payment of any user fee, the Master ESP shall be liable to pay for all the losses incurred by the concessionaire/toll plaza operators on account of free passage of vehicle without payment of any user fee.

6.7.1.12. **Penalty for lapses/discrepancy in MIS/Reports**

a. The Master ESP shall provide submit daily/weekly/monthly report and other MIS as required in clause 6.4.4. The penalty for lapses in MIS/Reports shall be imposed as below:

Any case of discrepancy in the MIS reports submitted in the reporting month **– Rs 1000 per case**

b) **Deficiency in MIS/Reports beyond permissible cumulative 10 cases for a period of 3 consecutive months would be deemed to be an event of Fundamental Breach of Contract, and shall be treated as per process defined in Clause 5.14.3.**

6.7.1.13. **Others**

a) **SLA exclusion** - **Any scheduled and approved preventive maintenance activity by the Master ESP and has an approval of IHMCL. Such scheduled and approved preventive maintenance activities shall preferably be carried out during night time (11 PM to 5 AM) and shall not exceed two instances in a quarter and each instance shall not exceed 4 hours.**

b) In case IHMCL is of the view that the delay is due to reasons beyond the control of the Successful bidder, suitable extension of time may be granted to the Successful bidder with or without imposing any Damages on such Successful bidder in the absolute discretion of IHMCL.

c) Damages shall be payable by the Successful bidder within 5 days of imposition thereof by IHMCL, failing which the same shall be deducted from the payments to be made to the Service Successful bidder or from the Performance Security as deemed appropriate by IHMCL.

d) The Damages payable, as set forth in this Contract, are mutually agreed genuine pre-estimated loss and damage likely to be suffered and incurred by the Party entitled to receive the same and are not by way of penalty (the "Damages").

e) The decision of Competent Authority of IHMCL will be final and binding in case of the penalty to be imposed upon the bidder.

f) **The traffic data and vehicle image captured data are utmost importance to the Authority and these data may be required by Law enforcing agencies for purpose of national homeland security. Therefore, Master ESP shall endeavor for maximum uptime of these critical equipment and retain the data as provisioned in this RFP.**

7. Technical Specifications

7.1. HETC equipment

The following table captures the list of equipment required to be installed at new fee plazas allocated by IHMCL. The minimum standards and specifications for these equipment are provided in subsequent sections.

Lane Level			
S.No	**Equipment Description**	**Unit**	**Qty per lane**
1.	RFID ETC transceiver near Pay-axis - mounted on canopy	No	1
2.	Electronics Enclosure	No	1
3.	Lane Controller with Industrial PC	No	1
4.	AVC including sensors, loop and detector	Set	1
5.	User Fare Display with mounting pole	Set	1
6.	Automatic Barrier Gate	No	1
7.	Overhead Lane Status light (OHLS)	No	1
8.	Traffic light with mounting pole	Set	1
9.	Loops with detector	Set	2
10.	Incident Capture Camera with mounting pole	Set	1
11.	License Plate Image Capture Camera with mounting poles	Set	1
12.	TFT Monitor	No	1
13.	Customized industrial grade keyboard	No	1

14.	Thermal Receipt Printer	No	1
15.	Violation light & Alarm (on existing pole) and Foot switch in booth	No	1
16.	Booth CCTV camera with voice recording	No	1
17.	Cabling/Networking/Installation/Commissioning (Lump sum)	LS	1
18.	Software – Lane Level	No	1
19.	Intercom Slave unit in booth	No	1
20.	Lane Level UPS	No	1
Plaza Level			
21.	Plaza Servers in hot-standby configuration	No	1
22.	Workstations for MIS, Cashup, Audit & LSDU System (in control room)	No	4
23.	24 Port Network switch (Layer 3)	No	2
24.	Outdoor WiFi Access Point	No	1
25.	Software – Plaza level	Job	1
26.	Broadband Internet connection OR, Lease line Internet connection with 1 Status IP of minimum 4 Mbps link for CCH connectivity (Active-Active mode)	Facility	2
27.	UPS system as required for complete ETC Toll Plaza system (10 KVA or above)	No	2
28.	Network Video Recorder (NVR) for CCTV recording with 30 days of storage	No	1
29.	CCTV cameras for Plaza building surveillance (server room, control room, cash room, admin)	No	4
30.	RFID Handheld Readers	No	4

31.	Master Intercom System	No	1
32.	Servo Stabilizer (60 KVA -03 phase)	No	1
33.	Firewall Device	No.	1

7.2. Toll Plaza Equipment Specifications

The subsequent sections capture the specifications of various equipment that may be required as a part of this project. Please note that this is in exhaustive list of all ETC equipment and the entire set may not be required in the current phase. Applicants are requested to refer to the detailed BOQ captured in the preceding sections of this Annexure. Also, the specifications are a minimum standard, and the supplier may choose to include products with specifications that exceed the standards, post approval from NHAI.

7.2.1. **RFID ETC Transceiver near pay axis (mounted on canopy)**

Preferred Make- Zebra, Impinj, Feig, Biso, Tag master, and Honeywell or equivalent with approval from IHMCL.

a) **General:**

S.No	Parameter	Minimum Specifications
1.	Frequency	UHF 865 MHZ to 867 MHZ *
2.	Communication	Ethernet/ Serial communication (EIA standard RS 232 C / RS 485)
3.	RF Power Maximum	1 W – transmitted & 4 W – EIRP (Equivalent Isotopically Radiated Power) *
4.	Reading distance	With the Transceiver mounted typically at a height of 6 m above the road surface, the coverage of the antenna shall not exceed a diameter of 3.6m.
5.	Antenna	Circularly Polarized
6.	Protocol	EPC Gen 2, ISO 18000-6C and shall comply with the general conformance requirements of the standard
7.	Visual Diagnostics	The Transceiver shall have LED indicators for sense, transmit Fault and Power which shall be visible clearly to the operator on ground while the system is operational.

is in the wireless license free band for RFID use in India. Typical existing product(s) for RFID- based-ETC' operates in the 865 MHz – 868 MHz band.

b) **Environmental:**

S.No	Parameter	Particular
1.	Enclosure	Light weight enclosure for the RFID Transceiver and circularly polarized antenna
2.	Environmental	IP 65 or better for outdoor units

3.	Relative Humidity	95% Condensing
4.	Operating Temperature	-20°C to 55°C
5.	Storage Temperature	-40°C to 85°C

c) Operating Characteristics

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

7.2.2. Electronics Enclosure

a) The Interface Electronics and all related peripheral/controllers should be enclosed in an IP65 compliant cabinet.

b) Locking System: Enclosure shall have a unique key allowing access to the electronic.

c) Door monitoring: The cabinet door shall be monitored utilizing proximity switch. Door open / close events shall be recorded as incidents identified by time and Lane. The incidents are to be displayed on the plaza software subsystem.

d) Cabling Layout: All external cables shall be protected against the effects of lightning and shall comply with all requirements for the control of interference from EMI. All data cables shall be screened and shall be properly separated and shielded from all power cables.

e) Ventilation and internal temperature: All equipment endorsed by the cabinet shall be kept at a temperature consistent with manufacturers recommendations.

f) Finishing: The cabinet surfaces shall be protected from the environment in which it shall be used and the Equipment Contractor shall specify the surface treatments to be applied. Each cabinet shall be painted and numbered in a manner consistent with the toll lanes and consistent with all equipment related functions (e.g. reporting to the plaza software subsystem).

g) Cable dressing: All cables (power & signal) shall be properly routed and dressed with suitable railings inside the enclosure and ties.

h) Cable numbering: The signal & power cable terminations shall be identified by proper numbering. In addition to the termination at the controller end, this numbering shall also be maintained at locations where the cables are exposed (like manholes, junctions) and at the peripheral end. Further, all the individual component boards shall be properly identified by labeling.

i) Cable terminations: The signal & power cable (from the peripherals) terminations shall be kept separated inside the cabinet. The cable routing inside the enclosures shall be done in a proper manner, so that, aesthetics apart, the cable faults can be traced and faulty cables replaced, easily and less time consuming.

7.2.3. Lane Controller with Industrial PC

a) Functional Requirements

i. The Toll Lane Controller (TLC) is situated in the tunnel only underneath the toll lane or in case there is no tunnel then TLC is situated in the booth itself and has the principal task of controlling the toll collection function and all the peripheral equipment, transmitting information and data on all lane activities to a local ETC Server and receiving other control information and data from the ETC server. It also has the function of controlling all the peripherals connected to it.

ii. All hardware, software, TLC interface to peripherals and local ETC Server shall be supplied by the equipment supplier.

iii. The TLC software shall be developed to operate as ETC toll lanes as is defined under earlier section of this document.

iv. All lane operating data shall be stored in the local hard disk drive in the lane. Adequate RAM shall be provided to prevent "Thrashing" of the hard disk drive. The hard disk shall have

enough memory to load and maintain all necessary program tables (like ETC black list, white list, discount list etc.) and data in memory, to optimize the toll collection functionality. Each transaction data collected from the lane peripherals shall be stored in the local hard disk of the TLC in a separate encrypted file placed in a folder automatically created with the month's name at the start of each month, before being transmitted to the master database in the local ETC server. This data shall remain in the local hard disk irrespective of transmission to the local ETC server until a period of 1 month. At the start of the 7th month, the 1stweek's data shall be deleted from the hard disk on the basis of FIFO logic.

v. Further, there should be a mechanism for auditing the real time data transmission (including incidents) over a predetermined time period (say 30 minutes) and automatic data retrieval from the lane in case of data mismatch.

vi. The TLC must be capable of storing the following minimum information:

- 1 month of Transaction data including image associated with incidents

- Tag Whitelist as mentioned

- Tag Blacklist as mentioned

- Tariff Table as applicable (active and pending)

A transaction record shall contain all the necessary information to enable complete control and auditing of the system.

vii. The minimum required fields are as follows: -

- Unique Transaction Sequence Number

- Date

- Time

- Plaza

- Lane

- Shift

- Tag Vehicle Class (TVC)/Manual Vehicle Class (MVC)

- Automatic Vehicle Class (AVC)

- Image ID (in case of a violation transaction)

- Tag Id

- VRN no.

- Transaction Amount as TVC/MVC and AVC

The transaction time shall be the time when a Tag is detected at transaction area.

viii. The TLC shall be capable of interfacing with at least the following peripheral equipment:

- RFID Transceiver

- Toll Collector Display

- User Fare Display

- Vehicle guidance signals (Traffic Lights)

- Overhead Lane Sign

- Automatic Exit Barrier

- Exit Loop

- AVC system including AVC loop

- Electronic Toll Collection Equipment

- Incident Recording (CCTV) System

- License Plate Image Capture Camera

- Thermal Receipt Printer

ix. The TLC shall be capable of communicating with the local ETC server. The Communication shall consist of data necessary to build a complete database in the local ETC server, from which the required financial and operating reports and statistics can be generated. The local ETC server shall also receive and log any reportable incidents occurring in the lane, which shall be transmitted real-time to the Incidents Computer (IC) for action by the toll supervision staff. In terms of incidents, real-time shall mean the time from the occurrence of the incident to the storage of the incident and the subsequent display of the incident on the IC; shall not be greater than 2 seconds.

x. As described above, all data entries shall be sequentially numbered and referenced to other related entities. The incidents that occur during a transaction shall refer to that transaction. Transactions and incidents shall refer to the applicable financial entity in which they occur.

xi. An automatic / manual data validation process is required to check for data continuity and missing/duplicate data. An audit trail of manual corrections is required. The data validation process shall be linked to a "data not complete" message that will be indicated on reports if data is missing / pending validation / consolidation.

xii. Further, the TLC (via the AVC) shall monitor the lane at all times for any traffic violation or incident; and for failure of any of the toll equipment. The level of incident reported to plaza via the peripherals in the toll lane, or reported to the LOCAL ETC SERVER shall be a parameter setting in the software available at a definable level.

xiii. The TLC shall also be capable of receiving messages from the local ETC Server. These messages will contain data on the Tariff tables, classification table, whitelist, tag blacklists, ETC account balance, etc. Should the link between the TLC and the LOCAL ETC SERVER fail, a system to download such information locally into either end (TLC &LOCAL ETC SERVER) is to be made available.

xiv. The CCH maintains a vehicle class description that is generic to all toll plazas. However, as the vehicle class description at each toll plaza for the same vehicle may be different, the TLC shall maintain a mapping of the CCH Vehicle class to the Plaza Vehicle class. The TLC generated transaction shall always refer to the Plaza vehicle class.

xv. Extended operation of the TLC in the Local Mode must be possible. The system shall manage its data storage capacity to ensure adequate free space for the operating system, application and data. The system shall provide warnings regarding free-space when the storage capacity reduces to predefined critical limits. If the data storage on the TLC reaches this critical limit, it shall immediately instruct the plaza to stop processing of transactions any further and inform the supervisory staff to initiate a data extraction procedure. The data extraction shall be carried out via a thumb drive or portable computer and restored in the LOCAL ETC SERVER.

xvi. Door monitoring: The cabinet door shall be monitored utilizing proximity / limit switch. Door open /close events shall be recorded as incidents identified by time and Lane identification. The incidents are to be displayed on the plaza level.

xvii. The Equipment Supplier shall provide the details on the TLC data management strategy.

xviii. Time throughout the entire toll collection system shall be synchronized with reference to the LOCAL ETC SERVER.

b) TLC PC Specification:

Descriptions	Remarks
TYPE	Industrial Grade Fanless Compact Embedded Computer
Installation	DIN-rail mounting inside the Electronic Enclosure
Cables	Power Cable, UTP cable
Material and Finishes	Aluminum housing, As per manufacturer's specifications
Color	Manufacturer's Original Color
Power Supply	Operating: 12V, 50 Hz. With power adaptor, 15W max. Power consumption
Access for maintenance, modularity of construction	Minimal maintenance, off-the-shelf product
Environmental Considerations	-20oC to 600C Operating Temperature, 95% @ 40° C (non-condensing)
Design Criteria	Intel Core i5- 6500 Processor (Quad Core, 6 MB Cache, upto 3.60 Ghz w/Turbo Boost) or better 08 GB (1 X 8 GB) DDR4 Synchronous Dynamic RAM 1TB 7.2K SATA 6Gb/s 2.5inch HDD Supports CompactFlash socket for type I/II CompactFlash disk Mini PCIe expansion for communication module, i.e. HSDPA, WLAN Dual display and supports for wide screen with high resolution 2 x GbE, 6 x USB 2.0 and 4 x COMs ports Serial port support RS-485 auto flow control

	2 X Ethernet RJ-45 network port, 10/100/1000 Mbps Ethernet controller, support Wake On LAN 8-bit DIO Audio Line-in, Line-out, Mic-in Operating System: Linux or Windows 7 or Embedded, Service Pack 2 Application Software: Lane Software, Antivirus Software (Client) link to Server CALS Overall MTBF: 30,000 hrs Overall MTTR: 0.5 hrs – 1 hrs

c) The TLC shall receive UPS power from the UPS distribution panel. Any special electrical protection / interface unit shall be provided by the Contractor, if required, based on the needs of the device. The power distribution to the lane peripherals from the TLC shall be adequately protected with the help of surge arresters, lightning protection, etc.

7.2.4. **AVC including sensors, loop and detector (Non-intrusive technology – Profiler-based)**

a) Accuracy Level:

The AVC system shall be 100% auditable and accuracy of vehicle counting should be 100% and classification accuracy shall not be less than 98%.

b) Auditability:

The AVC System shall comply with the following auditability criteria:

  i.   Each transaction recorded by the system shall be uniquely and sequentially numbered.

  ii. The AVC shall be able to provide information to a laptop or to a computer connected to the same network as on AVC computer that shall be used for auditing the classification of the AVC as well as the classification of the lane operator. The audit function shall be done in the following manner:

  iii. The auditor shall

   • connect to the AVC computer through network or RS-232 port or latest of the AVC computer.

   • Start audit application/data extraction application

   • Supply Plaza name, AVC number, User id and Password

   • Enter the date and duration for the audit.

   • Press enter to start data extraction (any time the auditor shall be able to cancel current command to start with other specific duration).

  iv. Obtain output of the audit report in XLS format and it shall contain at least the following:

- Transaction sequence number

- Date & time of the transaction

- Lane ID

- Shift ID

- TLC class

- AVC class

- MOP

- Incident type and details associated with the transaction, if any

c) The Contractor shall provide a data extraction tool to IHMCL, it shall be possible to extract the AVC/TLC data for a user defined period in XLS format using that tool.

d) For audit purposes, it shall be possible to enable all transactions as incidents in order to grab LPIC images and ICS image for Supervisor / Auditor review per lane / direction / all lanes.

e) Description and Functions

i. The automatic vehicle classification equipment shall be installed in the lane after pay-axis.

ii. The purpose of the AVC is to sense the presence of a vehicle (differentiate it from non-vehicular crossing), to measure and interpret certain physical characteristics of the vehicle as it passes through the AVC.

iii. The AVC shall be able to generate profile image which shall be used for auditing purpose.

iv. The AVC shall be able to distinguish between classes as per the applicable notifications of MORTH

v. This class information shall be stored locally at AVC level and communicated to the TLC. Simultaneously a still image of the vehicle shall be captured / grabbed by the Incident Capture System (ICS) Camera as the vehicle triggers the AVC sensors. The TLC shall then check whether this AVC class matches the vehicle class (the CCH Class mapped to the Toll Plaza class) as read from the tag. If there is a discrepancy between the two classifications, the license plate image (captured when the vehicle passed through the ETC exit) and the ICS camera image shall be saved and stored with all transaction and incident information watermarked on them. The images and discrepancy information shall be communicated to the Local ETC server for further action and processing by the toll supervision staff.

vi. The Equipment Contractor shall submit details of the performance of existing AVC systems duly validated by the existing operators of the systems.

vii. The AVC shall be capable of detecting and reporting the following vehicle movements and incidents in the lane to the TLC:

- The AVC system must be able to count and distinguish two wheelers, autos and four-wheelers separately.

- Vehicle Standing – the vehicle presence sensing equipment stays active for longer than a preset time. The preset time shall be parameter settable.

viii. All AVC elements (loops, Profiler based sensor, cameras, etc.) shall be fully weatherproof and installed in a location where vehicle damage by accident is not possible.

ix. When the TLC is inoperative, or communication between the TLC and the AVC is severed, the AVC shall record the last transaction number transmitted and shall be able to independently count and record (store) vehicle classes passing through or over it. A sequential vehicle counter at AVC level shall be implemented to reconcile. The AVC shall have its own battery backup and data extraction facility on to a external storage media to a laptop computer.

x. The AVC shall be able to generate violation if the ETC lane is not logged- in and a vehicle passes through it.

xi. The AVC shall be able to generate violation if the ETC lane is logged- in and a vehicle passes through it without paying.

xii. In following cases, the AVC shall generate an alarm on the plaza level and send record to incident control system for supervisory action apart from the incidents defined:

- Degraded classification (in case of any single Transmit / Receive failure)

- Unable to classify

xiii. The accuracy of the AVC shall not be affected by temperature or any weather /environmental conditions and shall be independent of vehicle speed / weight.

f) AVC System Design and Approval

i. **Functional requirements:**

- The AVC shall be able to automatically classify the classes of vehicles as indicated in the vehicle class table to an accuracy of 98% without manual intervention and class correction or validation. Unless, the above criteria is achieved, the AVC shall never classify a vehicle to any defined category in the Classification table; it shall be categorized as unable to classify so that it triggers an incident and there is no chance for revenue loss. This can be used to fine tune the AVC to improve the accuracy later.

- The functional specification for the AVC shall include the hardware, software and operational requirements. The design requirements of the AVC are to be seen as a system in which all failures, events and other events are logged, stored and managed. The following design criteria shall be used in the AVC:

> ➤ AVC Classification Table
>
> ➤ AVC Configuration
>
> ➤ Vehicle Detection and Classification
>
> ➤ AVC Interfaces
>
> ➤ AVC Technical Requirements
>
> ➤ Data Storage

- All operating data shall be stored on the local hard disk drive of the AVC computer. "Thrashing" of the hard disk drive shall be prevented. The AVC shall have enough memory to load and maintain all necessary program tables and data in memory. All other transaction data shall be stored on the local hard drive of the AVC and a copy to be transmitted to the LOCAL ETC SERVER.

- The following minimum information is to be stored at AVC level:

> ➤ Classification table
>
> ➤ AVC configuration
>
> ➤ Data of at least one year (transaction, event, AVC centric incident etc.)

- Two separate streams of data, carrying vehicle classification information from TLC and AVC shall be copied at LOCAL ETC SERVER level for comparison, evaluation and audit purposes. There shall be provisions for drawing separate reports for TLC and AVC classifications at LOCAL ETC SERVER level. An AVC accuracy and reconciliation report shall be present in the toll system.

- The performance of the AVC shall form the basis for the accuracy checks, functional tests, installation, commissioning and handover to achieve the required accuracy and performance. All design and installation approvals shall be obtained from IHMCL before installation and commissioning. The Contractor shall submit a detailed list of vehicles with photographs and Indian RTO authorized classification category of all models of vehicles found in India as part of Technical specifications delivery. The configuration of AVC classification table into the system shall be done in the presence of the authorized representative of NHAI.

- The plaza lane area detailed AVC layout including the following items shall be provided at the time of technical specifications delivery by the Contractor so that the design process can be implemented at site. The Contractor shall ensure that the equipment layout is in conformance with the Lane Design Drawings as provided by IHMCL.

- The system architecture shall provide the details of the equipment layouts and the physical location of each component of the system in the ETC toll lane.

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

  ➢ The unit shall be easily removable and shall be fitted with at least two (2) loops per card.

  ➢ The unit shall have a minimum of 4 separate adjustable sensitivity and frequency levels.

  ➢ The unit shall have indicators for vehicle presence, loop on/off and failure.

- The AVC Profiler shall comply with the following specification and are mounted in a manner as to ensure that the following minimum specifications are adhered to at all times.

  ➢ Ensure that no vehicle can pass through the AVC and miss axle counting.

  ➢ Number of Axles per vehicle is accurately counted for every vehicle passage

  ➢ Ensure to generate profile image of each vehicle.

  ➢ Sensor replacement time shall not exceed 30 minutes.

- It shall be noted that the equipment enclosures shall be mounted in the tunnel/booth at the toll plaza, sufficient ventilation shall be provided by the equipment Service Provider for this enclosure and the enclosure shall have IP65 protection.

- The AVC enclosure shall be mounted in the tunnel/booth. The AVC enclosure shall be secured using suitable corrosion resistant fixtures, and all fixtures shall be approved before the mounting of the AVC can take place.

- The AVC enclosure shall be provided with a switch to detect that the AVC door is open or closed, and the status shall be updated at plaza level in real time.

- All mounting shall be done in a neat and professional manner and shall be approved by IHMCL.

- All AVC cables that enter the enclosure shall be protected between the enclosure and the sensors, using a suitable flexible steel re-enforced trunking / cable tray / ducting as approved by IHMCL to reduce the risk of tampering. All the cable entries to the AVC enclosure shall be sealed properly with glands / sealant, as approved.

- The quality control procedure manual shall be provided with the proposal by the equipment Contractor, which shall include a minimum of:

  ➢ AVC Installation Log Sheet

  ➢ Loop Resistance Testing and Loop Earth Testing Procedure

  ➤ Cross-talk Verification Process

  ➤ Loop Chatter (Bobbing) Verification Process

  ➤ Basis of classification logic of AVC

g) AVC Controller Configuration

The following minimum configuration requirements shall be met:

Descriptions	Remarks
TYPE	Industrial Grade Fanless Compact Embedded Computer
Installation	DIN-rail mounting inside the Electronic Enclosure
Cables	Power Cable, UTP cable
Material and Finishes	Aluminum housing, As per manufacturer's specifications
Color	Manufacturer's Original Color
Power Supply	Operating: 12V, 50 Hz. With power adaptor, 15W max. Power consumption
Access for maintenance, modularity of construction	Minimal maintenance, off-the-shelf product
Environmental Considerations	-20oC to 600C Operating Temperature, 95% @ 40° C (non-condensing)
Design Criteria	Intel Core i5- 6500 Processor (Quad Core, 6 MB Cache, upto 3.60 Ghz w/Turbo Boost) or better 08 GB (1 X 8 GB) DDR4 Synchronous Dynamic RAM 1TB 7.2K SATA 6Gb/s 2.5inch HDD Supports CompactFlash socket for type I/II CompactFlash disk Mini PCIe expansion for communication module, i.e. HSDPA, WLAN Dual display and supports for wide screen with high resolution 2 x GbE, 6 x USB 2.0 and 4 x COMs ports Serial port support RS-485 auto flow control 2 X Ethernet RJ-45 network port, 10/100/1000 Mbps Ethernet controller, support Wake On LAN 8-bit DIO Audio Line-in, Line-out, Mic-in Operating System: Linux or Windows 7 or Embedded, Service Pack 2 Application Software: Lane Software, Antivirus Software (Client) link to Server CALS Overall MTBF: 30,000 hrs Overall MTTR: 0.5 hrs – 1 hrs

h) AVC Enclosure

The AVC and all related peripheral controllers should be enclosed in an IP65 compliant cabinet.

  i. Locking System: Each cabinet shall have a unique key allowing access to the AVC.

ii. Door monitoring: The cabinet door shall be monitored utilizing proximity / limit switch. Door open / close events shall be recorded as incidents identified by time and Lane identification. The incidents are to be displayed on the plaza level.

iii. Cabling Layout: All external cables shall be protected against the effects of lightning and shall comply with all requirements for the control of interference from EMI. All data cables shall be screened and shall be properly separated and shielded from all power cables.

iv. Ventilation and internal temperature: All equipment endorsed by the cabinet shall be kept at a temperature consistent with manufacturers recommendations.

v. Finishing: The cabinet surfaces shall be protected from the environment in which it shall be used and the Equipment Contractor shall specify the surface treatments to be applied. Each cabinet shall be painted and numbered in a manner consistent with the toll lanes and consistent with all equipment related functions (e.g. reporting to the plaza software subsystem).

vi. Cable dressing: All cables (power & signal) shall be properly routed and dressed with suitable railings inside the enclosure and ties.

vii. Cable numbering: The signal & power cable terminations shall be identified by proper numbering. In addition to the termination at the controller end, this numbering shall also be maintained at locations where the cables are exposed (like manholes, junctions) and at the peripheral end. Further, all the individual component boards shall be properly identified by labelling.

viii. Cable terminations: The signal & power cable (from the peripherals) terminations shall be kept separated inside the cabinet. The cable routing inside the enclosures shall be done in a proper manner, so that, aesthetics apart, the cable faults can be traced and faulty cables replaced, easily and less time consuming.

7.2.5. **User Fare Display with mounting pole**

a) **Description and Function**

i. The User Fare Display (UFD) shall be located in the toll lane in a position where it is readily visible to and readable by Users from the pay point. The display has the primary purpose of informing the User of the vehicle. It shall convey ETC balance information & low balance warnings, public relations and seasonal messages.

ii. The UFD shall be of variable message type and shall have high intensity LED or similar Operator approved display of 10 characters per line in two lines with the option of scrolling for displaying seasonal messages.

iii. The UFD shall send status information to the TLC for interface with plaza subsystem.

b) **Specifications**

The following minimum specifications shall be met:

i. Size   : 750 X 400 mm

ii.	Display	: Red LED
iii.	Visibility Range	: 10 m
iv.	Enclosure	: MS
v.	MTBF	: 50,000 hours
vi.	MTTR	: less than 30 minutes

c) Power Source

The UFD shall receive UPS power from the TLC. Any special electrical protection / interface unit shall be provided by the Contractor, if required based on the needs of the device.

d) Protection

The UFD shall be IP 65 rated or better.

7.2.6. Automatic Barrier Gate

a) Description and Functions – Automatic Barriers

i. The lane exit barrier shall be suitable for high- speed ETC transactions. One full open-close cycle shall not take more than 1.2 seconds. The barriers are being used in the ETC express lane; the barriers shall be capable of full lane open from a close state in less than 0.6 seconds.

ii. The housing and any mounting frame shall be fabricated from corrosion-resistant materials. They shall be IP 55 rated. The barrier shall be driven electrically. The motor shall not be damaged when the barrier is blocked in any position. Exit barriers shall have presence detectors independent to the AVC system to prevent barrier arms coming down on vehicles while passing. This shall be in the form of infrared units and dedicated embedded loops. Apart from the barrier arm, the mechanism may not have any moving protrusions that pose a risk to persons standing in close proximity to the barrier.

iii. The barrier arm shall be fabricated from a light, corrosion resistant material readily and inexpensively available in India. The barrier arm shall further have a protective mechanism whereby controlled fracture of the barrier arm occurs without damage to the housing or motor in the event of frontal collision. Preference will be given to non-destructive break-away mechanisms. Further, there shall be a protection mechanism to detect the presence of vehicles to avoid accidental hitting on the vehicles, whenever the boom is triggered for closing.

iv. Suitable power supply scheme shall be implemented by the Contractor to feed the Exit barrier to protect the source from being damaged due to electrical surges / spikes injected by the dynamic (inductive) load. Further, the drive shall be so designed as

to the damping factor is just sufficient for the drive to operate the booms without any jerks during open / close to avoid freak hitting by the exiting vehicles.

v. Barrier arms shall have retro-reflective red stripes in accordance with the local traffic sign standards.

b) Specifications

The following minimum specifications shall be met:

Descriptions	Remarks
Dimension (WxDxH)	OEM specific Not exceeding 320 x 360 x 1150 mm
Weight	Less than 50 kg (without boom)
Installation and Fixing Details	Fixed mounted on the toll island
Cables	Power Cable Data Cable
Cable routes	Power cable is terminated to the Termination Block via island ducting Data cable is connected from the termination block to the ALB Controller.
Boom Length	3000 mm for standard lanes or 3500mm for Extra wide lane
Boom Material	Aluminum
Boom Attachment	Swing away
Safety Detectors	Metal detector to be provided
Duty Cycle	100%
Housing	Vendor Specific/RAL 2000
Power Supply Requirement	240VAC 50/60Hz single phase
Operating Temperature	-10 to 50°C
Relative Humidity	5%-90%
Reliability and maintainability	MTBF: 2 Million Cycles or 2 years excluding barrier arm holder and mechanical parts MTTR: 0.25 hrs - 0.75 hrs

c) Power Source

The Automatic Barrier Gate shall receive power directly from dedicated online UPS. Suitable protection shall be provided by the Contractor at the load end to protect the Boom Barrier. The Contractor shall fulfil any specific earthing requirement.

d) Protection

The Automatic Barrier Gate shall be IP 55 rated.

7.2.7. **Overhead Lane Status Sign (OHLS)**

a) Description and Functions

i. The Over Head Lane Sign (OHLS) is located above the center of the lane at the lane entrance. The purpose of the OHLS is to indicate to the User whether the toll lane is open for the processing of vehicle or closed. A red cross is used to signal that the lane is closed, whilst a green arrow is used to indicate that the lane is open to traffic.

ii. Signs must be sufficiently bright and directed to indicate to a motorist, approaching the toll plaza, at a distance of 300 m on a bright cloud free day that the lane is available for use. The OHLS status shall also be visible up to a peripheral view of 45 degrees from the travel axis.

iii. At any situation, both RED and GREEN part shall not glow simultaneously. Under failure conditions, only Red Cross shall be displayed until rectification.

b) Specifications

The following minimum specifications shall be met:

i. Size : 300 mm X 300 mm

ii. Display (Cross) : Red LED

iii. Display (Arrow) : Green LED

iv. LED : 5mm in diameter, 8000 mCd

v. Visibility Range : 150 m (under extreme weather conditions)

vi. Enclosure : IP 65 or better grade

c) Power Source

The OHLS shall receive UPS power from the TLC.

d) Protection

The OHLS shall be IP 65 rated or better.

7.2.8. **Traffic lights with mounting pole**

a) Description and Functions

i. The Traffic Light (TL) shall be located in the toll lanes in a position where it is readily visible to users of the toll road, usually on the side of the lane beyond the toll booth. The traffic light shall consist of two traffic light heads mounted on a suitable pole. An amber signal with arrow is used to indicate that the user should take suggested path, whilst the green signal is used to indicate that the user should proceed.

ii. At any situation, both AMBER and GREEN part shall not glow simultaneously. Under failure conditions, only Amber arrow shall be displayed until rectification.

b) Specifications

The following minimum specifications shall be met:

i. Size : 200 mm Φ

ii. Display (Stop) : Amber LED

    iii.   Display (Start)   : Green LED

    iv.   Visibility Range : 20 m (under normal visibility conditions)

    v.   Enclosure   : SS (stainless steel) or Polycarbonate

c) Power Source

The TL shall receive UPS power from the TLC. Any special electrical protection / interface unit shall be provided by the Contractor, if required based on the needs of the device.

d) Protection

The TL shall be IP 65 rated or better.

7.2.9. Loops with detector

Dimension as suggested by the Service Provider/System Integrator and detector specification as per AVC specification chapter.

7.2.10. Incident Capture Camera with mounting Poles

Preferred make - Sony, Samsung, Bosch, Honeywell, Axis, Hikvision and Pelco

a) The cameras shall be charge coupled device (CCD) color cameras equipped with fixed focal manual iris lenses and night vision capabilities. The cameras shall require a minimum of 1.8 lux for usable image/video. The CCTV systems shall have adequate surge and lightning protection.

b) The model selected shall have image compensation capability to ignore stray lighting / vehicle lighting so that ICS and LPIC shall render meaningful output for verification.

c) The camera should be able to capture snapshots also.

d) Camera Location

The Equipment Contractor shall determine the best mounting positions for the cameras so that effects, such as, direct sunlight and stray lighting is negated. The cameras shall also be protected from or be resistant to high winds and moisture. Vibration shall be minimized such that the image quality is never compromised.

Each camera shall view and detect vehicle images for its lane. The cameras shall be located so that sidelong profile of the vehicle is obtained as it crosses the AVC, so that the number of axles of the vehicle crossing the AVC shall be clearly visible when the vehicle is exiting the lane. The camera shall have an automatic adjustment of brightness. The housing shall be an IP-65 rated Enclosure to withstand adverse weather conditions. The Incident Capture Camera is installed at a convenient location on the island to capture images and video clips of the vehicles for the following incidents:

    i.   Class discrepancy between the classes detected by the AVC and that entered by the fee collector

    ii.   Exempt users

    iii.   All transaction of vehicle with special events

iv. Offending vehicles

v. When the panic alarm footswitch is activated by the fee collector

The camera shall be installed inside the housing at the suitable height above the surface of the lane to be decided by the Concessionaire on a pole to record the vehicle images and video clip for every transaction in the lane. The vehicle images captured shall be of the front and right side portion of the vehicle.

General Requirements:

i. The housing will be equipped with a hood to protect the camera under direct sunlight.

ii. Protection: IP65.

iii. The stand of the lane camera shall be made of steel that shall not swing or twist under gutter speed of strong wind. The stand will be protected from corrosive environmental conditions.

e) Specifications

Description	Remarks
Image Sensor	1/2.8" Progressive CMOS
Maximum Resolution	1920x1080 (2MP)
Lens Type	Fixed-focal
Focal Length	f = 3.6 mm
Aperture	F2.1
Field of View	83° (Horizontal), 53° (Vertical), 91° (Diagonal)
Shutter Time	1/5 sec. to 1/30,000 sec. or better
Day/Night	Removable IR-cut filter for day & night function
Minimum Illumination	0.06 Lux @ F2.1 (Color), 0.001 Lux @ F2.1 (B/W)
IR Illuminators	Built-in IR illuminators, effective up to 30 meters with Smart IR IR LED*8
On-board Storage	Slot type: SD/SDHC/SDXC card slot Seamless Recording
Video	
Compression	H.264 & MJPEG
Maximum Frame Rate	30 fps @ 1920x1080 In both compression modes
Maximum Streams	4 simultaneous streams
S/N Ratio	50 dB or better
Dynamic Range	95 dB or better
Video Streaming	Adjustable resolution, quality and bitrate, Smart Stream
Image Settings	Adjustable image size, quality and bit rate, Time stamp, text overlay, flip & mirror, Configurable brightness, contrast, saturation, sharpness, white balance, exposure control, gain, backlight compensation, privacy masks, Scheduled profile settings, 3D Noise Reduction, Video Rotation, Defog
Audio	
Audio Capability	Two-way audio (full duplex)

Compression	G.711, G.726
Interface	External microphone input, Audio output
Network	
Users	Live viewing for up to 10 clients
Protocols	IPv4, IPv6, TCP/IP, HTTP, HTTPS, UPnP, RTSP/RTP/RTCP, IGMP, SMTP, FTP, DHCP, NTP, DNS, DDNS, PPPoE, CoS, QoS, SNMP, 802.1X, UDP, ICMP, ARP, SSL, TLS
Interface	10 Base-T/100 BaseTX Ethernet (RJ-45), *It is highly recommended to use standard Cat. 5e & Cat. 6 cables which are compliant with the 3P/ETL standard.
ONVIF	Supported
Intelligent Video	
Video Motion Detection	Five-window video motion detection
VCA	Line crossing detection, field detection, loitering detection
Alarm and Event	
Alarm Triggers	Video motion detection, manual trigger, digital input, periodical trigger, system boot, recording notification, camera tampering detection, audio detection
Alarm Events	Event notification using digital output, HTTP, SMTP, FTP and NAS server, SD Card, File upload via HTTP, SMTP, FTP, NAS server and SD card
General	
Smart Focus System	Fixed Focus
Connectors	RJ-45 cable connector for Network/PoE connection, Audio input, Audio output, DC 12V power input, Digital input*1, Digital output*1
LED Indicator	System power and status indicator
Power Input	DC 12V, IEEE 802.3af/at PoE Class 0
Power Consumption	Max. 9 W
Casing	Weather-proof IP66-rated housing, Vandal-proof IK10-rated metal housing (Casing Only)
Safety Certifications	CE, LVD, FCC Class A, VCCI, C-Tick
Operating Temperature	Starting Temperature: -10°C ~ 50°C (14°F~ 122°F), Working Temperature: -20°C ~ 50°C (-4°F~ 122°F)

7.2.11. License Plate Image Capture Cameras

Preferred make - Sony, Samsung, Bosch, Honeywell, Axis, Hikvision and Pelco

a) Each camera shall view and detect vehicle images for its lane. The cameras shall be located so that sidelong profile of the vehicle is obtained as it crosses the AVC, so that the number of axles of the vehicle crossing the AVC shall be clearly visible when the vehicle is exiting the lane. The camera shall have an automatic adjustment of brightness. The housing shall be an IP-65 rated Enclosure to withstand adverse weather conditions.

b) The cameras shall be charge coupled device (CCD) color cameras equipped with fixed focal manual iris lenses and night vision capabilities. The cameras shall require a minimum of 1.8 lux for usable image/video. The CCTV systems shall have adequate surge and lightning protection.

c) The model selected shall have image compensation capability to ignore stray lighting / vehicle lighting so that ICS and LPIC shall render meaningful output for verification.
d) The camera should be able to capture snapshots also.
e) The camera shall be installed inside the housing at the suitable height above the surface of the lane to be decided by the Master ESP on a pole to allow the automatic number plate capturing of the vehicle in the lane.
f) The Master ESP shall determine the best mounting positions for the cameras so that effects, such as, direct sunlight and stray lighting is negated. The cameras shall also be protected from or be resistant to high winds and moisture. Vibration shall be minimized such that the image quality is never compromised. Each camera shall view and detect vehicle images for its lane. The cameras shall be located so that License Plate of vehicle can be captured properly with 100% visibility. The camera shall have an automatic adjustment of brightness. The housing shall be an IP-65 rated Enclosure to withstand adverse weather conditions
g) **General Requirement:**

i. The housing will be equipped with a hood to protect the camera under direct sunlight.

ii. Protection: IP65.

iii. The stand of the lane camera shall be made of steel that shall not swing or twist under gutter speed of strong wind. The stand will be protected from corrosive environmental conditions.

iv. Specifications

Description	Remarks
Image Sensor	1/2.8" Progressive CMOS
Maximum Resolution	1920x1080 (2MP)
Lens Type	Fixed-focal
Focal Length	f = 3.6 mm
Aperture	F2.1
Field of View	83° (Horizontal), 53° (Vertical), 91° (Diagonal)
Shutter Time	1/5 sec. to 1/30,000 sec. or better
Day/Night	Removable IR-cut filter for day & night function
Minimum Illumination	0.06 Lux @ F2.1 (Color), 0.001 Lux @ F2.1 (B/W)
IR Illuminators	Built-in IR illuminators, effective up to 30 meters with Smart IR IR LED*8
On-board Storage	Slot type: SD/SDHC/SDXC card slot Seamless Recording
Video	
Compression	H.264 & MJPEG
Maximum Frame Rate	30 fps @ 1920x1080 In both compression modes
Maximum Streams	4 simultaneous streams
S/N Ratio	50 dB or better
Dynamic Range	95 dB or better
Video Streaming	Adjustable resolution, quality and bitrate, Smart Stream
Image Settings	Adjustable image size, quality and bit rate, Time stamp, text overlay, flip & mirror, Configurable brightness, contrast, saturation, sharpness, white balance, exposure control, gain,

	backlight compensation, privacy masks, Scheduled profile settings, 3D Noise Reduction, Video Rotation, Defog
Audio	
Audio Capability	Two-way audio (full duplex)
Compression	G.711, G.726
Interface	External microphone input, Audio output
Network	
Users	Live viewing for up to 10 clients
Protocols	IPv4, IPv6, TCP/IP, HTTP, HTTPS, UPnP, RTSP/RTP/RTCP, IGMP, SMTP, FTP, DHCP, NTP, DNS, DDNS, PPPoE, CoS, QoS, SNMP, 802.1X, UDP, ICMP, ARP, SSL, TLS
Interface	10 Base-T/100 BaseTX Ethernet (RJ-45), *It is highly recommended to use standard Cat. 5e & Cat. 6 cables which are compliant with the 3P/ETL standard.
ONVIF	Supported
Intelligent Video	
Video Motion Detection	Five-window video motion detection
VCA	Line crossing detection, field detection, loitering detection
Alarm and Event	
Alarm Triggers	Video motion detection, manual trigger, digital input, periodical trigger, system boot, recording notification, camera tampering detection, audio detection
Alarm Events	Event notification using digital output, HTTP, SMTP, FTP and NAS server, SD Card, File upload via HTTP, SMTP, FTP, NAS server and SD card
General	
Smart Focus System	Fixed Focus
Connectors	RJ-45 cable connector for Network/PoE connection, Audio input, Audio output, DC 12V power input, Digital input*1, Digital output*1
LED Indicator	System power and status indicator
Power Input	DC 12V, IEEE 802.3af/at PoE Class 0
Power Consumption	Max. 9 W
Casing	Weather-proof IP66-rated housing, Vandal-proof IK10-rated metal housing (Casing Only)
Safety Certifications	CE, LVD, FCC Class A, VCCI, C-Tick
Operating Temperature	Starting Temperature: -10°C ~ 50°C (14°F~ 122°F), Working Temperature: -20°C ~ 50°C (-4°F~ 122°F)

7.2.12. **TFT Display**

The TFT display/Fee Collector Display (FCD) shall be located on the fee collectors desktop and shall be screwed or bolted through the counter top, the position of the FCT shall be finalized with the employers engineer at time of installation, suitable mounting brackets manufactured from stainless steel shall be provided to fix the screen to the desktop. All nuts and bolts are used to secure the FCT to the booth counter top shall be stainless steel. It shall

be the system's interface to the fee collector, to display the status of transactions and status of the lane peripherals.

Minimum Technical specifications for the TFT display shall be as follows:

Description	Remarks
Display Type	TFT with Diagonal Size of 18.5" Minimum
Cables	Power Cable 1 x VGA Cable (15- pin HD D – Sub)
Cable routes	Power cable: 15 meters VGA Cable: 15 meters (terminated to the SVGA Port at the LC via booth ducting)
Color	Manufacturer's Original Color
Voltage Requirement	AC 230 V (50 / 60 Hz)
Power Consumption	80 W
Operating Temperature	0 degree C to 50 degree C
Relative Humidity	20 % to 80 %
Design Criteria	- Min. Resolution: 1024 X 768 / 60 Hz - Aspect Ratio : 4:3 - Number of Colors: 16.2 M, (6bit+FRC) - Video bandwidth: 70 MHz - Viewable size: 18.5" Minimum - MTBF: 30,000 hrs - MTTR: 0.25 hrs

7.2.13. **Customized Keyboard**

a) The keyboard on the Fee Collector terminal for Registration of toll operations shall be a programmable Industrial Grade keyboard. The industrial grade keyboard shall be fully programmable; this however must be approved by the Engineer before supply. These keys will be used to enter data of:

   i.   Staff Id number

   ii. Vehicle Classification

   iii. Type of Transaction

   iv. Accept/Cancel Transaction

v.   Method of payments Selection

vi.   Operate OHLS

vii. Numeric Keypad with backspace button for numeric corrections

viii. Class Cancel

ix.   Bleed-off button

x.   Violation Cancel/Accept Button

xi.   Simulation Button (Only for use during Maintenance Mode)

xii. Alpha Numeric Keys in QWERTY format

b) Customized Programmable Keyboard Features and minimum Specification shall be as follows:

i.   Shall have Powerful programming capability

ii.   Programming under DOS and Windows, multiple page, multiple level, whole range key content, time delay, position sense answer back code, etc.

iii. True spill-resistant design

iv.   Optional blank key, double key for alternative key group layout

v.   Optional MSR

vi.   70 programming keys + 6 position control key

vii. Key top size: 18 mm x 22 mm for single key

viii. Interface: PS/2 or USB or latest

ix.   Dimension (maximum): 340 mm (W) x 150 mm (D) x 58 mm (H) or vendor/OEM specific

x.   Weight: up to 1.2 kg

xi.   Color: OEM Specific

7.2.14. **Thermal Receipt Printer**

a) The thermal receipt printer (RPR) shall be used to print receipts in the lanes. The printer shall be provided with the automatic advance function of the paper after printing so that the space for the first line of printing is aligned under the print head thus reducing the time taken to produce a receipt.

b) For design purpose, it shall be assumed that receipts will be approximately 70mm in length. The Employer (NHAI) and project/plaza information will occupy space on the top. The area under this shall be used for particular printed data. The System Integrator shall take the approval from the Employer for the format of the receipt.

c) Minimum Technical specifications for the RPR shall be as follows:

Descriptions	Remarks
Dimension	Maximum up to 145mm (W) x 195mm (D) x 148 (H)
Weight	Shall be less than 2 kg
Installation and Fixing Details	Installed and fixed on the Fee Collector desk
Cables	- Power cable - Serial RS232C/ Parallel /USB/Latest
Cable routes	Power cable is terminated to the HLC Termination Block via booth ducting. Data cable is connected to the HLC
Power Supply Requirement	24 VDC + 7%
Access for maintenance, modularity of construction	The cover can be opened for maintenance. It also has paper sensors. Off-the-shelf product
Operating Temperature	5 C to 50 C
Relative Humidity	5 % to 90 %
Design Criteria	Print Speed: 47 LPS Print font: 9x17/12x24 Print column capacity: 56/42 columns
Other	Character size (mm): 0.99(W) x 2.4 (H) / 1.41 (W) x 3.4 (H) Paper dimension (mm): 79.5 + 0.5 (W) x 83 (diameter) Paper thickness: 0.06-0.07 mm Auto cutter life: 1.5 million cuts Real-time printer status: Auto status back (ASB) messages MCBF: 52 million lines MTBF: 360,000 hours, Overall MTTR: 0.25 hrs

7.2.15. Intercom Slave Unit inside Booth

a) This specification lays down the general, functional and technical requirements of intercom slave communication unit to be used as a sub-system in the Booth at the Plaza.

b) ISCU shall be used for communication between the Toll Collector at the lane and the auditor/ supervisor at the Plaza building.

c) ISCU shall have the following functions:

   i. Voice communication installed in the booths shall provide hands free two-way verbal communication between the supervision staff in the control room and the Collectors. The Collector shall be able to attract the attention of the auditor in the control room by pressing a single button on the intercom slave unit in the booth.

   ii. The equipment shall also have the facility to allow the supervision staff to monitor communication in the booth between the Collector and the user or between any booth without alerting the Collector.

   iii. The voice communication system shall operate independently of the Plaza Toll management system.

   iv. Voice communication shall also be implemented in various rooms of the plaza building and at building access points.

   v. Two-way communications shall be possible as soon as the auditor responds by selecting the appropriate lane button on the Master Communication unit

   vi. One-way communication shall be possible from the Control Room intercom to all lanes simultaneously (broadcast)

   vii. ISCU shall meet the following minimum technical specifications: -

Descriptions	Minimum Specifications
Installation and Fixing Details	Fixed in the booth. (wall/desktop mount)
Speech Method	Hands-free
Wiring distance	120 meters with 0.202 mm diameter (33 AWG) cable, 300 meters with 1.024 mm diameter (18AWG) cable
Speaker	20 ohms
Power Consumption	6 W (max.)
Power Supply Requirement	Power supply from Master System
Wiring	2 wires, non-twisted/IP Based Based/Latest
Environmental Considerations	Operating Temperature of 10OC to 50OC
Reliability	30,000 hrs

The Service Provider may also propose/ provide an IP based intercom system.

7.2.16. **Master Communication Unit (MCU)**

a) This specification lays down the general, functional and technical requirements of master communication unit to be used as a sub-system in the Plaza.

b) The master communication unit MCU is a master communication system to control communication between the Collector at the lane and the auditor at the Plaza building. The unit will be located in the Control room and controlled by auditor/ supervisor.

c) Technical Specifications:

Descriptions	Remarks
Power Source	24V DC
Current Consumption	Max. 1A, 80mA in standby
Communication	Push-to-talk at master station hands free at sub
Calling	LED and intermittent ringing tone at master until answered
Frequency Response	770 – 6800Hz
Total Harmonic Distortion	3% @ 1000Hz at 20 ohms
Mounting	Wall or desk mount
Wiring	2 conductor per sub station
MTBF	30,000 hrs

The Service Provider may also propose/ provide an IP based intercom system.

7.2.17. **Closed Circuit TV Surveillance System (CCTV)**

a) **General**

This part of the RFP covers the equipment and services to be supplied under CCTV equipment to be installed at the Plazas. The CCTV equipment shall be categorized as two types, CCTV for lanes and CCTV for Plaza surveillance.

The CCTV for lanes shall be:

i. Booth CCTV cameras

The CCTV for Plaza surveillance are:

i. Network Video Recorder (NVR)

ii. Video Management Software (VMS)

iii. Plaza Building Security CCTV cameras

All the cameras shall be IP based (Min. 03 Mega Pixel) and shall be connected to the Plaza Network video recorder (NVR). The video management software (VMS) installed on NVR shall provide the facility to control the cameras at the Supervision Control room at the Plaza Buildings. The video recording of each camera shall be stored at for a period of minimum 30 days.

The functionality of the CCTV cameras provided by the Bidder shall be described as follows:

Booth CCTV cameras – These cameras shall be installed inside of the booth to capture the activities of the Collector all the time and especially when doing the transactions along with the view of the paying vehicle. The position of the booth camera shall be decided accordingly. These cameras shall have inbuilt voice recording and SD memory card of minimum 32GB for local storage of videos and voice recordings.

Plaza Building Security CCTV cameras – These cameras shall be intended for monitoring of security areas such as the plaza compound, general parking area, Toll Control Room, cash room, plaza building lobby, Collector walkway, server room, UPS room, tunnel, parking, staircase, cash van loading area, etc.

The design of the CCTV system for the plaza shall consider the following: -

- Provide effective supervision and control

- Easy to use

- Self-contained system

- Increase span of management

- Reduce unnecessary travel

- View / evaluate situations quickly

- Motion detection

- Savings on time and manpower

- Easy access to video information and quick playback

- Minimize the use of security guards

- Eliminate unnecessary responses to false alarms

- Provision for future scalability

b) Booth Level CCTV

The booth CCTV camera shall be an IP based fixed dome type color cameras installed inside the booth to capture the activities of the Fee Collector while performing his operations. The camera also shall capture the view of the paying vehicle while capturing the transaction video.

These cameras shall have inbuilt voice recording and SD memory card of minimum 32GB for local storage of videos and voice recordings.

These cameras shall be connected to the NVR installed at the control/server room at each Plaza building.

The camera and NVMS shall be capable of triggering alarms in case of Video motion detection, manual trigger, digital input, periodical trigger, system boot, recording notification, camera tampering detection and audio detection. The triggering alerts can be controlled by the control room operator.

Technical Specifications of the Booth Cameras shall be as follows:

The technical specifications mentioned hereunder are minimum guidelines. The Applicant shall not deviate materially from the specifications specified herein.

Parameters	Minimum Specifications
Image Sensor	1/2.8" Progressive CMOS
Maximum Resolution	1920x1080 (2MP)
Lens Type	Fixed Focal
Focal Length	f = 2.8
Aperture	F1.8
Field of View	110° (Horizontal), 64° (Vertical), 135° (Diagonal)
Shutter Time	1/5 sec. to 1/30,000 sec.
Day/Night	Removable IR-cut filter for day & night function
Minimum Illumination	0.08 Lux @ F1.8 (Color) 0.001 Lux @ F1.8 (B/W)
IR Illuminators	Built-in IR illuminators, effective up to 25 meters or better IR LED*8
On-board Storage	SD/SDHC/SDXC card slot
Compression	H.265 & MJPEG
Maximum Frame Rate	30 fps @ 1920x1080 In both compression modes
Maximum Streams	4 simultaneous streams
S/N Ratio	Above 55dB
Dynamic Range	97dB or better

Video Streaming	Adjustable resolution, quality and bitrate
Image Settings	Adjustable image size, quality and bit rate, Time stamp, text overlay, flip & mirror, Configurable brightness, contrast, saturation, sharpness, white balance, exposure control, gain, backlight compensation, privacy masks, Scheduled profile settings, Seamless recording, smart stream, 3D Noise Reduction, Video Rotation
Audio Capability	Audio input /output (full duplex)
Compression	G.711, G.726
Interface	External microphone input Audio output
Protocols	IPv4, IPv6, TCP/IP, HTTP, HTTPS, UPnP, RTSP/RTP/RTCP, IGMP, SMTP, FTP, DHCP, NTP, DNS, DDNS, PPPoE, CoS, QoS, SNMP, 802.1X, UDP, ICMP
Interface	10 Base-T/100 BaseTX Ethernet (RJ-45)
ONVIF	Supported
Alarm Triggers	Video motion detection, manual trigger, digital input, periodical trigger, system boot, recording notification, camera tampering detection, audio detection
Alarm Events	Event notification using digital output, HTTP, SMTP, FTP and NAS server, SD Card File upload via HTTP, SMTP, FTP, NAS server and SD card
Connectors	RJ-45 for Network/PoE connection Audio output DC 12V power input Digital input : 1, Digital output :1
LED Indicator	System power and status indicator
Power Input	Max. 9 W (PoE)
Safety Certifications	CE, LVD, FCC Class B, VCCI, C-Tick
Operating Temperature	Temperature: -10°C to 50°C

c) Network Video Recorder (NVR)

H.265 Linux-based embedded standalone NVR shall be provided. Shall support 16-Channel /24-Channel / 32-Channel/above network cameras. The NVR shall be ONVIF compliant and scalable configuration with features to help users to set up and manage advanced IP surveillance systems with ease. The NVR shall also support remote and mobile access, via web-based application, and app for both iOS and Android devices.

The NVR shall have minimum following technical features:

    i.   H.265 Compression Technology

ii. Plug & Play One Button Auto Setup

iii. Intuitive, Intelligent and Interactive UI

iv. Live viewing, recording and Playback features

v. Embedded Linux OS or OEM Specific

vi. Support RAID 0/1/5 Storage

vii. Up to 12MP Camera Liveview & Playback

viii. Dual Lan Network Ports with Failover Function

ix. ONVIF Open Platform

d) CCTV cameras for Plaza Building surveillance (Server room, Control room, Cash room, admin)

The system shall be connected to the NVR. The VMS installed on NVR shall provide the facility to control the cameras at the Supervision Control room at the Plaza Buildings.

The cameras shall be for monitoring of security areas such as plaza compound, security garage, Control Room, Change of Shift Room and Cash Counting Room, Lobby, Hallway, Tunnel, Fee Collector Walkway, parking, staircase, DG room, electrical room, server room, UPS room, Loading Bay, etc.

These cameras shall be

i. Fixed lens Bullet CCTV night vision colour cameras.

ii. The bullet cameras installed outdoor shall be installed in the weather proof enclosure.

iii. Technical Specifications of the Plaza Surveillance Cameras shall be as stated hereunder. The technical specifications mentioned hereunder are minimum guidelines. The Bidder shall not deviate materially from the specification specified while preparing the Technical Proposal of the Tender.

Fixed lens Bullet CCTV night vision color cameras

Parameters	Minimum Specifications
Image Sensor	1/2.8" Progressive CMOS
Maximum Resolution	1920x1080 (2MP)
Lens Type	Fixed-focal
Focal Length	f = 3.6 mm

Aperture	F2.1
Field of View	83° (Horizontal), 53° (Vertical), 91° (Diagonal)
Shutter Time	1/5 sec. to 1/30,000 sec. or better
Day/Night	Removable IR-cut filter for day & night function
Minimum Illumination	0.06 Lux @ F2.1 (Color)
	0.001 Lux @ F2.1 (B/W)
IR Illuminators	Built-in IR illuminators, effective up to 30 meters
On-board Storage	Slot type: SD/SDHC/SDXC card slot
	Seamless Recording
Compression	H.265 & MJPEG
Maximum Frame Rate	30 fps @ 1920x1080
	In both compression modes
Maximum Streams	4 simultaneous streams
S/N Ratio	50 dB or better
Dynamic Range	95 dB or better
Video Streaming	Adjustable resolution, quality and bitrate, Stream
Image Settings	Adjustable image size, quality and bit rate, Time stamp, text overlay, flip & mirror, Configurable brightness, contrast, saturation, sharpness, white balance, exposure control, gain, backlight compensation, privacy masks, Scheduled profile settings, 3D Noise Reduction, Video Rotation, Defog
Audio Capability	Two-way audio (full duplex)
Compression	G.711, G.726
Interface	External microphone input
	Audio output
Users	Live viewing for up to 10 clients

Protocols	IPv4, IPv6, TCP/IP, HTTP, HTTPS, UPnP, RTSP/RTP/RTCP, IGMP, SMTP, FTP, DHCP, NTP, DNS, DDNS, PPPoE, CoS, QoS, SNMP, 802.1X, UDP, ICMP, ARP, SSL, TLS
Interface	10 Base-T/100 BaseTX Ethernet (RJ-45)
ONVIF	Supported
VCA	Line crossing detection, field detection, loitering detection
Alarm Triggers	Video motion detection, manual trigger, digital input, periodical trigger, system boot, recording notification, camera tampering detection, audio detection
Alarm Events	Event notification using digital output, HTTP, SMTP, FTP and NAS server, SD Card
	File upload via HTTP, SMTP, FTP, NAS server and SD card
Smart Focus System	Fixed Focus
Connectors	RJ-45 cable connector for Network/PoE connection
	Audio input
	Audio output
	DC 12V power input
	Digital input: 1, Digital output:1
LED Indicator	System power and status indicator
Power Input	DC 12V
	IEEE 802.3af/at PoE Class 0
Power Consumption	Max. 9 W
Casing	Weather-proof IP66-rated housing
	Vandal-proof IK10-rated metal housing (Casing Only)
Safety Certifications	CE, LVD, FCC Class A, VCCI, C-Tick

Operating Temperature	10°C to 50°C

7.2.18. Network Switches 24 Port (Layer 3)

a) General

   i. The Service Provider shall supply and install network equipment at each Plaza and each toll gate to connect Plaza building system with toll lane systems. At the Plaza, the Service Provider shall supply and install all equipment, cables, connectors, terminals and other miscellaneous materials necessary to establish a working local area network connecting these two systems.

   ii. The network configuration shall be determined by the Service Provider. The cost of the network devices and materials that is not explicitly listed in the BOQ of this Contract but necessary for the system shall be deemed as included in the cost of appropriate items and the Contract Price, and no separate payment shall be made.

   iii. 8-Port PoE industrial grade rugged managed switch with 2 fibre port shall be provided in each lane to connect all lane peripherals. No unmanaged switch shall be provided in the ETC lane. This 8-Port switch shall be installed inside the Electronic Enclosure of the Toll Lane Controller. Managed switch will ensure that the data transmission between the lanes and ETC server is smooth and faster. This will also prevent data broadcasting from lanes which may result in chocking of the entire network and slows the data transfer and efficiency of the lane equipment.

b) **24 Port Layer 3 Switch with 4 Fiber Port**

   i. Switch should support port security, DHCP snooping, Dynamic ARP inspection, IP Source guard, BPDU Guard, spanning tree root guard.

   ii. Switch should be IPv6 Certified/IPv6 logo ready and Switch / Switch's Operating System should be tested and certified or in process of certification for EAL 2/NDPP or above under Common Criteria Certification.

   iii. Switch should have 1:1 redundant internal power supply. Power supply modules, fan modules and transceivers modules should be hot swappable.

   iv. Should support IEEE Standards of Ethernet: IEEE 802.1D, 802.1s, 802.1w, 802.1x, 802.3ad, 802.3x, 802.1p, 802.1Q, 802.3, 802.3u, 802.3ab, 802.3z, 802.3az.

   v. Switch shall have minimum 24 nos. 10/100/1000 Base-T ports and additional 4 nos. SFP uplink ports loaded with MMF modules with dedicated stacking ports

   vi. Switch shall have wire rate performance and 48 Gbps of dedicated stacking bandwidth.

7.2.19. **ETC Server (Plaza Server)**

Preferred make – Cisco, Dell, HP, Lenovo and IBM

a) The local ETC server is responsible for the control, data storage, processing and administration of the toll operation. It shall be the responsibility of toll management server to synchronize all activities of toll collection process, data and time of all workstations.

b) There shall be a separate partition for Operating System. All Data files shall be stored in a separate partition. Image files shall have a separate 3rd partition. This scheme is applicable not only for the LOCAL ETC SERVER but in all levels of Toll System.

c) Storage sizing at each level shall be backed up with corresponding file size per transaction / record as part of technical specifications delivery. If required, the HDD finalized as part of BOQ shall be revised to handle the data storage capacity requirement as per the requirement without any additional cost to the Purchaser.

d) **General Requirements**

   i. The manufacturer of the server and workstations shall:

- Be a well-known and established company worldwide in the field of Information Technology.

- Have an established and appointed representative or authorized agency in project location.

   ii. The Contractor of the server and workstations shall:

- Be a well-known and established IT hardware supply company in project location.

- Be a registered representative of the original equipment manufacturer in project location.

- Be capable of supplying adequate after-sales service and support on 24X7 basis.

e) **Platform**

The server shall make use of minimum 64-bit platform.

f) **Configuration**

   i. Processor board: shall have the capacity to accept up to 4, 64-bit central processor units.

   ii. Central Processor Unit/s: shall be 64-bit, Xenon 3 GHz or superior latest available speed at the time of delivery to the site.

   iii. Number of Processors: 2

   iv. RAM: 32 GB (Upgrade up to 64GB)

v. RAID (Redundant Array of Inexpensive Disks): shall use RAID5 with hardware RAID controller.

vi. Server should have RAID controller with 4GB battery backed write cache (onboard or in a PCI Express slot)

vii. Server should have USB 2.0 support With Up to 2 rear, 1 internal, USB 3.0 support with up to 1 Front, 2 rear, 1 internal

i. SCSI Controller: shall have a minimum of two channels

ii. HDD: hot swap disks of latest available speed; capacity shall be based on data retention of all data for a period of 5 years

iii. DVD R/W: latest available speed

iv. Network Devices: 3X10G (Gigabit) LAN NIC (Network Interface Card)

v. Power Supply: shall have a dual hot swap power supply to provide redundancy

vi. Fan: Redundant hot-plug system fans

vii. Connectivity: Two (2) standard communications ports (D sub 9 pin), Four USB (Universal Serial Bus) ports (High Speed USB 2.0), SVGA Screen port

viii. Light path diagnostic with external visible panel

ix. LCD display for server operational log (events)

x. Integrated system management processor on board

xi. Optical scroll Mouse

xii. Redundant hot-plug system fans

xiii. 17" TFT monitor

g) The server including all accessories listed above shall be installed in server rack.

h) Software Compatibility

The server shall be capable of supporting the following software platforms:

i. Operating System:

The operating system shall be an industry standard and with a global recognition which shall be installable and operable with no specific or any rare skill required. The easy to operate and popular OS as mentioned below are preferred.

- Windows

- UNIX

- LINUX (64bit platform) or compatible

ii. Database:

The various software which handle the data in a database i.e. DBMS (like Oracle, SQL Server, DB2 etc.) should meet the requirements as mentioned further and is not limited and should be enhanced as per system requirements.

- The complexity of the data e.g. whether data is images, text, sound, videos, or various other formats.

- The data will be accessed and edited by one or multiple people/session simultaneously.

- The security and integrity level of the data should be well manageable by the DBMS system.

- The amount of data can be stored and processed by the database software.

i) Backup Device

Backup device shall be connected with the server and/or network and shall be DLT drive with optimum storage or media size. This backup device can also be capable to take the backup with automated task and scheduling. If required, such backup management device shall be accompanying with a compatible software to cater the service at the front end with all the job details and history

Back Up Tape Drive Specification:-

Description	Remarks
Capacity	Shall support Native data capacity of 60TB (uncompressed) expandable to 150TB (2.5:1 compressed). Shall be offered with Minimum of two LTO6 FC tape drive. Drive shall support encryption Shall be with 24 Cartridge slots.
Tape Drive Architecture	drive in the Library shall conform to the Continuous and Data rate matching technique for higher reliability.
Speed	drive shall support 160MB/sec in Native mode
Scalability	Tape Library shall be scalable to max two number of LTO-6 drives within the same frame.
Connectivity	Tape Library shall provide 8Gbps native FC connectivity to SAN switches.
Partitioning	Tape Library shall have at-least two partition support so that drives can be configured in a partition with dedicated slots.
Encryption device	Library shall be provided with a hardware device like USB key, separate appliance etc. to keep all the encrypted keys in a redundant fashion.
Management	Tape Library shall provide web based remote management.
Barcode Reader and Mail slots	Tape library shall support Barcode reader and mail slot.
Other Features	Tape Library shall have GUI Panel Shall be rack mountable. Shall have option for redundant power supply Tape Library shall be supplied with software which can predict and prevent failures through early warning and shall also suggest the required service action. Software shall also have the capability to determine when to retire the tape cartridges and what compression ratio is being achieved

Warranty	Tape Library should have 05 years 24 hours a day, seven days a week for assistance on resolving issues. Hardware onsite response within four hours if needed.

j) Archive Storage Device

i. Archival storage shall be a type of storage designated for data that is not currently needed but must be saved so that it can be accessed in the future, if and whenever necessary. Backup solutions typically provide for data archiving as well. This device shall be connected with the server through the network port and shall be online with the server and network for easy moving, sharing and accessing of the data. It shall be of any reputed make with service and support availability in India and of RAID configuration for securing of data to retain

ii. This device shall be connected with the server through a USB port and shall be of any reputed make with service and support availability in India and of RAID configuration.

iii. This device shall contain all the archived data on a monthly basis after the 5-year retention period. It shall be possible to restore a COPY of the archived data for selected months to the live database as and when required and can be removed immediately after it serves its purpose. Since, this data is to be utilized only for reporting purposes, all the transaction and related data shall be retained in the Archive until the end of contract period.

iv. However, the LPIC, ICS images and AVC profile images grabs against each transaction can be archived separately on Tape after the 5-year retention period and will not be stored in the Server Hard disk and USB based Archive storage device.

k) System Image Storage Device

A separate secure external HDD shall be supplied for storing the ghost images of all fresh installation of lane / AVC controller and other modules, local ETC Server, etc. After restoring this ghost image, it shall be possible to import / configure the lane / equipment specific characteristics before normal operation of the equipment. Any data required shall be restored from the back-up device. In case of local ETC Server restoration, the current day data after backup to external storage device can be retrieved from the lanes.

l) System Software

i. The system shall be in centralized kind of environment and all workstations must be connected   and synchronized to it.

ii. An additional secondary or stand-by server shall be provided, which shall take charge, immediate or with minimal preparation, of Primary server in case of its failure. In other words, this shall be a hot stand by to the primary server in all aspects.

iii. The specification, make, model of all the accessories of the secondary server shall be same as that of the primary server.

m) Licensing

License for each server, workstation operating system, Database management system software, any database maintenance software or any other software (MS-OFFICE package, Backup management, System image tool, etc.) used in toll system, which requires a license, shall be provided by the Service Provider in the name of IHMCL without any additional cost to IHMCL.

n) Database Management System

i. Database shall be a relational database management system.

ii. Lane system shall not have any direct database access. Data from the lane going to the database shall be through dedicated software that runs on database server.

o) Data Network

i. The data network shall be Ethernet format. The network shall use TCP/IP protocol and the cabling shall be STP / MM OFC and it shall be compatible with all network system and equipment.

ii. Care shall be taken to ensure that the cable and the network switches used between two equipment shall be able to cater to the speed of the higher NIC.

p) Remote Access

Remote access shall be through a safety system as a remote connection server or firewall system. The Toll system network shall be compliant with the majority remote access equipment and remote access system and it shall be configured with any remote system available at site.

q) Hardware and Software Control System

i. Hardware and Software fault logging system. This shall include all information regarding faults, downtime and repair time, imported from the ETC Server.

ii. Help Menu

An intuitive and interactive help system that can be activated from anywhere in the TMS system.

r) Security System

i. A facility to allow IHMCL to manage users and their access levels.

ii. The plaza ETC system shall at its highest level determine access to the separate modules by any employee. It shall have the facility to define the employee according to an associated level or duty, and provide a mechanism, whereby access is restricted.

iii. All USB and CD R/RW of workstation shall be disabled and except Administrator no one shall have any right assigned to add, remove or modify any program on any of the workstations.

iv. Nothing other than toll collection and operations function shall be accessible to any level of toll operation function. If need arises, then the user shall logout, exit the application using administrator rights.

v. After this Logoff from the system the user shall login into Windows with Administrator rights and perform any required action. This is applicable for all levels of the Toll System.

s) Workstations Management

At any time, if the purchaser wants to add additional workstations and its peripheral hardware from the system, shall be able to do so without any additional cost to the purchaser.

t) Interfaces

The system shall be designed using Open interface architecture at all levels of hardware used. In future, it shall be possible for IHMCL to change any make / model of any hardware without dependency on the Contractor.

u) Data Management and Integrity

The basic need for data integrity is the account closing at the administrative level. The closing process assumes that all data from the lanes has been introduced into the database.

i. This can be resumed to:

- Guarantee the data in database is complete

- Guarantee the data in database is correct

ii. This is accomplished with:

- Checksum: let detect errors in data

- Data type sequencing: let detect missing sequence

- Communication sequence: this is a periodic messaging to allow detection of communication failure

Since, the whole Toll Collection system is designed to detect and subsequently prevent misuse in any manner and collect all collectible revenues, any transaction / operation

performed in any level of the Plaza ETC system shall be recorded in the system on detecting a definitive positive / negative confirmation only. Usage of any other irrelevant keys under such conditions shall display a warning message to use the correct keys.

v) Data Sequence

Each message / transaction shall have its own sequential number.

w) Missing Data Detection and Resolution

iii. The conditions to be sure all data is in the database in a given moment are:

- All message sequences received were correct (no checksum errors)

- There were no jumps in message sequential number

- There were no jumps in message type sequential number

- The Communication sequence is being received with no gaps and small permissible delays.

- The message sequence type counters into Communication sequence are in accordance with the counters received in actual messages.

- The program used to insert lane messages into the database keeps making the above checks. If any problem is detected, it is signaled to plaza level.

- If any of the conditions above fail, the system signals a problem with the data on a connected workstation in graphical form i.e. for each lane by hour. The resolution of the problem is:

  ➢ If there is a data error (message received with bad checksum or bad data fields) the system automatically tries to read the TLC / AVC message again.

  ➢ If data is missing, the normal way to solve this will be to make an export from TLC and import in Administrative System using lane data import function. If the problem persists,

The specific situation will have to be analyzed by going in details like which kind of data sequence is missing - revenue or non-revenue, the missing sequence details shall be made available just by clicking on the failure block of the lane data as represented by the lane data failure graphics.

x) Data Import / Export System

Reports Information

To a Microsoft Excel, comma separated, PDF and MS Access compatible database file.

y) Data Backup & Restore System

Data shall be backed up onto a removable medium on a regular basis for removal from the premises. Contractor shall submit a backup process and plan with the proposal, IHMCL's agreement and approval is required before its implementation.

z) Data archiving / restore

Data archived on removable media on a regular basis shall be as specified under relevant clause.

All data shall be transferred / appended to removable electronic media / USB based Archive Storage device at monthly intervals and stored after the expiration of the prescribed period for retention of the data on various system levels, the data may be removed from the system. The plaza ETC system shall provide the facility to perform these functions.

aa) Data Redundancy

i. All transaction and incident data shall be retained duplicated and stored within the various levels of the toll collection system such that should any level or component of that level suffer a partial or total failure, the data is not irretrievably lost to the system. In addition, it shall be possible to reconstruct and restore the data for the failed level form the stored data into its original format.

ii. Data retention times within the various levels shall be at least:

- Vehicle Processing at Lane Level: 1month

- Plaza level:

  ➢ Detailed Data : 36 months

  ➢ Archived Data on USB Archive Storage : 10 years

bb) Data Transfer

No workstation / controller can be used as a router to send data to the server database; all data shall be reported directly to the server.

7.2.20. Incident Management Workstation

a) This module facilitates the supervisor to acknowledge incidents and to correct class discrepancies generated at lane level. Incident capture camera and License plate capture camera image/s and sensor outputs shall help supervisor in deciding the correct class of the vehicle and other validation actions.

b) Incident Management

i. The GUI shall be so designed that it shall be possible for the Supervisor to view at least the following information corresponding to each incident:

- Plaza ID

- Lane ID

- User ID (of the user who was logged in lane at the time of incident generation)

- User Name (corresponding to above User ID)

- Transaction Number

- Transaction Date & time

- TLC Class

- TLC / TAG VRN

- TLC MOP

- AVC Class

- Axle Count

- Processed by (User ID of the Supervisor who processed the incident)

- Supervisor Name (corresponding to Processed by User ID)

- Corrected Class

- Corrected VRN

- Supervisor Action

- TAG Media ID

- ICS image (with watermarked Date / Time stamp, transaction number, incident type, etc.)

- LPIC image (with watermarked Date / Time stamp, transaction number, lane VRN, etc.)

- Event details (events / anomalies associated with this transaction – each transaction starts when Valid TAG Media is detected – for media based transactions / AVC Loop is triggered for violations and ends when the vehicle liberates the AVC loop)

ii. For processing of incidents / review of processed incidents, the Supervisor can filter the list of incidents based on the following:

- Plaza ID (Default – All) Drop down menu form

- Lane ID (Default – All) Drop down menu form

- User ID (Default – All) Drop down menu form

- Transaction Date & time duration – From & To (Default – Current Date) User configurable

- TLC Class (Default – All) Drop down menu form

- TLC MOP (Default – All) Drop down menu form

- AVC Class (Default – All) Drop down menu form

- Axle Count (Default – All) Drop down menu form

- Processed by (Default – All) Drop down menu form including blank which shall be the case until incident is processed.

- Corrected Class (Default – All) Drop down menu form including blank which shall be the case until incident is processed.

- Supervisor Action (Default – All) Drop down menu form including blank which shall be the case until incident is processed.

- Event details (Default – All) Drop down menu form

- Processed Incidents / Not Processed Incidents

iii. In addition to the above, it shall be possible for the Supervisor to search for a particular record based on any / combination of the following search criteria:

- User ID

- Transaction Number

- TLC Class

- TLC / Media VRN

- TLC MOP

- Processed by

- Corrected Class

- Corrected VRN

- Supervisor Action

- TAG Media ID

iv. Based on the MOPs defined in the system and the Incident configuration, it shall be possible for the Supervisor to correct the class of the vehicle, Vehicle Registration Number (VRN) and Confirm / Reject the Lane MOP.

v. The incidents can normally be processed by Supervisor by performing selections / feeding information on one and / or all of the below fields:

- Corrected Class

- Corrected VRN

- Comments (optional)

vi. It shall be possible for the Supervisor to perform these actions only by double clicking on a particular incident to view all information in detailed view before processing the incident.

vii. It shall be possible at Plaza ETC system level to configure following on selection menu basis in order to activate and deactivate by administrator level function:

- Capture of ICS image none, for selected type of incident, for all types of incident, for all transaction.

- Capture of LPIC image none, for selected type of incident, for all types of incident, for all transaction.

- Record and report incident transaction at incident management system, none, for selected type of transaction, for all transaction.

viii.   Other functions

- In addition to the above primary function of the Supervisor, the following functions shall be performed by the Supervisor:

  ➢ Data Completeness

  ➢ Shift Consolidation

  ➢ Day Consolidation

  ➢ Month Closure

  ➢ Lists Transfer Status

The above functionalities are explained in detail below.

ix. Data Completeness

- The Supervisor can verify the status of data transfer between the lanes and workstations on an hourly basis. Wherever, the data transfer status is not OK, a separate process shall be available through which the Supervisor can re-request data transfer to correct the status.

- The Data completeness procedure shall check at least the following minimum items:

  ➢ Transaction sequence jump

  ➢ Transaction sequence reset

> Gap in time (if regular data packets are not updated), etc.

- The Data completeness procedure needs to be defined and a separate document shall be provided by the TCE Supplier on how this feature is to be accomplished in the system.

x. Day Closure

- The Day Closure option is used by the Supervisor to close each Operational day. When the Supervisor selects this option, the system shall display the current status of Operation in terms of data exchange.

- When, the supervisor closes the day, the following conditions shall be verified by the system before generation of Day Closure Report:

    > Data completeness

    > Data transfer to CCH completeness

- If any of the above checks fail, the system shall display an alert (POP-UP) to the Supervisor to perform these pending operations before day closure.

- This procedure shall ensure that no data generated is left unattended for review / reconciliation.

xi. Month Closure

- Month closure is performed on a monthly basis on a complete calendar month. Once, this option is selected any day pending closure shall be brought to the notice of the Supervisor. For ensuring that all data and all corrections are complete and no deconsolidation whatsoever shall be required

- any further, the month closure for a particular month shall be performed on the 2nd day of the subsequent month (configurable).

- Once, this operation is performed, no changes whatsoever can be made through the application to the transaction data of the corresponding month whatsoever. Deconsolidation option shall not be available and all manual overrides with respect to these transactions shall not be possible.

- Whenever, this operation is confirmed, system shall ensure that this operation is performed after debt recovery. A warning message to this effect shall still appear for the Supervisor to ensure and confirm that the debt recovery process for the month for which month closure is being performed is already complete.

xii. Lists Transfer Status

- In addition to the transaction data, there can be various lists related to users, media, classification, fare, configuration, parameters etc. which shall be transferred between server and workstations / lanes.

- The status of all such lists shall be displayed on selection of this option. The status shall include the following:

  - Name of the list

  - Version of current transfer

  - Version of previous transfer

  - Date & time

  - Frequency of transfer (in HH:MM format)

  - Transfer Status

- It shall be possible for the supervisor to re-request / re-transfer any failed list transfers.

- Also, all lists shall be retained in the system along with date of activation and date of expiry in addition to the version details.

- All the above listed functionalities are the core responsibilities of the Supervisor and only he / she can perform the above functions. Any user of a higher user-group though can view the actions performed by the Supervisor / current status but cannot modify anything unless explicitly so mentioned.

xiii. Fare table management

- The following functions shall be performed by the Toll Manager:

  - Fare table management (updation / revision subject to Project Manager authorization in the system through his login)

  - Whenever a new version of fare table is generated, the old fares and contracts shall be picked up by default. It shall be possible for the user to further modify these fares and set the date / time of activation.

xiv. Other Toll Manager Functions

- **Incident Management**

  The Plaza manager can view and access all features / options of this function. However, he / she cannot perform any modifications / corrections.

- **Data Completeness**

  On certain conditions when the Data completeness status cannot be corrected due to false triggers, non-revenue data missing, revenue data missing, etc., an option shall

be available for the Plaza manager to manually override such statuses in order to restore the operational flow.

xv. Users Management

- The following are the various user groups that shall be available in the system:

Operations	Finance	System
Project Manager	Finance Manager	Administrator
Toll Manager	Cashier	Maintenance
Supervisor		

- When the user is created for the first time, all the information below is mandatory.

  ➢ Name

  ➢ Address

  ➢ Date of Birth

  ➢ Contact Person

  ➢ Contact Number

  ➢ Email ID (optional)

  ➢ User ID

  ➢ Activation date

  ➢ Valid upto

- The status of account and Date of creation shall be displayed against all the existing users in the system. User account can never be deleted from the system once created, as there can be operations / transactions performed by the user that exists in the database and is required for reporting purposes.

xvi. Administrator Functions

In addition to the normal functions listed above, administrator can perform the following operation.

- **Lists Transfer Management**

  The administrator can manually copy the latest version of lists from the local ETC Server and restore the same in all the lanes.

- **Incident reporting levels**

> ➤ The system will allow the assignment of a level of importance to each incident and also define if the incident should be acknowledged by the supervisor.

> ➤ The system has different levels of importance that can be assigned to different types of incidents. They shall be colour coded to facilitate easy visualization by the supervisor.

xvii. Incident Recording

ICS image capturing start from loop occupation to loop liberation and an additional configurable time limit after loop liberation of that transaction. Image capturing shall timeout after 30 seconds (configurable) after loop occupation irrespective of the above condition.

xviii. System Configuration for Incident management

One number of Incident management workstation with following configuration and peripherals shall be supplied by the Contractor.

The following minimum configuration requirements shall be met:

- Make : Reputed Branded

- Grade : Industrial Workstation

- HDD : based on estimated storage requirement for 6 months data (at least 500 GB in case estimated capacity is lesser) of latest RPM

- RAM : 4 GB or latest

- Processor : latest Intel Processor

- Processor speed to the site : latest available in the market at the time of delivery

- CD ROM : latest available

- PCI Slot : 2 Nos. Spare

- USB Port : 4 nos.(high speed)

- NIC : 1 Gbps On-board

- RS232 port : 2

- LPT port : 1

- PS2 port (mouse) : 1

- PS2 port (keybrd) : 1

- Monitor : Colour 17" TFT

- Mouse   :   Optical

- Keyboard   :   Standard

7.2.21. Plaza UPS

a) Online UPS (10 KVA) with 4 hours of backup and sizing based on power requirement calculation, shall be provided by the Applicant. The UPS design shall take the following into account:

i. The system shall be capable of maintaining an uninterrupted power supply to the UPS loads for a sustained period of at least 4 hours under full load conditions from a fully charged battery.

ii. It shall also be capable of continuously supplying power to the system under an intermittent interruption cycle.

iii. The UPS shall be capable of operating at input voltages of 210/380Volts ±10% and 50 Hz ±2.5 Hz.

7.2.22. Lane Level Online UPS (1 KVA):

Parameter	Minimum Specification
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

7.2.23. Software – Lane level

As described under various sections of this document.

7.2.24. Software – Plaza level

As described under various section of this document.

7.2.25. **Wi-Fi Enabled RFID Handheld Reader**

Minimum Specifications	
Dimensions:	Maximum 192mm x 87mm x 151mm or equivalent/latest
Weight:	743g/ 26.21oz, or equivalent/latest
Display:	3.5'' QVGA (240*320), 6.5M colors or equivalent/latest
Touch Panel	Rugged resistive touch panel, or equivalent/latest
Power	Main battery: Li-ion, 3200mAh or equivalent/latest
	Pistol battery: Li-ion, 5200mAh or equivalent/latest
Expansion Slot	1 MicroSD (TF) slot or equivalent/latest
Interfaces	Micro USB(OTG) or equivalent/latest
Audio	0.5W speaker or equivalent/latest
Keypad	Numeric / Qwerty or equivalent/latest
User Environment	
Operating Temp.	-4oF to 122oF / -20oC to 50oC
Storage Temp.	-40oF to 158oF / -40oC to 70oC
Humidity	5%RH - 95%RH non-condensing
Drop Specification	Multiple 1.5m drops to concrete across the operating temperature range
Tumble Specification	1000 x 0.5m/1.64ft falls at room temperature
Sealing	Host IP65 per IEC sealing specifications
Communication	
WLAN	IEEE802.11 a/b/g/n
Bluetooth	Bluetooth 2.0+EDR
RFID	
UHF	

Engine	CM2000-1 module, based on Impinj Indy R2000, or equivalent/latest
Frequency	865MHz-867MHz as per Indian Standard
Protocol	EPC C1 GEN2 / ISO18000-6C
Antenna	Linear polarization (1.8dBi); circular polarization (4dBi)(Internal Antenna)
Power	1W (30dBm, +5dBm to +30dBm adjustable)
R/W range	>22m (circular polarization, indoors); >8m (circular polarization, open outdoors); >4.5m (linear polarization, open outdoors);
Reading rate	>200 tags/s (circular polarization)
* Range and rate depend on tags and environment	

7.2.26. Industrial Grade outdoor rugged Wi-Fi Access Point

The Wi-Fi Access point shall be provided as backup for the wired LAN network. If the plaza server is operational and only lane system or network is down, the data transmission from lane (in case LAN network connectivity between lane area and plaza area is down) and the Handheld (in case ET or Lane system is not functional and lane is operated using HTT) shall communicate to the plaza server / HHT workstation in real time through Wi-Fi access point installed in the lane area, provided the power supply is available in lane for Wi-Fi access point. One Wi-Fi access point shall also be installed in the plaza area for communication and two Wi-Fi access point in lane area (one in each direction) shall be installed at the location in canopy to ensure that all lane area is covered and HHT of each is able to communicate with plaza system. The Wi-fi Access points shall be connected to the LAN network in the lane area. The minimum specifications of Industrial grade outdoor rugged Wi-Fi Access Point are as follows:

a) Wall/Ceiling/Poll mounted Wi-fi access-point suitable for outdoor use with at least 1 10/100/1000Mbps Ethernet ports supporting standard 802.3af/at POE+. Should have additional SFP port for direct fiber termination if required

b) 802.11ac AP should operate in 2.4 GHz (450 Mbps or more) and 5 GHz simultaneously and capable of minimum 860 Mbps on 5 Ghz for 802.11ac clients supporting minimum 2x2 MIMO with 2 spatial streams. It must support minimum 2 concurrent MU-MIMO users.

c) The access point should be capable of performing security scanning and serving clients on the same radio.

d) Must support minimum 27dbm of transmit power in both 2.4Ghz and 5Ghz radios with the support of both Omni and directional (min 120degree) external antenna options.

e) Security mechanisms should be in place to protect the communication between the Access Point controller and the Access Points.

f) The access point should support WPA2 enterprise authentication and AES/CCMP encryption.

g) AP should support 802.11k for Radios Resource management and 802.11r for fast roaming.

h) Implement Wi-Fi alliance standards WMM, 802.11d, 802.11h and 802.11e and should support VoWLAN

i) AP must support L7 Application Identification and spectrum analysis functions

j) AP should support Minimum -90dB Receiving sensitivity. AP should support Receiver sensitivity Threshold to reduce noise reception in the AP to increase SNR and performance

k) 802.11 a/b/g/n/ac wave 2 functionality certified by the Wi-Fi alliance, should be IP67 rated and RF transmission power should be approved by WPC.

l) AP should support up to 100-mph sustained winds and up to 165-mph wind gust.

7.2.27. Firewall Hardware

a) General Requirements

    i. Certified by ICSA 4.1x and EAL 4+.

    ii. Internationally accepted marked/Certified like FIPS, USGV6, RoHS, UL/CUL, FCC, CE,

    iii. VCCI, ISI, etc.

    iv. Firewall should be either IPv6 Ready Logo certified or equivalent.

    v. Support Unlimited IP/User license.

    vi. Support user defined multi zone security architecture.

    vii. Firewall policy must facilitate IP, Network, Port, Protocol, Application and Zone.

    viii. Should facilitate to apply policy like IPS, Content filtering, Traffic shaping & policy based

    ix. routing decision on any firewall policy.

    x. User authentication facilitated by services like LDAP and RADIUS.

    xi. Management over GUI using HTTPS or equivalent secure mechanism, SSH and console

    xii. access.

    xiii. Management access control using Profile/Role based for granular control.

    xiv. Support at least eight firewall domains/instants with centralized management and with each

    xv. firewall domains/instances having a separate administrative control OR equivalent.

7.3.   **Proprietary Toll Management Software (PTMS) Specifications**

7.3.1. **Functional Requirements**

a) **General Requirements**

This functionality shall meet the lane operation described in the subsequent sections.

b) **Transaction Data Format:**

The following shall be the minimum data that make up an ETC transaction

i.   Transaction ID

ii.   Tag ID (TID, EPC, and User Memory)

iii. Plaza and Lane ID

iv.   Date and Time Stamp

v.   AVC Class

vi.   Image of vehicle (AVC, License Plate and Incident Capture Camera)

The above may be modified during project execution in order to optimize the performance.

c) **Transaction Processing**

The System shall:

i.   Have functionality to feed in transaction data through RFID ETC transceiver, Handheld RFID Reader devices and manually entry of Registration no. of vehicles.

ii.   Validate each transaction for completeness (e.g. possessing all the related information like Tag ID, Vehicle class etc.)

iii. Check for duplicate transactions (e.g. the same tag cannot be used in the same direction within a specified duration at the same plaza)

iv.   Support generation of a wide variety of reports as given below but not limited to:

- Revenue reports (Lane Wise)

- Traffic reports (Lane wise all mode of traffic report)

- Penalty Collection report lane wise

- Daily / Weekly / monthly reconciliation reports

- Violation reports

- AVC Accuracy Report (Lane Wise/ Overall)

- Separate ETC report for Handheld reader

- Equipment uptime reports (RFID Reader, AVC, TLC, LPIC, ICS and Server)

v.   Security

- Login feature for accessing the System

- Access the system based on roles definition, toll collector cannot minimize the lane application and limited accessibility to work on workstation by toll staff.

- Storage of Sensitive data like password in an encrypted format

- Use of Complicated passwords: password should be more than 6 characters and should have at least one numeric character.

- Automatic logging of every sensitive action in the system.

vi. Scalability

The System / Servers shall be scalable to support increase in Tag Users / ETC transactions in future. During the time of system commissioning each lane of the system shall be capable to support 10 million tag users and 100,000 (One Lakh) transactions per day and at the end of 5 years shall be capable enough to support 50 million tag users and 5,00,000 (Five Lakh) transactions per day.

Automatic Lane closure

The ETC lane shall close automatically in case of detection of failure of critical equipment like RFID Transceiver, Boom barrier, LPIC camera, AVC system. In such cases the OHLS shall display that ETC lane is closed and the ETC exit barrier shall remain closed.

d) The key features of the PTMS are as below:

i. Highly secured and reliable system – Integrated Dashboard to monitor real time cash collection along with ETC transaction with many checks and balances, and data archiving options.

ii. Convenience of Plug and Play feature – Support easy integration with various existing all HETC infra equipment/software at toll plaza, Interface with complementary systems (e.g. Plaza Queue monitoring) for TMS performance management

iii. Centralized remote real-time System monitoring – of toll collection, Lane & Plaza level equipment availability status, software sub-modules, etc.

iv. System shall automatically deduct double toll fare for cash vehicle passing through the FASTag express lane.

v. Focus on Security - Adequate levels of encryption in database, transactions and communications.

vi. Focused on enhanced ETC performance – Support for both the existing SFTP-based communication (as per ICD 2.4 document) and the proposed API-based communication (as per ICD 2.5 document)

vii. Scalable to other electronic media - Use of other ETC media e.g. Contactless Smart card (e.g. NCMC), QR based payment, mobile ticketing etc. for rapid toll payment

e) General System Requirements

S.No	General Requirements
i.	The information flow should be designed to ensure that the system can operate with minimum bandwidth (128 Kbps) for access and operation.
ii.	The System should be deployed as easy-to-use plug and play application at Plaza servers. These applications should automatically transmit report related data (as captured in reporting layers) to a Central system at each minute for re-porting and dashboard purpose.
iii.	System should be interoperable with various systems deployed across toll plazas. • AVC interface • WIM interface • RFID transponder • Acquirer systems related to various electronic transactions • Payment gateway • Smart cards
iv.	The User interface of the web-enabled parts of the system should be designed to open in at least the following standard/popular browsers • Microsoft Internet Explorer • Mozilla Firefox • Google Chrome • Apple Safari
v.	The System should have accuracy in the capture, processing, communication and reporting of Toll Transactions and associated information as per defined standards.
vi.	The System should have features to ensure integrity and reliability as per defined standards in conditions like high humidity, dust, rains, temperature variations, and other adverse conditions, that may happen in the Toll Plaza.

S.No	General Requirements
vii.	The System should be browser independent to the extent possible, the look and feel and the accessibility of the application should be similar across browsers.
viii.	The System should automatically detect access by mobile browsers and adjust contents accordingly.
ix.	The System must allow archival, retention and deletion of records as per IHMCL/NHAI's records retention policy of retaining records for a period of 10 years.
x.	The System should require captcha-based sign-on for any sign-on to the system, unless otherwise specified in this document for a particular module (e.g. Biometric login for TLC)
xi.	The System should be designed in a modular approach to ensure that it can easily interface with new IT applications and systems that IHMCL/NHAI intends to implement during the project lifecycle, for example, GPS based tolling system.
xii.	The System should be scalable to other electronic media - Use of other ETC media e.g. Contactless Smart card (e.g. NCMC)), QR based payment, mobile ticketing etc. for rapid toll payment
xiii.	The System should have convenience of Plug and Play feature – Support easy integration with various existing all HETC infra equipment/software at toll plaza, Interface with complementary systems (e.g. Plaza Queue monitoring) for TMS performance management
xiv.	The System should be intuitive, easy to learn system based on level of use with users becoming effective with minimal training time.
xv.	The System should be designed in a modular approach to ensure that it can easily interface with new IT applications and systems that IHMCL/NHAI intends to implement during the project lifecycle, for example, GPS based tolling system.
xvi.	All webpages should have pop-in as well as separate help menus to help users navigate easily across the system.
xvii.	The System should be integrated with mobile wallet / PPI business as prescribed by the Grantor.
xviii.	The System should cater to various solutions as required by Acquirer Bank as per ICD 2.4 (included in Appendix 4), or the current version as amended from time to time.

S.No	General Requirements
xix.	The System should have features to integrate with various hardware specifications as specified by IHMCL within this RFP and the following RFP: Tender No. IHMCL/HETC/2020/01; However, IHMCL/NHAI reserves the right to delete from /modify/ add to these specifications, from time to time, in the interest of system improvement.
xx.	The System shall have provision of Data archiving as described below: • Summarised data shall be archived on removable media on a regular basis so as to free system resources. All plaza level data shall be transferred to removable electronic media at monthly intervals and stored. The archived data should be secured as per Data Encryption Policy 2017 (https://www.meity.gov.in/writereaddata/files/Guidelines-Contractual_Terms.pdf) • After the expiration of the prescribed period for retention of the data on the various system levels, the data may be removed from the systems. The TMS backend shall provide the facility to perform these functions. The archived data written to the electronic media shall be fully accessible by the TMS and the various reporting facilities of TMS without the necessity of having to restore the data.
xxi.	Data should be retained with the following frequency, at a minimum: • TMS Lane Level :3 months • TMS backend Detailed Data: 12 months • Summarised Data :24 months
xxii.	The System should have adequate backup and redundancy provisions. All transaction and incident data shall be retained, duplicated and stored within the various levels of the TMS such that should any level or component of that level suffer a partial or total failure, the data is not irretrievably lost to the system. In addition, it shall be possible to reconstruct and restore the data for the failed level from the stored data into its original format.
xxiii.	The Graphic User interface on the TCT shall be clutter-free and shall use colours with adequate contrast so as to cause minimum fatigue to the toll collector over the duration of her / his shift. The high contrast shall also make the TCT screen display adequately visible during a high incidence of ambient light like when sunlight directly falls on it. All the displayed text and graphics shall be large enough to be recognized with minimum effort.

S.No	General Requirements
xxiv.	The System shall incorporate features that will enhance the toll collector's productivity while performing repeated transactions over the shift period. These shall include, at a minimum: • Minimum key presses to complete a cash transaction • Large on-screen text and graphics size • Optimum arrangement of keys on the TCT keyboard
xxv.	The System should adhere to best in class performance requirements. The minimum standards are specified as follows: • Time for the Toll Receipt to be printed: Less than 1.5 seconds after payment confirmation on the TCT by the Toll Collector • Maximum time for validation of a Return ticket / Daily pass: 0.5 seconds • Maximum read time of FASTag (from vehicle arriving over the presence loop and the barrier opening): 1 Second • Maximum time for Open loop Contactless Smart Card transaction (Offline) (from the time the card is presented to the validator to the barrier opening): 5 seconds • Any response on GUI to Toll collector key press on the TCT: Less than 1 second • Maximum transaction completion time from vehicle leaving the AVC area until the system getting ready for the next transaction: 1 Second

f) **Vehicle Processing**

S.No	Vehicle Processing and Plaza Operations
i.	• The System should perform the following operations, in the following sequence, for processing a vehicle at the Toll Plaza • The Boom Barrier should be closed • The System should check if the vehicle can be processed via electronic transactions. If the vehicle can be processed electronically, then **Error! Reference source not found.** related rules should be followed. • For vehicle that do not have active electronic payment modes, **Error! Reference source not found.** related rules should be followed. • The Vehicle's fare should be displayed to the Lane Operator and vehicle user

S.No	Vehicle Processing and Plaza Operations
	• Receipt should be printed for cash operations. The receipts should have a QR/bar code that should be able to display following information upon input i. Date and Time of operation ii. Plaza details iii. Vehicle details iv. Cash collected v. Lane number vi. Receipt number • Triggers should be initiated to capture vehicle's image via various cameras. The number plate details should be specifically captured • The Boom Barrier should be opened • The loop sensors should detect once the vehicle has passed, and close the boom barrier accordingly • Steps eland f listed above should not be executed for exempted vehicles. However, step should be executed without fail.
ii.	• The System should automatically capture the following minimum details associated with each transaction • Date and time • Plaza and lane ID • A sequential number assigned based on the data above • Vehicle classification (by toll Collector or as read from the FASTag and that received from the AVC in both cases) • Discrepancy in vehicle classification, if any • Vehicle number • Toll Collector ID in case of manual user fee collection • Toll amount collected • Fine/Penalty and another amount charged • Method of Payment: FASTag/CASH/ETC-Card/etc. • Exceptional transaction (exemption, convoy and other cases)

S.No	Vehicle Processing and Plaza Operations
iii.	The System should automatically transmit the following details regarding the lane to a monitoring system at a Central location • Lane Mode: Open/Closed/Maintenance • Status of following equipment: ➤ Lane Controller ➤ Boom Barrier ➤ RFID transceiver ➤ Weight in Motion (WIM) equipment ➤ Automatic Vehicle Classifiers (AVC) ➤ Internet connectivity (via lease line/dongle/etc.) • Total collections via cash/electronic mode since last transmission/for the day • Number of vehicles processed since last transmission The System should also have features to identify lanes that are not transmitting the above information as per frequency and issue alerts as per defined strategy.
iv.	The system should support following components/devices for the operations • An Overhead Lane sign (OHLS) / Canopy Lane Status Display (CLSD) that indicates to an approaching road user whether the toll lane is open for toll collection or it is closed and if open (in case of the CLSD), the lane mode. • An automatic Lane exit barrier (ALB)that allows the road user to leave the lane after toll payment. • A traffic light (with Red and Green aspects) (TL) that indicates to the road user whether the vehicle should remain at the toll lane or can exit. • The system should also have features for traffic control and guidance of toll paying vehicle through the toll lane
v.	The OHLS sign should display the following details <table><tr><td>S.No</td><td>OHLS</td><td>Automatic lane exit barrier</td><td>Traffic Light</td><td>Traffic control / guidance</td></tr><tr><td>1</td><td>Red</td><td>-</td><td>-</td><td>Don't enter lane</td></tr></table>

S.No	Vehicle Processing and Plaza Operations				
	2	Green	Closed	Red	Stop /wait at toll booth (pay axis)
	3	Green	Open	Green	Cleared for Exiting the Toll lane

vi.	In case a CLSD is used instead of an OHLS, the following will be the status details of the CLSD

Lane Mode	Lane Status	CLSD Message Displayed	CLSD Message Color
FASTag – Hybrid mode (also supports other electronic media, validation and cash)	Lane is Open	LANE OPEN	Green
All modes	Lane is Closed	LANE CLOSED	Red
FASTag only mode – Dedicated	Lane is Open	(FASTag Logo) ETC TAG ONLY	Orange
Cashless only mode – FASTag / Other Electronic media	Lane is Open	CASHLESS – No Cash Payment	Purple
FASTag – Hybrid mode for Specific vehicle class	Lane is Open	(Vehicle class Logo) CAR (Vehicle Class) ONLY	Based on lane (MOP) mode

g) **Electronic Tags processing**

S.No	Electronic Tag processing
i.	The System should interface with the RFID transceiver installed at the toll plaza to receive the following details regarding an RFID tag - TID - EPC Code - User Code
ii.	The System should automatically determine if the Tag is in the Exception list based on Exception list file inputs from the NPCI. Alternatively, the system should also have provision to push the TID/EPC code to designated servers and get the response.
iii.	• The System should have flexibility to be interoperable with new electronic processing systems based on technologies like EMV/ Credit / Debit card (supporting online transactions), that IHMCL/NHAI may choose in the future. For such technologies, the System should have features to push the relevant code read at the Plaza to the electronic processing system (e.g. Acquirer) via API push, and accept the response via API pull. • The system shall also have the feature of integration with local Smart card validators (located on the same Toll lane) capable of generating off-line smart card (e.g. contactless, Open-loop, EMV/Rupay bank card) transactions. In this case the system shall send the vehicle class read from the FASTag or through other means, to the validator via a local data link (RS 232/ TCPIP)
iv.	The System should automatically open the toll gates for non-blacklisted vehicles, or if the Central Server send the signals to open the gate.
v.	System should deploy the following logic for handling the Exception List files. The TMS shall periodically download the Exception files from their respective Acquirers. On obtaining the FASTag details from the RFID transponder the system shall verify the Tag's Id (based on the EPC code/ TID code) in the current Exception list present in the system. If not found the system shall store the read-in FASTag details for transmission to the Acquirer.
vi.	If the Tag's Id is fund in the Exception list ,the System should offer other modes of Electronic transaction (e.g. off-line/on-line Smart card pre-paid / Credit card / Debit card -based transaction). If the user does not avail of any of these or if they fail during an attempt, the system shall offer cash-based transaction for the user.

S.No	Electronic Tag processing
vii.	System should have the capability to capture the information regarding vehicle overweight by fetching the data from the WIM system (if installed), and add the applicable penalty to the payable amount. The System should also display the word "Overload Vehicle" prominently at the lane display.
viii.	The vehicle owner/driver should have features to protest the fine and get the vehicle weighed at a static Weighbridge. In case, the vehicle is not overweight at the Static Weighbridge, the System should send message to Acquirer Bank via automatic integration/manual input, to reverse the transaction and initiate a new transaction without the penalty amount.
ix.	The System should have the capability to automatically calculate the fare details based on the toll plaza and time of operation.
x.	System should be able to calculate penalties if a non FASTag vehicle has entered the FASTag lane as per IHMCL/NHAI rules.
xi.	The System should have feature to alert the customer, Issuer Banks, and NPCI in case of following potential frauds - The tag has been used across different toll plazas within 15-minute window - The tag is used across toll plazas that are not frequently used by the customer - The tag has been used after a considerable period of non-usage
xii.	The System should have features to automatically push the captured images to the TMS backend and tag them with FASTag number, time of operations, lane number and the unique transaction number.
xiii.	The System should automatically alert the Lane Operator in case of following issues - Vehicle is overweight - The vehicle class as derived from the Mapper and the class from profiler does not match - Vehicle has been highlighted by NHAI/IHMCL/other agencies
xiv.	In case the System has issued alerts, the Lane Operator should have option to close the lane and prevent the vehicle from passing. If the above is not possible, then the System should automatically alert designated IHMCL/NHAI officials for necessary actions.

h) **Fare Calculations and Cash Operations**

S.No	Fare Calculations and Toll Operations
i.	As the vehicle approaches the Pay-axis on the Toll Lane, the Lane operator in the Toll booth classifies the vehicle on the TCT keyboard. The System shall also capture the videos/images of such vehicles and tag them with transaction time, and vehicle number (as captured by the system).
ii.	The system should have features to automatically detect the vehicle number show the same on the screen. In case of issues, there should be provision for the operator to enter the vehicle number. The operator should have provision to skip the number entry, if required. However, the system should mandatorily require the input/capture of vehicle number in case the Class has been over ridden.
iii.	The system shall have the facility to automatically calculate the fare based on the following details - Toll plaza - Class of vehicle - Time of operation - Vehicle weight - Return journey - Cash vehicle entering the ETC Lane (double the Toll amount) It is possible that all the above parameters or a subset among them may be used for fare calculation. It shall be possible to configure the system accordingly during system commissioning.
iv.	System should be configurable to configure customized Toll fares at each individual toll plaza for different category of vehicle as per toll guidelines issued from time to time, and automatically push the same to individual Toll Plazas from a central system.
v.	System should have feature to receive the images from various toll plazas and store them at a Central location. The images should be tagged with transaction based on the time stamp and the toll plaza/lane location. The retention period for these images shall be 90 days, or till the dispute (associated with the transaction) is resolved, whichever is higher
vi.	System should have the capability to accept the information regarding vehicle overweight (with the Vehicle weight received from the WIM) and add the applicable penalty to the payable amount.

S.No	Fare Calculations and Toll Operations
vii.	The system should have features to perform the following activities upon receipt of cash by the operator - Enter the cash received - Display the change payable - Open the cash register - Print the Toll receipt - Open the Boom Barrier
viii.	The System should automatically alert the Lane Operator in case of following issues - Vehicle is overweight - Vehicle has been highlighted - The vehicle class is different at different plazas
ix.	In case the System has issued alerts, the Lane Operator should have option to close the lane and prevent the vehicle from passing. If the above is not possible, then the System should automatically alert designated IHMCL/NHAI officials for necessary actions.
x.	The System should have features to handle following categories of exceptions and calculate fare as per policy specified by IHMCL/NHAI - Single Journey/Return Ticket / Daily pass - Monthly Pass - Local vehicle Pass (concessional Toll) - Exempt Vehicle The system should be able to perform the above calculations for both electronic and cash-based payments.
xi.	The System should have features to handle Convoy vehicles via the following approach - Lane Operator should be required to press the Convoy button to start the transactions - The display boards should display fare as Zero - There should be no receipts for these vehicles - Alert the supervisor regarding Convoy operations - Capture images and videos and mark them accordingly

S.No	Fare Calculations and Toll Operations
	- Continue the operations until the Toll Operator presses Convoy key followed by the `accept' key, post which the system should resume normal operations
xii.	The System should have features to capture details of "run-through vehicles" that pass the Toll Plaza without paying toll. The System should automatically capture images of such vehicles and send to IHMCL/NHAI/relevant authorities at the end of day. The above features should also be available for vehicles that have been classified inaccurately.
xiii.	System should have the capability to capture the information regarding vehicle overweight by fetching the data from the WIM system (if installed), and add the applicable penalty to the payable amount. The System should also display the word "Over Weight Vehicle" prominently at the lane display.
xiv.	The vehicle owner/driver should have features to protest the fine and get the vehicle weighed at a static Weighbridge. In case, the vehicle is not overweight at the Static Weighbridge via automatic integration/manual input, the System should display the new amount (after deducting the penalty), and have features to accept the fees. For this purpose, the system shall support a suitably featured user interface on a Desktop computer / Mobile device located at the Static Weighbridge
xv.	The System should have features to accept "Towed vehicles", such vehicles should be processed only via cash. Even if the Vehicle has a FASTag, or electronic payment instrument, the System should not send the transaction for processing. The following steps should be adopted for processing these vehicles - The Toll Collector Presses Towed Vehicle key - The Toll Collector enters number of vehicles being towed and their class - The System displays the total amount payable - Toll Collector confirms receipt of due amount - Boom barrier is opened - The loop sensors allow Boom Barrier to be opened till the entered number of vehicles have passed

i) Plaza/Lane Management Module

S.No	Plaza/Lane Management Module
i.	The Lane management module should have the following features • Login/Logout ➢ Toll Collector/Fee Collector ➢ Supervisor ➢ Maintenance • Lane Mode /Configuration ➢ Hybrid Lane (supporting Cash, and ETC) ➢ ETC Lane (Dedicated) ➢ Cash (Semi-Automatic) • Mode of Operation ➢ Idle/Closed Mode ➢ Open Mode ➢ Local Mode ▪ Local Mode Without TMS (Server) ➢ Maintenance Mode • Mode of Payment ➢ Cash ➢ Local/Monthly Pass ➢ Smart card ➢ Barcode/QR code - Multiple/Return journeys ➢ Credit card/ Debit Card ➢ Wallet ➢ FASTag / Electronic mode/Other electronic mode ➢ National Common Mobility Card ➢ Exempt • Journey Type ➢ Single

S.No	Plaza/Lane Management Module

	➢ Return
	
	➢ Exempt
	
	  ▪ Emergency/Authorised Exemption
	
	  ▪ Non- Emergency/Local Exemption
	
	➢ Violation
	
	➢ Multiple

ii.	The following steps should be performed to complete the login of the Toll Collector - The Toll Collector scans his/her card and/or scans the biometric sensor - The Toll Collector enters details of the cash-in-hand before starting operations - The supervisor verifies the above details via biometric verification - System maintains a log of above events and their respective time The lane is tagged as "Under Maintenance", and no operations are allowed on the same till the above are completed. Post completion of the above steps, the lane operations can resume and the lane mode changes from "Under Maintenance" to "Operations"
iii.	The following steps are performed once the Toll Collector finishes the duty, or takes a temporary break - Toll Collector selects the "Log Off" option and verifies the same via biometric, and/or card input - System puts the lane under "Maintenance Mode" and no operations are allowed - A report is generated of the total cash collected. The report also displays the total cash expected from the Toll Collector - The supervisor accepts the log off activity - The lane remains in "Maintenance Mode" till a new login is performed on the same The System prompts the supervisor to tally the cash collected and automatically adds the above to the total amount to be submitted in the Bank,

j) Plaza Activity Module

S.No	Plaza Activity Module
i.	The System should have features to perform the following plaza related activities • Admin Activity ➢ Authorize Staff - to add new staff/add authorization levels ➢ User Rights – to add/remove/update rights of various users ➢ User Rights Report – To generate report of various system users and their rights ➢ Unlock Shift – manually treat shift as complete if the operator has to leave due to emergency ➢ Release Login – release the plaza from systems' preview as per instructions ➢ Vehicle Tracking – capture details of vehicles being tagged in the system • The System should have features to ensure that the activities above capture the details of various instructions issued by IHMCL related to the activity.

k) **Finance and Accounting Module**

S.No	F&A Module – General Requirements
i.	The System should have the provision for not to allow the vehicle to pass in case the funds are not sufficient for operations for dues, or if the tag has been debarred by user/ IHMCL/NHAI.
ii.	The System should also create a provision where the above control can be overridden to varying degrees (like part payment accepted, no payment accepted) based on approval received from the appropriate IHMCL/NHAI authority
iii.	The System should have a provision for requesting such relaxations for predefined reasons which will then be approved by appropriate authority
iv.	The System should have provision to create, edit, delete predefined reasons

S.No	Accounting Requirements

i.	The System should facilitate definition and configuration of the Chart of Accounts (CoA) to capture all financial transactions pertaining to the Operators/User. The CoA should have multiple level and the levels should hierarchical relation i.e. parent-child relationship
ii.	Facility for creation, modification and deactivation of CoA should be available
iii.	Newly created CoA should be automatically available for payment deposit, payment posting etc.
iv.	The System should facilitate the system to automatically transfer the due amount to an escrow account, and transfer the amount to Vendor as per specifications of IHMCL/NHAI.
v.	The System should maintain electronic payment register, cash book, ledger accounts and sub ledger accounts as the case may be for each Operator as applicable
vi.	The System should update the payment register as soon as it becomes due and must automatically update the cash book and ledger account for each Operator based on the payment made or reconciliation
vii.	The System should capture/post the accounting transaction as per the defined chart of accounts
viii.	The System should capture the timing of each transaction
ix.	The System should ensure prohibition of CoA use based on the user profile
x.	Facility should provide to adjust the advance with multiple payment head (fully or partially)
xi.	During partial payment The System should appropriately handle penalty, interest and fees
xii.	The System shall implement mechanisms to split and allocate the total amount received from the User to the respective transactions, if User has paid a lump sum /consolidated amounts for multiple transactions together
xiii.	The System should have capability to handle payment and accounting of each offices separately
xiv.	The System should automatically post different components (Fee, penalty, tax etc.) of a transaction in respective heads of account

xv.	The System should have facility for segregating revenue earned component and tax payable component to enable IHMCL/NHAI to calculate their tax deposit liability
xvi.	The System should automatically compile the accounts statement and reports at the level of IHMCL/NHAI HQ, Regional Offices, User, Operator, Service Types, etc. for each financial year

S.No	Payment Reconciliation
i.	The System should reconcile the operations at a toll plaza with ETC amount debited from the customer. The system should automatically issue alerts to the operator and IHMCL/NHAI in case of any issues.
ii.	In case of mismatch between debited and demanded amount, the lesser of the two should be highlighted to the Operator for raising disputes, if applicable.
iii.	The System should have the facility to capture/upload bank statement/transaction detail from bank's software/web services/External drive etc.
iv.	The System should have facility to link its own financial record with the bank transaction record and reconcile the same
v.	Failed reconciliation is to be reported
vi.	Facility should be provided for auto reconciliation of batch data or reconciliation by manual selection of payment detail.
vii.	Transaction should be posted in cash register once the reconciliation is complete

l) **Integration Module**

S.No	Financial Partners
i.	The System should have features to calculate the following details for any Lane/Plaza at any point in time - Cash issued to the Lane Operator - Cash expected from the Lane Operator (basis vehicles passing through the plaza)

S.No	Financial Partners
ii.	The System should enable designated officials to view the above report and verify if the cash expected was received. The System should also have features to enter number of currency notes/coins' designation received from the Lane Operator and tally the results.
iii.	The System should have designated module to enable cash submission at the bank. This module should automatically display number of various currency/note denominations and the total amount to be submitted at the bank.
iv.	The System should have features to integrate with the bank statement (excel/xml/csv) and confirm the details of submitted amount versus bank details. The System should automatically flag transactions that do not match, or do have corresponding statement.

S.No	Technology Partners
i.	The System should have features to integrate the system with following IHMCL/NHAI Systems - Tag registration mobile application In addition, the System should also have capability to integrate (by exposing APIs) with Five (5) additional applications defined by IHMCL/NHAI, subject to the overall transaction volume not exceeding ten (10) times of current load, as a result of the changes.
ii.	The interface to the FASTag transaction Acquirer system is implemented on TCP/IP over a public internet. The transaction processing and interfacing with the Acquirer system shall meet all relevant requirements included in the following documents: • Procedural Guidelines, National Electronic Toll Collection Network (NETC Network), version 1.7, Jan 2018 • Central Clearing House (CCH) Interface Control Document, version 2.4 (or the current version)
iii.	While the present system relies on the Secure File Transfer Protocol (SFTP) for transferring both Vehicle Identification records (Toll Transaction related) to the FASTag Acquirer as well as to receive the Exception (Black) list , Toll & violation Reconciliation records and Discounts related data from the FASTag Acquirer, IHMCL may adopt and specify an approach in the future involving online data transfer (e.g. using an API) or any other approach to enhance performance. The

S.No	Technology Partners
	Contractor shall implement this approach in the TMS as an addition to the existing approach (i.e. SFTP) with an option of either approach to be used by the TMS operator / Vendor.
iv.	The TMS shall provide secure interfaces via a TCP/IP link (dedicated link / VPN / Public internet) for MoRTH/NHAI/IHMCL authorized remote monitoring systems to acquire data from it in real time.
	The data required will include all those captured in the TMS including TMS lane system performance data, Toll collector performance data, traffic data including Toll Plaza throughput, Transaction data, financial data and all relevant data to determine all aspects of Toll plaza performance including its operational efficiency and effectiveness.
v.	The TMS shall provide performance monitoring via the Lane Status Display Unit. This will involve the comprehensiveness and the level of detail the TMS provides for on-line system performance monitoring.
vi.	The TMS shall provide flexibility to define toll fee tariffs over and above the NHAI toll fee tariff table which will enable extending of tariff table to include more vehicles (e.g. two wheelers, three wheelers) and toll schemes (e.g. Toll Tariff depending on day of week, time of day can be predefined and stored in system for activation on a specified date)
vii.	The TMS shall provide on-line transmission of FASTag Vehicle Identification records from the lane controller to the TMS server.
	On-line transmission to TMS server results in quick transfer of vehicle identification records to the Acquirer system thus resulting in faster updates of exception which in turn enhances road user experience as well as reduces the potential of chargebacks.
viii.	The TMS shall provide Live Performance Monitoring of the TMS. This feature helps monitoring the lane-wise Toll Plaza traffic on-line.
ix.	The TMS shall provide option to select lane operation mode which will help in configuration of the different modes of lane operation (e.g. Hybrid, Dedicated etc.) proposed. For example, in case of failure of a Dedicated FASTag lane, an adjacent Hybrid lane can be quickly configured to be a Dedicated lane, until the original Dedicated lane is set right.
x.	The TMS toll products shall be configurable which will allow new toll products / schemes like e.g. time -based (e.g. Weekly pass, Monthly pass) or Trip-based

S.No	Technology Partners
	(Limited trips) or a combination of both (e.g. Monthly pass with limited number of trips) can be introduced.
xi.	The TMS shall enable user configurable toll vehicle classes i.e. new vehicle classes can be introduced into the system and can be effectively implemented provided the AVC system can uniquely classify them with a high level of accuracy.
xii.	The TMS Toll collector user interface shall use high contrast between graphics/text and the background for easily readability even in the presence of high ambient light. Toll collector interface should facilitate easy readability and high contrast enhance toll collector efficiency and reduce toll collector fatigue.
xiii.	The TMS should capture presence of a Media (RFID) for audit. For example, whether a single daily pass is fraudulently shared by several vehicles and mis-used or daily pass that is paid by cash (with a printed barcode on a receipt) or even with a FASTag affixed to a portable glass plate and shared between vehicles. The system should have functionality to highlight and mark such records for enabling authorities take necessary steps.
xiv.	The TMS should have functionality for transaction audit and availability of evidence. The Auditor in the TMS has the responsibility of resolving incident / violation transactions like: a) Where AVC class does not match with the Toll Collector class (in case of cash transaction) or when AVC class does not match with the vehicle class written on FASTag. b) When a vehicle has been exempted from paying toll by the toll collector. c) When a vehicle has 'run through' a toll lane without paying toll. The TMS should provide a rich list of evidence to the Auditor including Vehicle Image/ Video, License Plate, AVC profile, WIM Measurement, SWB measurement to help her/him make an informed decision.
xv.	The TMS should facilitate user customizable report. Such a feature aids the user to generate specific analytical reports that provide a better insight into the TMS performance for its improvement. Such reports may not be a part of the standard list of reports present in the TMS but can be customized as per requirement.
xvi.	The TMS shall provide web-based performance monitoring and transaction audit feature for remote performance monitoring and transaction auditing.

S.No	Technology Partners
xvii.	The TMS shall have functionality to detect and highlight error in Lane Status Display Unit (used for performance monitoring) through which an issue alert shall automatically be sent to IHMCL.

S.No	System Integration
i.	The System should have features to integrate with the following peripherals

S. No	Device	Typical connection type from the System (as per specification, or similar solution)
1	Incident Camera & License plate recognition camera	TCP/IP
2	User Fare Display	RS 232
3	Automatic Lane Exit Barrier	Digital I/O
4	Traffic Light	Digital I/O
5	Over Head Lane Signal (OHLS) / Canopy Lane Status Display (CLSD)	Digital I/O or data link using RS 232/RS 485 or TCP/IP
6	Credit/ Debit/ CSC/NFC reader / validator	RS 232 or TCP/IP
7	AVC system data	Via RS 232 to Lane controller and TCP/IP to the TMS backend OR Via TCP/IP to both the Lane controller and the TMS backend
8	TLC / AVC door status	Digital input

S.No	System Integration
ii.	The above interactions should be via secure/encrypted communication protocols.
iii.	The above requirements are indicative, and the System designers can recommend new backward compatible connectivity protocols for the above equipment basis the latest industry protocols/Indian requirements.
iv.	Although the main information transfer in many peripheral devices is only one way (i.e. output) from the TMS lane system (e.g. OHLS/CLSD, TL, UFD), the TMS lane system shall support two-way communication and obtain the device status, in as much detail as possible, based on the hardware connectivity / Device driver / communication protocol provided by the device manufacturer/ vendor.
v.	In general, the TMS shall communicate adequately to activate all possible controls/displays supported by the peripheral device/system and to obtain all possible information provided by the Peripheral device / System.
vi.	A non-response of the Device / system over the communication channel shall be tagged as an event and communicated on-line to the TMS backend. Further the restoration of communication shall also be tagged as an event and communicated on-line to the TMS backend.
vii.	The communication shall be secure to the maximum extent possible supported by the device connectivity.
viii.	Loop Failures (related to loop for Presence detection or AVC or barrier) shall be automatically detected.
ix.	All such obtained device/ system status information, as detected and captured above, shall be transferred on-line to the TMS backend.

m) **Employee Module**

S.No	Configuration Dashboard
i.	The System must support Role-based access for administrators and users.

S.No	Configuration Dashboard
ii.	The System should have facility for creating/editing/deleting Vehicle category, toll rates, plaza contracts, employee assigned, etc. so that the same may be used for toll calculations
iii.	The System configuration module should be accessible only to a selected group of users across each department and office
iv.	Every update in the System configuration should require approvals from a user at least one level above the updating user. All the changes should also be available for audit purposes.
v.	By default, the System should populate the related fields of a form if one parameter is selected, therefore list of meta data should be created for all possible fields
vi.	The System should have facility for creating/editing/deleting fee rates for various services rendered by IHMCL/NHAI
vii.	The System should keep history of year wise fee rate and facilitate automatic calculation of fee for a given year for a given service
viii.	The System should have facility for creating/editing/deleting various rate of penalties or interests relating to specific service, time period etc.
ix.	Facility for multiyear fee, penalty and interest calculation should be provided considering variable rate for multiple year
x.	The System should have facility for creating/editing/deleting Account Head or Chart of Account (CoA)
xi.	The CoA should have hierarchical relation between its various levels
xii.	Facility for creating relation between CoA and services/fees should be provided
xiii.	The System should have facility for creating/editing/deleting document list required for various application type/service type and the minimum information that needs to be captured in the Form for each of the applications
xiv.	The System should facilitate creation and modification of workflows related to activities like changes in new plaza, updates in fare rules, modification in issuer banks list, etc.

S.No	Configuration Dashboard
xv.	The System should have facility for creating/editing/deleting various roles, users etc. for System use
xvi.	The System should have facility for creating/editing/deleting linkages between roles, users, workflow etc.
xvii.	The System should have facility for creating/editing/deleting tasks and linking/assigning the same with roles/users
xviii.	Facility should be there for assigning, reassigning, activating, deactivating etc. for various task, users and roles
xix.	The System should have facility for creating/editing/deleting list of standard comments/reasons and facility to link it with various task/workflow etc.
xx.	The System should facilitate definition, configuration and criteria setting for the key events and related alert or messages
xxi.	The System shall facilitate making necessary changes to the existing structure for fee, fines and other charges based on the revisions in the policy
xxii.	The System should have facility to define and configure exemptions, rebates, special cases etc. for various transactions and also for financial matters
xxiii.	During various processes/operation in the System, these exemptions, rebates should be automatically considered
xxiv.	The System should provide provision for creating, editing, deleting various type of commissions for different transactions
xxv.	The System should have facility for creating vendor/contract users and their commission for different type of transactions
xxvi.	The System must maintain an audit trail of all updates in the meta data
xxvii.	The System shall require following additional security mechanisms for following categories - One-time password for critical approvals (for example updating the toll rates) - Digital signatures for senior management

S.No	Workflow Approvals
i.	The System should facilitate creation and modification of workflows
ii.	Facility should be there for assigning, reassigning, activating, deactivating etc. for various task, users and roles
iii.	The System should have facility for creating/editing/deleting various roles, users etc. for The System use
iv.	The System should have facility for creating/editing/deleting linkages between roles, users, workflow etc.
v.	The System should have facility for creating/editing/deleting tasks and linking/assigning the same with roles/users
vi.	Definition of transactions should include issuing unique identification code to the transaction, name of the transaction, brief description of the transaction, etc.
vii.	The System shall facilitate definition of master list of transactions under the respective service types
viii.	The System shall facilitate definition and configuration of mandatory transactions from the master list of transactions including its periodicity
ix.	The System should enable many-many relationship between various activities, roles and users.
x.	The System should have facility for re-assigning any task to other relevant user from the front-end GUI to handle absence of any user on a particular day
xi.	The System should have facility for creating/editing/deleting list of standard comments/reasons and facility to link it with various task/workflow etc.
xii.	The System should facilitate definition, configuration and criteria setting for the key events and related alert or messages
xiii.	The System should enable linear as well as parallel approvals.

S.No	IHMCL Dashboard
i.	The System shall have an online work space for each of the designated employee within IHMCL/NHAI.

S.No	IHMCL Dashboard
ii.	The entry to the dashboard should be via employee id and password.
iii.	For certain employee categories, The System must only allow entries to machines that have a security certificate installed on the machines.
iv.	The System should automatically require password reset after 90 days.
v.	The dashboard shall present the following information to employees by pushing relevant information from Plazas to a central system • Different disputes/issues regarding payment reconciliation • Role base hierarchical dashboard. • Status of ETC toll plazas across various tolls plazas under the jurisdiction of the employee. The status should display the following information, at a minimum ○ Plaza Name ○ Number of lanes ○ Lanes where ETC equipment is not functional ○ Lane-wise name of the non-functional equipment ○ Contact details of following – Vendor and IHMCL/NHAI employee • Integrated Dashboard to monitor real time cash collection across different toll plazas along with ETC transaction and health status of HETC equipment installed at each toll plaza. • Reporting dashboard with (at least) following reports ➢ Revenue target vs. actual revenue generated ➢ Plazas with maximum issues with ETC lanes ➢ Resolution time for the ETC issues. The reporting dashboard should have a hierarchical integration. For example, supervisor should be able to see reports for all reporting employees at an individual and aggregate level Following additional reports should be available for senior management across with option to split the same across department/plaza operator/region Revenue targets vs. actual collection across ROs/PIUs Override reports across offices The management dashboard should also be hierarchical and allow senior management at Central office to view reports across all offices, while regional

S.No	IHMCL Dashboard
	offices should be able to see only their data. Similarly, the views of department heads should be restricted to their departments.
	The management dashboard should have option to select any/all of the following items and generate the report(s)
	time,
	office,
	revenue,
	transaction type,
	vehicle type,
	User Type,
	Plaza Operator,
	HETC Equipment,
	Account Heads
	The dashboards should have easy to use Graphical User Interface to customize reports and make comparisons.
	• The dashboard should also display KPI adherence for all the KPIs defined under the provision of Operation and Maintenance, for identified IHMCL/NHAI users.
vi.	The dashboard must have facility to generate on-demand reports based on criteria defined above.
vii.	The dashboard must have facility to enable identified users to download data for archival purpose in an easy to use format (for example excel).
viii.	The dashboard should also have the facility to define the frequency of report generation and the intended recipients. The System should then automatically email the reports to defined users.
ix.	The System should have facility to allow only certain IP addresses to access some sections of the solution
x.	The System should highlight tasks that have allocated to IHMCL/NHAI officials via a pop-up window. They should have option to act on task, or postpone for later. For tasks that have not been acknowledged within a time-frame, The System should highlight details to supervisor for reallocation.

S.No	System Dashboard
i.	The System shall have a System Dashboard for defined class of IHMCL/NHAI users. The System Dashboard should allow users to change the system configuration as per requirements/legislative changes.
ii.	The entry to the dashboard should be via employee id and password.
iii.	For System Dashboard access, The System must only allow entries to machines that have a security certificate installed on the machines.
iv.	The system dashboard should allow for editing of following Toll plaza details – - Add a new toll plaza - Change the number of lanes - Change the ETC lanes - Change the Toll Operator - Delete the toll plaza - Edit the mapping between plaza and rates
v.	The system dashboard should allow for editing of following Vehicle Class details - Add a new Vehicle Class - Drop a vehicle class - Change the rates associated with the vehicle class
vi.	The system dashboard should allow for editing of following Toll Operator details – Add a new Toll Operator - Assign a Plaza to Operator - Drop the Plaza from Operator
vii.	The system dashboard should allow for editing of following Employee details – - Add a new Employee - Assign a Plaza to Employee - Drop the Plaza from Operator

n) **Reporting Module**

S.No	Revenue Dashboard
i.	The System should have module to generate the following reports, but not limited to: - • Shift Collection Report • Manual/Cancel Report • Till Time Collection report • Periodic system collection Report • Transaction Report • Periodic Transaction Report • Day Collection Report • Discrepancy Transaction Report • ETC Collection System should also have features to automatically integrate the above reports, or to dissect the same at a plaza/project/PD level.

S.No	Other Dashboard
i.	The System should have module to generate the AVC reports • AVC comparison/Accuracy Report • AVC Traffic count Report • Back up AVC Transaction Report
ii.	There should be features to generate the following Traffic reports • Lane Wise Report • Class Wise Report • Traffic Count Report • Traffic count summary Report • Monthly Traffic Report
iii.	There should be features for following Event reports • Day Violation Report • User Activity Report

S.No	Other Dashboard
	• Exempt Vehicle Report • Cash collection in FASTag exclusive lanes • Total ETC Collection • Total Cash Collection • Simulation History Report • Exemption Report
iv.	There should be features for following Audit Reports • Audit Transaction Report • Post Audit Collection Report
v.	There should be following WIM reports in the system • Overweight Revenue Report • Overweight Amount Summary Report • WIM Transaction Report • SWB overloaded Transaction Report • WIM Transaction Vs SWB Report • WIM data received Report
vi.	The system should have features for following ETC reports • Acquirer File Upload Download Details Report • Acquirer File Transaction Report • ETC Transaction Report • TMS CCH Transaction Reconciliation Report • Transaction Vs missing Reconciliation Report • Vehicle number wise ETC Transaction Report
vii.	The system should have features to automatically track the status of various equipment at the plazas/lanes on an hourly basis
viii.	The system should have features to automatically report all the above reports to authorized representatives/IT systems in IHMCL/NHAI.

S.No	Other Dashboard
ix.	The system should be customizable to include any of the following incidents in the reports: • Date / hour change • Hybrid lane open • Dedicated/FASTag Exclusive lane open • Lane closed • Invalid toll collector • Tariff change • Lane into maintenance mode • Lane out of maintenance mode • Vehicle detected without collector classification (run through) • Vehicle discrepancy • Time exceeded for vehicle exit from lane • Classification cancelled [for toll collector, lane] • Vehicle reclassified • Extra receipt printed • TLC enclosure opened [sound buzzer] • TLC enclosure closed • Low disk space warning on TLC • Low disk space warning on TMS related server • Low disk space warning on local drive • Insufficient memory warning on TMS related server • Loss of communication with TMS lane system (specific TLC/AVC) • Communication with TMS lane system re-established specific • TLC/AVC) • Loss Communication with specific TMS backend server • Communication with TMS lane system re-established • Change of TLC mode without permission • Equipment failure: Sensor 1

S.No	Other Dashboard
	• Equipment failure: Sensor 2 • Equipment failure: exit barrier • Equipment failure: AVC • Equipment failure: etc. for all equipment • Database corrupt [all database] • Toll collector confirmed bleed-off • Vehicle without valid FASTag detected in the toll lane • Panic alarm initiated • Shift opened • Shift closed • Change in toll collector database • Change in user access level • FASTag unreadable • FASTag in Exception List • Failure reading tariff table • Toll collector login • Toll collector logout • Run through violation • Class discrepancy – Over-classification • Class discrepancy – Under-classification • Pass back of any vehicle (any vehicle passing through the Toll plaza in the same direction within in a pre-defined time period) In addition to the above, IHMCL/NHAI can design/make any activity to be an incident in the TMS and get its status/reports.

o) Other Features

    i. Performance monitoring

    ii. TMS Administration

        • User Management

- Shift Consolidation

- Day Consolidation

- Data Reconciliation User Interface

iii. Axle weight Measurement

iv. Independent Vehicle class and Image Acquisition

v. Maintenance Tool

vi. Data security and Data integrity (Lane level & TMS Level)

vii. Remote Monitoring - Head Quarter Management System

viii. Architecture related - Modular organization

8. ANNEXURE

8.1. Annexure 1: Bid Covering Letter

(In the letterhead of the Bidder)

To

General Manager

Indian Highways Management Co. Ltd. (IHMCL)

2nd Floor, MTNL Building,

Sector 19, Dwarka

New Delhi 110 075

Subject: Request for proposal (RFP) for Selection of Master ETC Service Provider at National Highways Fee Plazas

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

Dear Sir,

1. I/We, the undersigned, have carefully examined the contents of the document including amendments/ addendums (if any) thereof and undertake to fully comply and abide by the terms and conditions specified therein and hereby submit our application. Our application is unconditional and unqualified.

2. I/We undertake that, in competing for (and, if the award is made to us), for executing the above contract, we will strictly observe the laws against fraud and corruption in force in India.

3. I/We understand that:

   a. this Bid/Proposal, if found incomplete in any respect and/ or if found with conditional compliance or not accompanied with the requisite application fee and/ or prescribed supporting document shall be summarily rejected.

   b. if at any time, any averments made or information furnished as part of this application is found incorrect, then the application will be rejected

   c. IHMCL is not bound to accept any/ all Bid (s) it will receive.

4. I/We declare that:

   a) We do not have any conflict of interest in accordance clause 3.2.1 (Sl. No 7) and we or the our parent / subsidiary /sister concern company are NOT currently engaged by NHAI for user fee collection or tolling operations at any NH Fee plazas across the country as on RFP release date.

We further undertake that we shall not take up activities such as user fee collection, tolling operations at NH fee plazas allocated during the Contract period.

b) I/We understand that you may cancel the Bidding Process at any time and that you are neither bound to accept any Proposal that you may receive nor to invite the Bidders to submit Proposals for Selection of Master ETC Service provider at National Highways Fee Plazas, without incurring any liability to the Bidders, in accordance with relevant clause of the RFP Document

c) We undertake that in case, due to any change in facts or circumstances during the Bidding Process, we become liable to be disqualified in terms of the provisions of disqualification, we shall intimate IHMCL of the same immediately.

d) We agree and understand that the Proposal is subject to the provisions of the Bidding Documents. In no case, we shall have any claim or right of whatsoever nature if the contract is not awarded to us or our Proposal is not opened.

e) We undertake that none of the hardware/software/other component being proposed by us infringes on any patent or intellectual property rights as per the applicable laws.

f) **I/We have not been *declared ineligible*** by IHMCL, NHAI or Ministry of Road Transport & Highways, Government of India or any other agency for indulging in corrupt or fraudulent practices. I/We also confirm that I/We have not been *declared as non-performing or debarred* by NHAI or Ministry of Road Transport & Highways, Government of India.

g) **I/We *haven't been blacklisted* by a Central/ State Government institution/ Public Sector Undertaking/ Autonomous body** and there has been *no litigation* with any Government Department/ PSU/ Autonomous body on account of similar services.

h) I/we undertake that we shall supply, install, commission ETC system as per specifications and requirements provided in this RFP and make Go-Live new toll plazas allocated to us by IHMCL at the latest L1 rates or at the L1 rates as discovered by IHMCL in future through tendering, whichever is lower.

5. I/We declare that our bid is valid for 180 days.

Name …………………..

Designation/ Title of the Authorized Signatory…………………………

8.2. **Annexure 2: Brief Information about the Applicant(s)**

(To be prepared on letterhead of the Applicant)

Subject: Selection of _____

1. Bidder Details

   a. Name of Applicant:

   b. Year of establishment:

   c. Registered Address:

   d. Constitution of the Applicant entity e.g. Government enterprise, private limited company, limited company, etc.

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

(a) Authorized Person with Complete postal address:

(b) Fixed telephone number

(c) Mobile number

(d) E-mail address

(e) Official Bank (for returning EMD)

(f) Bank Account Name, Number, IFSC Code (for returning EMD)

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

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

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

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

5. Financial details/projects meeting the qualifying criteria

Name ………………….

Designation/ Title of the Authorized Signatory…………………………

8.3. **Annexure 3: Undertaking**

Subject: Selection of Bidder for _____

1.   I, the undersigned, do hereby certify that all the statements made in the required attachments are true and correct.

2.   The undersigned also hereby certifies that neither our Company/firm M/s_____ have abandoned any work of National Highways Authority of India/IHMCL nor any contract awarded to us for such works have been rescinded, during last five years prior to the date of this bid.

3.   The undersigned hereby authorize(s) and request(s) any bank, person, firm or corporation to furnish pertinent information deemed necessary and requested by IHMCL to verify this statement or regarding my (our) competence and general reputation.

4.   The undersigned understands and agrees that IHMCL may ask for further qualifying information, and agrees to furnish any such information at the request of IHMCL.

5.   We confirm that we have not been blacklisted /debarred by any central/state Government department/organization or Quasi Government agencies of PSU.

6.   We confirm that no criminal proceeding is pending against our company/firm or any of its Directors/ Partners in any court of law.

7. We also confirm that we have not been convicted by any court of law for any of the offences under any Indian laws

8. I/We confirm that we do not have a conflict of interest with the toll fee operators/contractors on the concerned toll plaza site as mentioned in eligibility criteria of RFP nor shall we undertake tolling operations during the period of Contract Agreement.

_____

(Signed by an Authorized Officer of the bidder)

_____

Title of Officer

_____

Name of bidder

_____

DATE

8.4. **Annexure 4: Bidder's Annual Turnover**

RFP Ref_____   (Date)

From,   To,

 (Name & Address of the Bidder)   General Manager,

_____   Indian Highways Management Co. Ltd.

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

                                       New Delhi 110 075

 Subject: ---

Dear Sir/Madam,

We hereby certify that the average annual turnover of M/s. _____ (name of the bidder) for the last three financial years (ending 31st March 2019) is as given below:

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

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

Yours Sincerely,

(Signature of Statutory Auditor)

Name of the Statutory Auditor:

Name of the Statutory Auditor Firm: Seal:

8.5. **Annexure 5: Power of Attorney/Letter of Authorization**

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

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

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

POWER OF ATTORNEY ON THIS .... DAY OF ...., 2020

For ....
(Signature, name, designation and address)
Witnesses:
1.

2.
Notarized
Accepted
....
(Signature, name, designation and address of the Attorney)

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

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

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

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

8.6. **Annexure 6: Power of Attorney for Lead member**

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

Power of Attorney

Whereas Indian Highways Management Company Ltd. (IHMCL), has invited Proposals from eligible entities for of Selection of Master ETC Successful bidder at National Highways Fee Plazas the "Project",

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

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

NOW THIS POWER OF ATTORNEY WITNESSETH THAT;

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

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

Dated this the ……Day of …….2020

…………………………………

(Executants)

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

Notes:

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

8.7. **Annexure 7: Format for Performance Bank Guarantee**

To,

General Manager,

Indian Highways Management Company Ltd

2ⁿᵈ Floor, MTNL Building,

Sector-19, Dwarka,

New Delhi – 110075, India

WHEREAS _____[Name and address of Agency] (hereinafter called "the Service Provider") has decided to apply to IHMCL for providing services, in pursuance of IHMCL letter of work award No._____ dated dd/mm/yyyy for "**Request for Proposal (RFP) For** Selection of Master ETC Successful bidder at National Highways Fee Plazas "

" (hereinafter called the "Contract").

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

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

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

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

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

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

6. We undertake to pay to the IHMCL any money so demanded notwithstanding any dispute or disputes raised by the Service Provider(s) in any suit or proceeding pending before any Court or Tribunal relating thereto our liability under this present being absolute and unequivocal. The payment so made by us under this bond shall be a valid discharge of our liability for payment thereunder and the Service Provider(s) shall have no claim against us for making such payment.

7. The liability of the Bank under this Guarantee shall not be affected by any change in the constitution of the Service Provider or of the Bank.

8. This guarantee shall also be operable at our _____branch at New Delhi, from whom, confirmation regarding the issue of this guarantee or extension/ renewal thereof shall be made available on demand. In the contingency of this guarantee being invoked and payment thereunder claimed, the said branch shall accept such invocation letter and make payment of amounts so demanded under the said invocation.

9. This bank guarantee shall be valid from ……………………

10. Notwithstanding anything contained herein:

(i) Our liability under this Bank Guarantee shall not exceed ` ……………/-

(ii) The Bank Guarantee shall be valid up to………………………………………………

(iii) We are liable to pay the Guarantee amount or any part thereof under this Guarantee only and only if you serve upon us a written claim or demand on or before ……………

Name:

Date:

Designation:

Employee Code Number:

Telephone Number:

Name of issuing bank branch _____

Address _____

Telephone number _____

E-mail: _____

Name of bank branch at New Delhi _____

Address _____

Telephone number _____

E-mail: _____

Name of controlling bank branch _____

Address _____

Telephone number _____

E-mail: _____

* The bank guarantee shall be verified through SFMS package.

8.8. **Annexure 8: Self Certificate - Format for Project Citation by the Bidder**

The details of projects executed by the Bidder:

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

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

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

Signature & Seal:

Name:

Designation:

Bidding entity's name

Address:

Date:

8.9.   **Annexure 9: Format for Affidavit Certifying Non-Blacklisting**

(On Non-Judicial stamp paper of appropriate value)

Affidavit

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

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

Dated this ……………………..Day of …………………., 2020.

Name of the Bidder

…………………………………………….

Signature of the Authorised Signatory

…………………………………………….

Name of the Authorised Signatory

8.10 Annexure-10: Consortium Agreement

DRAFT MEMORANDUM OF UNDERSTANDING EXECUTED BY MEMBERS OF THE CONSORTIUM

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

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

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

WHEREAS, Indian Highways Management Company Limited (IHMCL) has issued a Request for Proposal dated [Date] (RFP) from the Applicants interested in **Request for Proposal for Selection of Master ETC Successful bidder at National Highways Fee Plazas :**

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

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

i. The purpose of this Agreement is to define the principles of collaboration among the Parties to:

    a. Submit a response jointly to Bid for the "**Request for Proposal for** Selection of Master ETC Successful bidder at National Highways Fee Plazas " as a Consortium.

    b. Sign Contract in case of award.

    c. Provide and perform the supplies and services which would be ordered by the Purchaser pursuant to the Contract.

ii. This Agreement shall not be construed as establishing or giving effect to any legal entity such as, but not limited to, a company, a partnership, etc. It shall relate solely towards the Purchaser for "**Request for Proposal for Selection of Master ETC Successful bidder at National Highways Fee Plazas "** for and related execution works to be performed pursuant to the Contract and shall not extend to any other activities.

iii. The Parties shall be jointly and severally responsible and bound towards the Purchaser for the performance of the works in accordance with the terms and conditions of the BID document, and Contract.

iv. ---------------------------------- (Name of Party) shall act as Lead Partner of the Consortium. As such, it shall act as the coordinator of the Party's combined activities and shall carry out the following functions:

    a. To ensure the technical, commercial and administrative co-ordination of the work package

    b. To lead the contract negotiations of the work package with IHMCL.

    c. The Lead partner is authorized to receive instructions and incur liabilities for and on behalf of all Parties.

    d. In case of an award, act as channel of communication between the Purchaser and the Parties to execute the Contract

v. That the Parties shall carry out all responsibilities as Developer in terms of the Project Agreement.

vi. That the broad roles and the responsibilities of each Party at each stage of the Bidding shall be as below:

Party A: _____

Party B: _____

vii. That the Parties affirm that they shall implement the Project in good faith and shall take all necessary steps to see the Project through expeditiously.

viii. That this MoU shall be governed in accordance with the laws of India and courts in Maharashtra shall have exclusive jurisdiction to adjudicate disputes arising from the terms herein.

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

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

Witness:

i.   _____ _____

ii.   _____ _____

8.11. **Annexure 11: Format for Financial Proposal**

(To be submitted on in the excel format uploaded on the website)

Name of the Project: Request for proposal (RFP) for Selection of Master ETC Service Provider at National Highways Fee Plazas	
Name of Bidder:	
Parameter - Unit rate quoted by the Bidder for processing one ETC transaction (count)	**Quoted Value (in Rs.)**
For Zone 1	
For Zone 2	
For Zone 3	
For Zone 4	

- Bidder Need to fill ONLY the yellow cells

- Bidder may bid for 1 or more zones; however, award of zone shall be carried out as per Award Criteria as provided in the RFP.

8.12. **Annexure 12: Details of resources proposed**

Summary of resources proposed

Sl. No.	Name of the Resource	Proposed Role	Highest degree	Basic Qualification (E.g. B.E. or MCA)	Certifications (ex. PMI or Prince 2 etc.)	Total Experience (in years)

Curriculum Vitae (CV) of Team Members (ONLY Project Director and Project Manager)

1	Name:				
1.	Proposed position or role	(only one candidate shall be nominated for each position)			
2.	Date of Birth		Nationality		
3.	Education	Qualification	Name of School or College or University	Degree Obtained	Year of Passing
4.	Years of experience				
5.	Areas of Expertise and no. of years of experience in this area	(as required for the Profile)			
6.	Certifications and Trainings attended				
7.	Employment Record	Employer	Position	From	To
		[Starting with present position and last 2 firms, list in reverse order, giving for each employment: dates of employment, name of employing organization, positions held.]			

1	Name:	
8.	Detailed Tasks Assigned	(List all tasks to be performed under this project)
9.	Relevant Work Undertaken that Best Illustrates the experience as required for the Role)	

Project 1	
Name of assignment	
Year	
Location	
Employer	
Main project features	
Position held	
Activities performed	

Project 2	
Name of assignment	
Year	
Location	
Employer	
Main project features	
Position held	
Activities performed	

8.13. Annexure 13: Latest L 1 Rates of BoQ line items

For 6-lane fee plazas

Sl. no	Item	Unit	Quantity	Unit Rate (Rs.)	Amount (Rs.)
A	**Integral Components (Lane level & Plaza Level)**				
1	RFID ETC transceiver near Pay-axis - mounted on canopy (1 per lane)	No	6	65,750.00	3,94,500.00
2	Electronics Enclosure - (1 per lane)	No	6	1,600.00	9,600.00
3	Lane Controller with Industrial PC - (1 per lane)	No	6	98,500.00	5,91,000.00
4	AVC including sensors, loop and detector - (1 per lane)	Set	6	1,55,000.00	9,30,000.00
5	User Fare Display with mounting pole - (1 per lane)	Set	6	17,000.00	1,02,000.00
6	Automatic Barrier Gate - (1 per lane)	No	6	68,300.00	4,09,800.00
7	Overhead Lane Status light (OHLS) - (1 per lane)	No	6	10,000.00	60,000.00
8	Traffic light with mounting pole - (1 per lane)	Set	6	13,250.00	79,500.00
9	Loops with detector - (2 per lane)	Set	12	5,500.00	66,000.00
10	Incident Capture Camera with mounting pole - (1 per lane)	Set	6	6,400.00	38,400.00
11	License Plate Image Capture Camera with mounting poles - (1 per lane)	Set	6	6,400.00	38,400.00
12	Customized industrial grade keyboard - (1 per lane)	No	6	6,600.00	39,600.00
13	Cabling/Networking/Installation/Commissioning (Lump sum)	LS	1	5,88,000.00	5,88,000.00
14	Software – Lane Level - (1 per lane)	No	6	35,000.00	2,10,000.00
15	Plaza Servers in hot-standby configuration	No	1	7,65,000.00	7,65,000.00
16	Workstations for MIS, Cashup, Audit & LSDU (Lane status display unit in control room)	No	4	44,000.00	1,76,000.00
17	24 Port Network switch (Layer 3)	No	2	91,000.00	1,82,000.00
18	Internet router for connection to the CCH	No	1	11,300.00	11,300.00
19	Software – Plaza level	Job	1	62,500.00	62,500.00
20	Installation of Broadband Internet connection with minimum 2 Mbps link	Facility	1	88,000.00	88,000.00
21	UPS system as required for complete Hybrid ETC Toll Plaza system	No	2	63,250.00	1,26,500.00
22	Network Video Recorder (NVR) for CCTV recording with adequate storage	No	1	59,000.00	59,000.00
B	**Other components (Lane level & Plaza Level)**				
23	TFT Monitor - (1 per lane)	No	6	5,400.00	32,400.00
24	Thermal Receipt Printer - (1 per lane)	No	6	15,500.00	93,000.00
25	Barcode Reader with stand - (1 per lane)	No	6	7,450.00	44,700.00
26	Violation light & Alarm (on existing pole) and Foot switch in booth - (1 per lane)	No	6	4,900.00	29,400.00
27	Booth CCTV camera with voice recording - (1 per lane)	No	6	8,050.00	48,300.00
28	Intercom Slave unit in booth - (1 per lane)	No	6	3,800.00	22,800.00
29	Lane Level UPS - (1 per lane)	No	6	35,500.00	2,13,000.00
30	Intercom Master unit - (1 per plaza)	No	1	45,000.00	45,000.00
31	CCTV cameras for Plaza building surveillance (server room, control room, cash room, admin)	No	4	6,000.00	24,000.00
				Total CAPEX Price	55,79,700.00

8.14. **Annexure 14: Details of ETC Transaction count at fee plazas zone -wise (FASTag transactions ONLY)**

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
1	Manesar Toll Plaza	Delhi	Zone 1	30,109	38,896	30,612
2	IGI Toll Plaza	Delhi	Zone 1	599	731	520
3	Srinagar Toll Plaza	Delhi	Zone 1	12,289	15,450	12,319
4	Mahuvan Toll Plaza	Delhi	Zone 1	11,629	14,610	12,013
5	Main Plaza Village Jakhauli	Delhi	Zone 1	4,943	6,703	5,605
6	Maujpur	Delhi	Zone 1	1,348	1,850	1,448
7	Chhajju Nagar	Delhi	Zone 1	2,803	3,539	3,030
8	Mavikala	Delhi	Zone 1	1,200	1,680	1,398
9	Duhai	Delhi	Zone 1	3,035	4,103	3,384

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
10	Dasana	Delhi	Zone 1	2,853	3,922	3,100
11	Bilakbarpur	Delhi	Zone 1	1,901	2,509	2,087
12	Fatehpur Rampur	Delhi	Zone 1	2,413	3,451	2,890
13	Chhajarsi	Delhi	Zone 1	16,117	21,198	18,735
14	L&T Panipat	Chandigarh	Zone 1	31,638	37,897	30,994
15	Jat Gangaicha Toll Plaza	Chandigarh	Zone 1	4,781	5,712	4,646
16	Dighal Toll Plaza	Chandigarh	Zone 1	6,834	8,351	7,160
17	Makrauli Kalan Toll Plaza	Chandigarh	Zone 1	3,812	4,525	3,700
18	Dahar Toll Plaza	Chandigarh	Zone 1	5,958	6,991	5,899
19	Gharonda Toll Plaza	Chandigarh	Zone 1	30,177	36,262	29,289

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
20	Ghagghar Toll Plaza	Chandigarh	Zone 1	18,345	22,416	18,048
21	Ladowal Toll Plaza	Chandigarh	Zone 1	19,482	24,664	19,612
22	Rohad Toll Plaza	Chandigarh	Zone 1	8,381	12,446	10,062
23	Badarpur Faridabad Toll Plaza	Delhi	Zone 1	27,442	33,259	26,536
24	Madina Toll Plaza	Chandigarh	Zone 1	5,499	6,696	5,599
25	Mayar Toll Plaza	Chandigarh	Zone 1	9,085	10,840	9,097
26	Narwana	Chandigarh	Zone 1	3,272	4,039	3,382
27	Bado Patti	Chandigarh	Zone 1	4,511	5,495	4,640
28	Chaudhariwas	Chandigarh	Zone 1	3,525	4,454	3,794
29	Bhavdeen Plaza	Chandigarh	Zone 1	4,821	6,231	5,023

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
30	Khuian Malkna	Chandigarh	Zone 1	2,218	2,873	2,240
31	Bhagan Toll Plaza	Sonepat	Zone 1	25,072	28,802	27,423
32	Landhari Toll Plaza	Chandigarh	Zone 1	6,313	8,108	6,782
33	Thana Village Toll Plaza	Chandigarh	Zone 1	2,587	3,393	3,232
34	Saini Majra Toll Plaza	Chandigarh	Zone 1	2,813	3,652	3,158
35	Khatkar Toll Plaza		Zone 1	-	1,021	2,847
36	Jaloli Fee Plaza	Chandigarh	Zone 1	-	0	4,019
37	Dolhu Nallah Fee Plaza	Shimla	Zone 1	1,400	2,093	2,071
38	Bann Toll Plaza	Jammu	Zone 1	1,551	2,809	2,518
39	Mada Fee Plaza	Jammu	Zone 1	487	1,309	1,144

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
40	Thandikhui Toll Plaza	Jammu	Zone 1	3,133	4,509	4,138
41	Kachkoot Toll Plaza	Jammu	Zone 1	-	-	-
42	Ambala Chandigarh	Chandigarh	Zone 1	22,087	26,321	21,981
43	Ladpalwan Toll Plaza	Chandigarh	Zone 1	4,176	5,542	4,613
44	Waryam Nangal Toll Plaza	Chandigarh	Zone 1	4,924	6,542	5,218
45	Jatl Dhilwan Toll Plaza	Chandigarh	Zone 1	9,053	12,447	9,433
46	Jatl Nijjerpura Toll Plaza	Chandigarh	Zone 1	8,273	11,105	8,514
47	Chandimandir Toll Plaza	Chandigarh	Zone 1	20,504	25,560	21,573
48	Chiddan Toll Plaza	Chandigarh	Zone 1	809	1,291	551
49	Bsc-C&C Kurali Toll Plaza	Chandigarh	Zone 1	12,106	15,223	12,483
50	Harsa Mansar Toll Plaza	Chandigarh	Zone 1	3,337	4,645	4,045

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
51	Chollang Toll Plaza	Chandigarh	Zone 1	5,047	6,785	5,953
52	Milkmajra	Chandigarh	Zone 1	6,281	7,882	6,558
53	Badbar	Chandigarh	Zone 1	3,930	5,109	4,195
54	Lehra Begga	Chandigarh	Zone 1	5,056	6,267	5,264
55	Kalajhar Toll Plaza	Chandigarh	Zone 1	5,028	6,305	5,219
56	Usma Toll Plaza	Chandigarh	Zone 1	3,047	4,019	3,239
57	Zidda Toll Plaza	Chandigarh	Zone 1	2,417	3,085	2,645
58	Dhareri Jattan Plaza	Chandigarh	Zone 1	11,660	14,363	11,742
59	Dharer Azizpur Toll Plaza	Chandigarh	Zone 1	12,139	14,833	11,886
60	Kot Karora Kalan Plaza	Chandigarh	Zone 1	2,390	3,261	2,672

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
61	Paind Toll Plaza	Chandigarh	Zone 1	2,740	3,419	2,845
62	Chak Bamniya Toll Plaza	Chandigarh	Zone 1	1,443	1,985	1,791
63	Barajore Toll Plaza	Lucknow - West	Zone 1	11,237	16,454	15,232
64	Anantram Toll Plaza	Lucknow - West	Zone 1	6,940	9,421	8,563
65	Niyamatpur Ekrotiya Toll Plaza	Lucknow - West	Zone 1	9,169	11,546	10,006
66	Thiriya Khetal Toll Plaza	Lucknow - West	Zone 1	6,521	8,135	6,953
67	Tundla Toll Plaza	Lucknow - West	Zone 1	6,616	9,303	8,044
68	Gurau (Formerly Semra Atikabad) Toll Plaza	Lucknow - West	Zone 1	3,425	4,794	4,425
69	Babina Toll Plaza	Lucknow - West	Zone 1	2,985	3,715	3,362
70	Salemgarh Toll Plaza	Lucknow - East	Zone 1	3,550	3,991	3,620

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
71	Muzaina Hetim Toll Plaza	Lucknow - East	Zone 1	4,830	5,825	5,148
72	Tendua Toll Plaza	Lucknow - East	Zone 1	4,179	4,822	4,313
73	Chaukadi Toll Plaza	Lucknow - East	Zone 1	7,030	8,896	8,036
74	Mandawnagar Toll Plaza	Lucknow - East	Zone 1	6,183	7,542	6,830
75	Nawabganj Toll Plaza	Lucknow - East	Zone 1	10,681	15,276	12,950
76	Ahmadpur Toll Plaza	Lucknow - East	Zone 1	7,994	10,830	9,761
77	Ronahi Toll Plaza	Lucknow - East	Zone 1	9,043	12,067	10,958
78	Ait Toll Plaza	Lucknow - West	Zone 1	5,084	7,795	7,074
79	Semri Toll Plaza	Lucknow - West	Zone 1	4,866	7,499	6,835
80	Brijghat Toll Plaza	Lucknow - West	Zone 1	11,637	15,590	14,193

SI. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
81	Joya Toll Plaza	Lucknow - West	Zone 1	9,507	12,588	11,405
82	Itaunja Toll Plaza	Lucknow - East	Zone 1	6,280	8,261	6,805
83	Khairabad Toll Plaza	Lucknow - East	Zone 1	4,928	6,081	5,129
84	Katoghan Toll Plaza	Lucknow - West	Zone 1	4,749	6,283	5,441
85	Kokhraj (Sirohi) Toll Plaza	Lucknow - East	Zone 1	2,041	2,689	2,351
86	Handiya (Sujala) Toll Plaza	Lucknow - East	Zone 1	2,183	2,902	2,534
87	Nawabganj Toll Plaza	Lucknow - East	Zone 1	10,681	15,276	12,950
88	Soraon Toll Plaza	Lucknow - East	Zone 1	283	379	310
89	Sahson Toll Plaza	Lucknow - East	Zone 1	306	348	294
90	Lalanagar Toll Plaza	Lucknow - East	Zone 1	4,352	5,818	5,152

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
91	Madrak Toll Plaza	Lucknow - West	Zone 1	3,586	5,075	4,033
92	Baros Toll Plaza	Lucknow - West	Zone 1	3,534	4,982	3,974
93	Badauri Toll Plaza	Lucknow - West	Zone 1	5,534	7,576	6,516
94	Aliyapur Toll Plaza	Lucknow - West	Zone 1	3,132	4,746	3,992
95	Khanna Toll Plaza	Lucknow - West	Zone 1	2,282	3,314	2,808
96	Sivaya Toll Plaza	Lucknow - West	Zone 1	6,687	8,350	7,183
97	Luharli Toll Plaza	Lucknow - West	Zone 1	7,795	10,014	8,338
98	Gabhana Tollplaza	Lucknow - West	Zone 1	5,560	6,845	5,639
99	Nuruddinpur Toll Plaza	Lucknow - East	Zone 1	989	1,196	1,029
100	Kunwarpur	Lucknow - East	Zone 1	1,543	1,903	1,733

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
101	Raibha Toll Plaza	Lucknow - West	Zone 1	4,899	5,818	4,741
102	Aaini Toll Plaza	Lucknow - East	Zone 1	1,209	1,988	1,811
103	Chamari Toll Plaza	Lucknow - West	Zone 1	5,432	8,270	7,161
104	Dakhina Shekpur Toll Plaza	Lucknow - East	Zone 1	3,234	4,851	3,999
105	Vighakhet Toll Plaza	Lucknow - West	Zone 1	2,901	3,506	3,139
106	Harro Toll Plaza Near Ganne	Lucknow - East	Zone 1	678	1,174	1,106
107	Sahahbpur	Lucknow - East	Zone 1	3,110	4,524	4,221
108	Nainsar	Lucknow - East	Zone 1	704	1,225	1,082
109	Hadwa	Lucknow - East	Zone 1	202	315	293
110	Akshda	Lucknow - East	Zone 1	324	542	472

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
111	Mohammad Ibrahimpur	Lucknow - West	Zone 1	1,341	1,856	1,512
112	Belon	Lucknow - West	Zone 1	900	1,150	1,062
113	Amdi Fee Plaza	Lucknow - East	Zone 1	286	540	873
114	Chapwa	Lucknow - East	Zone 1	661	1,029	893
115	Amreha	Lucknow - East	Zone 1	215	313	252
116	Mungari	Lucknow - East	Zone 1	342	371	338
117	Pidhi Toll Plaza	Lucknow - East	Zone 1	390	661	612
118	Andiyari	Lucknow - East	Zone 1	1,112	2,630	2,153
119	Aindhi Toll Plaza	Lucknow - East	Zone 1	567	828	746
120	Naini Toll Plaza	Lucknow - West	Zone 1	-	-	-

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
121	Bharatkhund	Lucknow - East	Zone 1	-	-	-
122	Sabli Toll Plaza	Lucknow - West	Zone 1	-	-	-
123	Deoria Toll Plaza	Dehradun	Zone 1	5,076	6,259	4,953
124	Banushi	Dehradun	Zone 1	1,447	2,043	1,737
125	L&T Vadodra	Gandhinagar	Zone 2	23,668	29,432	24,388
126	IRB Boriach	Gandhinagar	Zone 2	17,766	22,652	18,968
127	IRB Charoti	Gandhinagar	Zone 2	15,504	19,217	15,919
128	IRB Bhagwada	Gandhinagar	Zone 2	15,990	20,165	16,912
129	IRB Choryasi	Gandhinagar	Zone 2	18,942	24,123	20,810
130	Ahmedabad Toll Plaza	Gandhinagar	Zone 2	3,463	4,636	3,452

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
131	Ahmedabad (Ring Road) Toll Plaza	Gandhinagar	Zone 2	4,186	5,405	4,394
132	Nadiad Toll Plaza	Gandhinagar	Zone 2	1,430	1,694	1,273
133	Anand Toll Plaza	Gandhinagar	Zone 2	2,869	3,718	3,085
134	Vadodara Toll Plaza	Gandhinagar	Zone 2	9,143	11,555	9,310
135	Kheda	Gandhinagar	Zone 2	7,131	9,078	7,292
136	Vasad	Gandhinagar	Zone 2	8,741	11,237	9,165
137	Vantada Toll Plaza	Gandhinagar	Zone 2	3,355	4,051	3,282
138	Kathpur Toll Plaza	Gandhinagar	Zone 2	5,141	6,312	5,308
139	Pithai Toll Plaza	Gandhinagar	Zone 2	2,182	3,183	2,820
140	Vavadi Toll Plaza	Gandhinagar	Zone 2	2,771	3,544	3,125

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
141	Khaniwade Toll Plaza	Gandhinagar	Zone 2	14,907	18,809	15,703
142	Pithadiya Toll Plaza	Gandhinagar	Zone 2	4,042	5,517	4,776
143	Bharudi Toll Plaza	Gandhinagar	Zone 2	5,261	7,419	6,556
144	Bhatwada Toll Plaza	Gandhinagar	Zone 2	4,206	4,646	4,700
145	Khemana Toll Plaza	Gandhinagar	Zone 2	6,530	8,032	7,033
146	Varahi Toll Plaza	Gandhinagar	Zone 2	5,054	5,773	4,830
147	Makhel Toll Plaza	Gandhinagar	Zone 2	6,295	7,436	6,334
148	Bhiladi Toll Plaza	Gandhinagar	Zone 2	4,314	4,973	4,142
149	Bhalgam Toll Plaza	Gandhinagar	Zone 2	3,972	4,585	3,799
150	Surajbari Toll Plaza	Gandhinagar	Zone 2	10,197	13,045	11,316

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
151	Vaghasiya Toll Plaza	Gandhinagar	Zone 2	3,024	3,571	3,071
152	Vanana Toll Plaza	Gandhinagar	Zone 2	1,740	2,237	1,873
153	Dhumiyani Toll Plaza	Gandhinagar	Zone 2	1,657	2,034	1,796
154	Samakhiali	Gandhinagar	Zone 2	13,172	16,087	14,009
155	Undvariya Toll Plaza	Gandhinagar	Zone 2	7,055	8,626	7,381
156	Bhatia Toll Plaza	Gandhinagar	Zone 2	5,029	5,992	4,602
157	Mandal Toll Plaza	Gandhinagar	Zone 2	4,239	4,928	4,332
158	Mokha Toll Plaza	Gandhinagar	Zone 2	7,235	8,436	7,526
159	Mandva Toll Plaza (Narmada Bridge)	Gandhinagar	Zone 2	21,070	26,763	22,956
160	Gadoi Toll Plaza	Gandhinagar	Zone 2	1,795	2,661	2,269

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
161	Dari Toll Plaza	Gandhinagar	Zone 2	1,229	1,821	1,578
162	Nandgaon Toll Plaza	Nagpur	Zone 2	4,637	6,111	5,318
163	Mansar Toll Plaza	Nagpur	Zone 2	3,354	4,072	3,610
164	Kamptee Kanhan Bypass Check Toll Plaza	Nagpur	Zone 2	2,823	3,308	2,905
165	Nagpur Bypass Check Toll Plaza	Nagpur	Zone 2	5,435	6,464	5,511
166	Borkhedi Toll Plaza	Nagpur	Zone 2	5,671	6,923	5,815
167	Karanja Toll Plaza	Nagpur	Zone 2	3,770	4,755	4,048
168	Tasawade Toll Plaza	Mumbai	Zone 2	8,131	9,788	7,961
169	Kini Toll Plaza	Mumbai	Zone 2	7,220	8,649	7,188
170	Sawaleshwar Toll Plaza	Mumbai	Zone 2	6,993	8,806	7,510

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
171	Varwade Toll Plaza	Mumbai	Zone 2	6,130	7,704	6,735
172	Gondkhairi Plaza	Nagpur	Zone 2	4,851	6,008	5,086
173	Patas Plaza	Mumbai	Zone 2	6,137	8,303	7,264
174	Sardewadi Plaza	Mumbai	Zone 2	5,231	6,932	6,128
175	Anewadi Toll Plaza	Mumbai	Zone 2	9,777	11,951	9,989
176	Khed-Shivapur Toll Plaza	Mumbai	Zone 2	12,654	15,029	11,999
177	Daroada	Nagpur	Zone 2	3,385	3,963	3,483
178	Mathni	Nagpur	Zone 2	6,954	8,558	7,417
179	Sendurwafa Toll Plaza	Nagpur	Zone 2	4,598	5,344	4,674
180	Shirpur	Nagpur	Zone 2	6,516	7,645	6,633

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
181	Songir	Nagpur	Zone 2	9,013	10,641	9,191
182	Chandwad Toll Plaza	Mumbai	Zone 2	4,855	5,877	5,217
183	Laling Toll Plaza	Mumbai	Zone 2	8,049	9,563	8,433
184	Baswant Toll Plaza	Mumbai	Zone 2	10,971	12,868	11,252
185	Ghoti Toll Plaza	Mumbai	Zone 2	6,233	7,082	5,591
186	Arjunalli Toll Plaza	Mumbai	Zone 2	6,293	7,143	5,778
187	Khambara Toll Plaza	Nagpur	Zone 2	1,395	1,667	1,386
188	Patanswangi Toll Plaza	Nagpur	Zone 2	1,647	2,364	1,965
189	Tamalwadi Toll Plaza	Mumbai	Zone 2	3,718	4,680	3,900
190	Yedashi Toll Plaza	Mumbai	Zone 2	3,021	3,440	2,903

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
191	Pargaon Tp	Nagpur	Zone 2	2,673	3,075	2,654
192	Padalshingi Tp	Nagpur	Zone 2	4,073	4,820	4,200
193	Maliwadi Tp	Nagpur	Zone 2	2,893	3,396	2,995
194	Dhoki	Mumbai	Zone 2	473	608	517
195	Dumbarwadi	Mumbai	Zone 2	502	619	547
196	Husnapur	Nagpur	Zone 2	1,042	1,551	1,336
197	Hiwargaon Pavasa	Mumbai	Zone 2	3,394	4,113	3,501
198	Milanpur Toll Plaza	Nagpur	Zone 2	1,707	2,119	1,797
199	Ashiv Fee Plaza	Nagpur	Zone 2	1,326	1,869	1,715
200	Haladgao Toll Plaza	Nagpur	Zone 2	2,404	3,740	3,246

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
201	Kelapur	Nagpur	Zone 2	3,230	3,775	3,400
202	Phulwadi Toll Plaza	Mumbai	Zone 2	-	3,224	3,136
203	Talmod Toll Plaza	Mumbai	Zone 2	-	3,608	3,336
204	Chalakwadi Toll Plaza	Mumbai	Zone 2	-	-	-
205	Badewadi	Mumbai	Zone 2	-	-	-
206	Gegal	Jaipur	Zone 2	14,709	17,912	14,511
207	Pipalaz	Jaipur	Zone 2	11,625	14,093	11,625
208	Jaipur Plaza	Jaipur	Zone 2	20,073	24,144	20,080
209	Kishangarh Plaza	Jaipur	Zone 2	19,157	22,941	19,317
210	Shahjahanpur Toll Plaza	Jaipur	Zone 2	18,567	22,846	18,689
211	Manoharpura Toll Plaza	Jaipur	Zone 2	18,246	21,555	17,696

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
212	Daulatpura Toll Plaza	Jaipur	Zone 2	13,522	15,730	13,033
213	Jojro Ka Kheda Toll Plaza	Jaipur	Zone 2	7,207	8,768	7,553
214	Narayanpura Toll Plaza	Jaipur	Zone 2	4,971	5,910	4,751
215	Khandi Obri Toll Plaza	Jaipur	Zone 2	8,208	9,902	8,209
216	Korai Toll Plaza	Jaipur	Zone 2	4,149	5,577	4,504
217	Barkheda Toll Plaza	Jaipur	Zone 2	5,979	7,532	6,304
218	Sonwa Toll Plaza	Jaipur	Zone 2	3,335	4,166	3,583
219	Tatiawas Toll Plaza	Jaipur	Zone 2	11,785	15,626	12,566
220	Similiya	Jaipur	Zone 2	2,058	2,629	2,229
221	Fatehpur	Jaipur	Zone 2	965	1,297	1,078

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
222	Malera	Jaipur	Zone 2	1,837	2,271	1,781
223	Gogunda	Jaipur	Zone 2	2,030	2,560	1,917
224	Ludhwai Toll Plaza	Jaipur	Zone 2	6,285	7,911	6,451
225	Amoli Toll Plaza	Jaipur	Zone 2	5,800	7,348	6,119
226	Sikandra Toll Plaza	Jaipur	Zone 2	7,445	9,381	7,797
227	Rajadhok Toll Plaza	Jaipur	Zone 2	7,439	9,444	7,584
228	Raipur	Jaipur	Zone 2	6,363	7,246	5,899
229	Indranagar	Jaipur	Zone 2	7,271	8,351	6,694
230	Birami	Jaipur	Zone 2	8,259	9,614	7,780
231	Uthman	Jaipur	Zone 2	8,564	9,854	8,064

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
232	Methoon Toll Plaza	Jaipur	Zone 2	812	1,107	942
233	Kishorepura Toll Plaza	Jaipur	Zone 2	3,036	3,720	3,185
234	Mandawara Toll Plaza	Jaipur	Zone 2	3,340	4,192	3,592
235	Negadiya Toll Plaza	Jaipur	Zone 2	5,646	6,673	5,406
236	Rupakheda Toll Plaza	Jaipur	Zone 2	2,737	3,100	2,275
237	Mujras Toll Plaza	Jaipur	Zone 2	3,065	3,398	2,676
238	Doli Toll Plaza	Jaipur	Zone 2	1,729	2,313	1,860
239	Lasedi	Jaipur	Zone 2	2,902	3,792	3,249
240	Dhadhar	Jaipur	Zone 2	2,850	3,672	3,250
241	Sobhasar	Jaipur	Zone 2	2,166	2,790	2,418

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
242	Banthri	Jaipur	Zone 2	347	521	431
243	Tamdoli	Jaipur	Zone 2	397	582	474
244	Lambiya Kalan	Jaipur	Zone 2	8,749	10,503	8,876
245	Khedi	Jaipur	Zone 2	8,076	9,514	8,162
246	Kondar	Jaipur	Zone 2	299	449	446
247	Chilla Chond	Jaipur	Zone 2	344	507	494
248	Nimbayani	Jaipur	Zone 2	476	685	535
249	Kota Bypass Toll Plaza	Jaipur	Zone 2	3,010	3,749	3,296
250	Nimbasar	Jaipur	Zone 2	316	425	333
251	Kair Fakir Ki Dhani Toll Plaza	Jaipur	Zone 2	239	325	288

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
252	Nekawala	Jaipur	Zone 2	1,268	1,488	1,342
253	Salasar Toll Plaza	Jaipur	Zone 2	1,675	2,176	1,951
254	Nokhra Toll Plaza	Jaipur	Zone 2	1,268	1,516	1,257
255	Kheerwa Toll Plaza	Jaipur	Zone 2	1,429	1,756	1,411
256	Hathitala Toll Plaza	Jaipur	Zone 2	374	567	467
257	Bor Charnan Toll Plaza	Jaipur	Zone 2	406	539	455
258	Rajora Khurd	Jaipur	Zone 2	499	710	637
259	Nimbi Jodha	Jaipur	Zone 2	1,283	1,663	1,410
260	Harimma	Jaipur	Zone 2	1,269	1,621	1,387
261	Para Plaza	Jaipur	Zone 2	138	180	160

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
262	Limdi Toll Plaza	Jaipur	Zone 2	790	1,068	864
263	Netra	Jaipur	Zone 2	2,787	3,650	3,060
264	Tankala	Jaipur	Zone 2	2,606	3,380	2,777
265	Gumanpura	Jaipur	Zone 2	1,116	1,472	1,277
266	Jasnathnagar	Jaipur	Zone 2	918	1,238	907
267	Khanori	Jaipur	Zone 2	619	811	537
268	Khachrol	Jaipur	Zone 2	703	1,075	881
269	Leelamba Plaza	Jaipur	Zone 2	200	275	213
270	Lathi	Jaipur	Zone 2	686	785	481
271	Ramdevara	Jaipur	Zone 2	446	565	400

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
272	Akhepura	Jaipur	Zone 2	6,102	8,715	7,149
273	Mandana Toll Plaza	Jaipur	Zone 2	2,986	3,880	3,467
274	Hanumangarh	Jaipur	Zone 2	1,257	1,851	1,610
275	Bassi	Jaipur	Zone 2	1,607	1,925	1,602
276	Aroli	Jaipur	Zone 2	1,918	2,480	2,000
277	Dhaneshwar	Jaipur	Zone 2	1,967	2,634	2,086
278	Morani	Jaipur	Zone 2	177	225	131
279	Titoli	Jaipur	Zone 2	-	959	1,597
280	Rabawata	Jaipur	Zone 2	-	990	1,681
281	Pahammawlein Toll Plaza	Guwahati	Zone 3	1,933	2,570	1,906

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
282	Pasyih	Guwahati	Zone 3	954	1,386	1,148
283	Lomshinong	Guwahati	Zone 3	721	1,127	887
284	Diengpasoh Toll Plaza	Guwahati	Zone 3	980	1,364	1,107
285	Dahalapara	Guwahati	Zone 3	123	2,405	2,304
286	Patgaon Toll Plaza	Guwahati	Zone 3	-	917	2,125
287	Mikirati Hawgaon Toll Plaza	Guwahati	Zone 3	-	-	-
288	Daffi Toll Plaza	Patna	Zone 3	4,857	6,714	5,830
289	Mohania Toll Plaza	Patna	Zone 3	3,034	6,028	5,430
290	Sasaram Toll Plaza	Patna	Zone 3	3,311	6,177	5,577
291	Saukala Toll Plaza	Patna	Zone 3	3,931	5,528	5,074
292	Hariabara	Patna	Zone 3	2,064	2,588	2,497

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
293	Asanpur Toll Plaza	Patna	Zone 3	2,225	2,951	2,792
294	Maithi	Patna	Zone 3	2,729	3,651	3,407
295	Parsoni Khem	Patna	Zone 3	3,315	3,840	3,515
296	Maranga	Patna	Zone 3	729	900	783
297	Barsoni Toll Plaza	Patna	Zone 3	1,409	1,608	1,929
298	Balgudar Toll Plaza	Patna	Zone 3	200	317	311
299	Raje Toll Plaza (T-2)	Patna	Zone 3	2,437	3,287	3,056
300	Runni Shaidpur Toll Plaza	Patna	Zone 3	572	992	915
301	Murlitol	Patna	Zone 3	1,161	1,453	1,288
302	Mahant Maniyari	Patna	Zone 3	978	1,154	1,030

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
303	Didarganj	Patna	Zone 3	5,800	7,438	6,210
304	Saidpur Patedha	Patna	Zone 3	1,837	2,438	2,302
305	Kharik	Patna	Zone 3	810	1,025	907
306	Sonho Fee Plaza	Patna	Zone 3	444	545	518
307	Pokhraira Fee Plaza	Patna	Zone 3	356	455	445
308	Chapraitha Fee Plaza	Patna	Zone 3	94	152	148
309	Brindawan Fee Plaza	Patna	Zone 3	103	244	218
310	Durg Bypass	Raipur	Zone 3	4,297	4,888	4,188
311	Thakurtolla Toll Plaza	Raipur	Zone 3	4,813	5,087	4,320
312	Chhuhipali Toll Plaza	Raipur	Zone 3	2,894	3,220	2,953

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
313	Dhank Toll Plaza	Raipur	Zone 3	3,001	3,374	3,041
314	Lakholi Toll Plaza	Raipur	Zone 3	4,140	4,586	4,005
315	Jagtara	Raipur	Zone 3	1,146	1,339	1,199
316	Mashora	Raipur	Zone 3	1,042	1,259	1,111
317	Badaiyiguda	Raipur	Zone 3	1,271	1,542	1,329
318	Mudhipar Toll Plaza	Raipur	Zone 3	289	357	380
319	Bhojpuri Toll Plaza	#REF!	Zone 3	-	2,053	2,635
320	Kumhari	Raipur	Zone 3	-	-	-
321	Rasoiya Dhamna Toll Plaza	Ranchi	Zone 3	3,930	5,391	4,990
322	Hazaribagh-Ranchi Expressway (Pundag)	Ranchi	Zone 3	3,478	5,648	5,149
323	Tand Balidih	Ranchi	Zone 3	1,792	2,641	2,334

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
324	Ghanghri Toll Plaza	Ranchi	Zone 3	3,369	4,171	3,869
325	Sosokhurd	Ranchi	Zone 3	1,542	2,269	2,099
326	Navasari	Ranchi	Zone 3	302	453	436
327	Kokpara Toll Plaza	Ranchi	Zone 3	1,898	2,174	1,949
328	Brajrajnagar Toll Plaza	Ranchi	Zone 3	-	230	453
329	Kothiya	Ranchi	Zone 3	-	207	430
330	Khalghat Toll Plaza	Bhopal	Zone 3	7,950	9,975	8,661
331	Choundha	Bhopal	Zone 3	6,875	8,992	7,402
332	Baretha Or Jajau	Bhopal	Zone 3	6,804	8,673	7,034
333	Mehra	Bhopal	Zone 3	5,719	7,142	6,025

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
334	Malthone	Bhopal	Zone 3	2,705	3,111	2,767
335	Chitora	Bhopal	Zone 3	3,224	3,898	3,494
336	Titarpani	Bhopal	Zone 3	3,168	3,822	3,404
337	Ramnagar	Bhopal	Zone 3	602	754	667
338	Raksha	Bhopal	Zone 3	2,374	3,071	2,899
339	Guna	Bhopal	Zone 3	4,039	4,893	4,544
340	Jamli Toll Pllaza	Bhopal	Zone 3	6,334	7,710	6,748
341	Idtl Toll Plaza-A	Bhopal	Zone 3	7,452	9,511	7,947
342	Idtl Toll Plaza-B	Bhopal	Zone 3	3,344	4,990	4,233
343	Mundiyar	Bhopal	Zone 3	621	825	740

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
344	Jungawani	Bhopal	Zone 3	542	719	843
345	Jaitpur	Bhopal	Zone 3	616	772	750
346	Sonway Toll Plaza	Bhopal	Zone 3	8,207	9,992	8,577
347	Panihar	Bhopal	Zone 3	3,252	4,233	3,682
348	Mud Kheda	Bhopal	Zone 3	3,059	3,958	3,497
349	Pagara Toll Plaza	Bhopal	Zone 3	4,813	6,256	5,740
350	Jogipur Toll Plaza	Bhopal	Zone 3	4,213	5,533	5,076
351	Purankhedi Toll Plaza	Bhopal	Zone 3	4,727	6,234	5,715
352	Methwada	Bhopal	Zone 3	1,446	1,970	1,622
353	Dattigaon	Bhopal	Zone 3	2,174	2,590	2,252

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
354	Chapra New Delhi	Bhopal	Zone 3	4,040	5,294	4,662
355	Rojwas	Bhopal	Zone 3	4,540	6,115	5,315
356	Khadda	Bhopal	Zone 3	146	327	261
357	Sonvarsha	Bhopal	Zone 3	258	408	360
358	Allonia	Bhopal	Zone 3	3,182	4,159	3,720
359	Mungwari	Bhopal	Zone 3	929	1,299	1,240
360	Odaki Pipkhar	Bhopal	Zone 3	1,261	1,985	1,855
361	Kherwasani	Bhopal	Zone 3	1,655	2,414	2,205
362	Pathoroundi	Bhopal	Zone 3	178	252	221
363	Majhgawan	Bhopal	Zone 3	441	678	578

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
364	Shadol/Dhuwar	Bhopal	Zone 3	1,087	1,493	1,203
365	Saliwada	Bhopal	Zone 3	528	769	774
366	Pandutala	Bhopal	Zone 3	800	915	736
367	Mohtara Toll Plaza	Bhopal	Zone 3	1,680	2,613	2,392
368	Ujara	Bhopal	Zone 3	809	1,070	973
369	Bakori	Bhopal	Zone 3	2,585	3,039	2,674
370	Kelwad	Bhopal	Zone 3	749	1,235	987
371	Chikhalikala	Bhopal	Zone 3	56	102	106
372	Fulara	#REF!	Zone 3	249	485	381
373	Madai Fee Plaza	Bhopal	Zone 3	3,225	4,187	3,776

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
374	Sehatganj	Bhopal	Zone 3	-	432	531
375	Bahoripar Fee Plaza	Bhopal	Zone 3	-	1,208	1,812
376	Sergarh Toll Plaza	Bhubaneswar	Zone 3	4,866	6,002	5,401
377	Manguli Toll Plaza	Bhubaneswar	Zone 3	8,812	11,646	11,197
378	Gudipada Or Gangapada Toll Plaza	Bhubaneswar	Zone 3	4,265	5,615	5,453
379	Gurapali	Bhubaneswar	Zone 3	3,871	5,084	4,993
380	Sambalpur Baragarh Tollways	Bhubaneswar	Zone 3	2,394	2,699	2,454
381	Hasanpur	Bhubaneswar	Zone 3	2,259	3,616	3,300
382	Kantaghar	Bhubaneswar	Zone 3	2,010	3,268	3,015
383	Banajodi	Bhubaneswar	Zone 3	3,079	5,042	4,491

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
384	Srirampur Toll Plaza	Bhubaneswar	Zone 3	2,694	3,655	3,532
385	Panikoili Toll Plaza	Bhubaneswar	Zone 3	6,712	9,336	8,863
386	Pipili	Bhubaneswar	Zone 3	2,800	4,036	3,275
387	Brajarajnagar (Nuadeeh)	Bhubaneswar	Zone 3	-	230	453
388	Laxamannath Plaza	Kolkata	Zone 3	2,909	3,488	3,162
389	Rampura Plaza	Kolkata	Zone 3	3,570	4,378	3,982
390	Rajchandrapur Toll Plaza	Kolkata	Zone 3	8,571	11,382	11,692
391	Jaladhulagori Toll Plaza	Kolkata	Zone 3	13,021	17,485	16,292
392	Debra Toll Plaza	Kolkata	Zone 3	6,367	8,535	7,769
393	Paschim Madati	Kolkata	Zone 3	2,796	3,634	3,924

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
394	Sonapetya	Kolkata	Zone 3	5,044	6,348	6,152
395	Beliyad Toll Plaza	Kolkata	Zone 3	3,831	4,956	4,619
396	Chandermore Plaza	Kolkata	Zone 3	2,510	3,593	4,620
397	Shibpur Plaza	Kolkata	Zone 3	1,863	2,634	3,476
398	18th Mile Toll Plaza	Kolkata	Zone 3	2,325	3,867	5,004
399	Gazole Toll Plaza	Kolkata	Zone 3	2,238	4,208	5,004
400	Banskopa Plaza	Kolkata	Zone 3	6,773	9,289	8,745
401	Palsit	Kolkata	Zone 3	6,892	9,347	9,122
402	Dankuni	Kolkata	Zone 3	8,659	11,345	11,041
403	Surjapur	Kolkata	Zone 3	2,452	2,989	3,420

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
404	Guabari Toll Plaza	Kolkata	Zone 3	1,868	2,151	2,155
405	Km 267.250 Of NH 60	Kolkata	Zone 3	-	-	-
406	Km 801.120 Of NH 31	Kolkata	Zone 3	-	-	-
407	Km 114.430 Of NH 117	Kolkata	Zone 3	-	-	-
408	Km 9.640 Of NH 2	Kolkata	Zone 3	-	-	-
409	Km 74.49 of NH 48	Kolkata	Zone 3	-	-	-
410	Km 117.050 of NH 31 C	Kolkata	Zone 3	-	-	-
411	Km 14.550 of NH 60 A	Kolkata	Zone 3	-	-	-
412	Sali Bamandanga	Kolkata	Zone 3	-	-	200
413	Amakthadu Toll Plaza	Vijayawada	Zone 4	4,972	5,986	5,542
414	Kasepalli Toll Plaza	Vijayawada	Zone 4	5,168	6,092	5,549
415	Marur Toll Plaza	Vijayawada	Zone 4	5,183	6,124	5,516
416	Sullurpet Plaza (NH- 16), (Old NH-5)	Vijayawada	Zone 4	5,514	6,397	5,736

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
417	Budhanam Plaza (NH- 16),(Old NH-5)	Vijayawada	Zone 4	9,228	10,790	9,881
418	Nellore Plaza (NH 16), (Old NH-5)	Vijayawada	Zone 4	10,591	12,386	11,352
419	Keesara Plaza (NH-65), (Old NH-9)	Vijayawada	Zone 4	8,511	9,115	8,419
420	Kaza Toll Plaza Mangalgiri	Vijayawada	Zone 4	16,391	20,315	18,440
421	Bellupada	Vijayawada	Zone 4	2,832	3,391	3,185
422	Madapam	Vijayawada	Zone 4	4,375	5,682	5,442
423	Chilakpelam	Vijayawada	Zone 4	5,332	6,698	6,215
424	Nathavalasa	Vijayawada	Zone 4	4,959	6,273	5,816
425	Agnampadi	Vijayawada	Zone 4	7,746	10,271	9,191
426	Vempadu	Vijayawada	Zone 4	8,097	9,593	8,969

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
427	Krishnavaram	Vijayawada	Zone 4	6,760	8,124	7,714
428	Kalaparru	Vijayawada	Zone 4	10,608	12,267	11,404
429	Bollapalli Toll Plaza	Vijayawada	Zone 4	6,265	7,465	7,010
430	Tangatur Toll Plaza	Vijayawada	Zone 4	10,053	11,598	10,743
431	Musunur Toll Plaza	Vijayawada	Zone 4	8,780	10,223	9,483
432	Panchvati Colony(Vishakapatnam Port Connectivity)	Vijayawada	Zone 4	5,202	7,108	6,139
433	Laxmipuram	Vijayawada	Zone 4	3,461	4,081	3,851
434	Palempalli Toll Plaza	Vijayawada	Zone 4	3,884	4,905	4,530
435	Chagalmarri Toll Plaza	Vijayawada	Zone 4	3,215	3,913	3,607
436	Unguturu Toll Plaza	Vijayawada	Zone 4	7,171	8,393	7,711

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
437	Eethakota At Km.946.300	Vijayawada	Zone 4	6,539	7,730	7,119
438	Nannur	Vijayawada	Zone 4	4,685	5,770	5,265
439	Mekalavaripalli	Vijayawada	Zone 4	429	598	541
440	Raviguntapalli	Vijayawada	Zone 4	449	593	529
441	Chinthalapalem Toll Plaza	Vijayawada	Zone 4	509	717	721
442	Rapur Toll Plaza	Vijayawada	Zone 4	54	92	81
443	Badava	Vijayawada	Zone 4	813	1,226	1,129
444	Bhramanapalli	Vijayawada	Zone 4	409	510	503
445	Durgamvaripalli Toll Plaza	Vijayawada	Zone 4	1,212	1,550	1,412
446	Pottipadu	Vijayawada	Zone 4	10,116	11,545	10,630
447	Chapirevula	Vijayawada	Zone 4	1,927	2,289	2,154

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
448	Davaluru	Vijayawada	Zone 4	2,632	3,831	3,743
449	Basapuram	Vijayawada	Zone 4	1,247	1,614	1,568
450	Halaharvi	Vijayawada	Zone 4	717	847	655
451	Millampali	Vijayawada	Zone 4	232	360	333
452	Gollaprolu	Vijayawada	Zone 4	1,996	2,834	2,644
453	D C Palli	Vijayawada	Zone 4	1,049	1,367	1,350
454	Buchireddypalem	Vijayawada	Zone 4	1,545	2,156	2,128
455	Goshtani Gate Of Navy(Vishakapatnam Port Connectivity)	#REF!	Zone 4	273	411	405
456	Chinaganjam Fee Plaza	Vijayawada	Zone 4	184	893	813
457	Raha	Vijayawada	Zone 4	-	0	740

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
458	Vanagiri	Bangalore	Zone 4	3,996	4,796	4,381
459	Shahapur	Bangalore	Zone 4	3,740	4,415	4,051
460	Hitnal	Bangalore	Zone 4	5,854	7,084	6,633
461	Karjeevanhally Toll Plaza	Bangalore	Zone 4	11,085	13,516	12,598
462	Guilalu Toll Plaza	Bangalore	Zone 4	9,367	11,333	10,625
463	Electronic City Phase 1	Bangalore	Zone 4	21,830	27,489	22,355
464	Attibele Toll Plaza	Bangalore	Zone 4	20,062	24,730	21,489
465	Bijapur Toll Plaza	Bangalore	Zone 4	4,099	5,098	4,633
466	Nagarhalla Toll Plaza	Bangalore	Zone 4	3,613	4,268	3,937
467	Kognoli	Bangalore	Zone 4	7,258	8,664	7,129

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
468	Hattargi	Bangalore	Zone 4	6,787	8,409	7,258
469	Hirebgewadi Toll Plaza	Bangalore	Zone 4	6,005	7,284	6,222
470	Bankapur	Bangalore	Zone 4	5,056	6,366	5,820
471	Chalageri	Bangalore	Zone 4	5,114	6,416	5,884
472	Hebbalu	Bangalore	Zone 4	5,598	7,070	6,582
473	Kulumapalya Toll Plaza	Bangalore	Zone 4	14,221	18,325	17,168
474	Chokkenahalli Toll Plaza	Bangalore	Zone 4	12,207	15,478	14,615
475	Plaza 1 @ Km 14+825	Bangalore	Zone 4	24,539	31,792	28,356
476	Devanahalli Toll Plaza	Bangalore	Zone 4	27,246	35,678	25,850
477	Bagepalli Toll Plaza	Bangalore	Zone 4	5,869	6,993	6,167

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
478	Nelamangala Toll Plaza	Bangalore	Zone 4	7,835	10,811	10,192
479	Bellur Toll Plaza	Bangalore	Zone 4	6,486	8,341	7,756
480	Hoskote Toll Plaza	Bangalore	Zone 4	14,792	19,866	18,608
481	Mulbagal Toll Plaza	Bangalore	Zone 4	5,566	6,841	6,074
482	Shantigrama Toll Plaza	Bangalore	Zone 4	5,505	6,727	6,020
483	Kadabhalli (Kirasave) Toll Plaza	Bangalore	Zone 4	6,132	7,586	6,978
484	Nangli Toll Plaza	Bangalore	Zone 4	4,657	5,496	4,952
485	Sasthan Toll Plaza	Bangalore	Zone 4	5,032	6,096	5,157
486	Hejamadi Toll Plaza	Bangalore	Zone 4	7,585	9,225	7,773
487	Talapady Toll Plaza	Bangalore	Zone 4	3,360	4,632	3,981

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
488	Kamkole	Bangalore	Zone 4	6,807	8,031	6,946
489	Kannole	Bangalore	Zone 4	1,039	1,695	1,510
490	Harwal	Bangalore	Zone 4	719	1,089	934
491	Mangalgi	Bangalore	Zone 4	4,356	5,138	4,370
492	Brahamarakotlu	Bangalore	Zone 4	4,328	5,400	4,821
493	Yeddore	Bangalore	Zone 4	356	488	405
494	Kannegala	Bangalore	Zone 4	251	471	396
495	K N Huindy	Bangalore	Zone 4	1,892	2,607	2,333
496	Belekeri	Bangalore	Zone 4	-	818	998
497	Holgegadde	Bangalore	Zone 4	-	1,678	2,288

SI. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
498	Surathkal Toll Plaza	Bangalore	Zone 4	5,284	6,255	5,221
499	Shirur	Bangalore	Zone 4	-	1,805	2,573
500	Paliyekkara Toll Plaza	Kerala	Zone 4	11,540	13,435	10,650
501	Kumbalam Toll Plaza	Kerala	Zone 4	6,364	8,014	6,944
502	Pampampallam Toll Plaza	Kerala	Zone 4	7,638	8,492	7,015
503	Poonarimangalam	Kerala	Zone 4	2,962	3,791	3,142
504	Sriperumbadur	Chennai	Zone 4	12,625	16,390	14,422
505	Chennasamaduram	Chennai	Zone 4	12,165	14,635	14,241
506	Vikkravandi Toll Plaza	Chennai	Zone 4	13,016	14,355	13,937
507	Sengurichi Toll Plaza	Madurai	Zone 4	12,385	13,084	12,902

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
508	Thirumandurai Toll Plaza	Madurai	Zone 4	9,714	11,043	10,258
509	Surapattu Toll Plaza	Chennai	Zone 4	9,611	12,846	11,960
510	Vanagaram Toll Plaza	Chennai	Zone 4	11,683	15,562	14,266
511	Kappalur	Madurai	Zone 4	8,099	9,974	9,119
512	Nanguneri	Madurai	Zone 4	4,198	4,973	4,356
513	Omalur Toll Plaza	Chennai	Zone 4	12,491	14,222	13,252
514	Samayapuram Toll Plaza	Madurai	Zone 4	10,572	12,320	11,694
515	Vijayamangalam Toll Plaza	Chennai	Zone 4	13,243	15,758	14,444
516	Vaiguntham Toll Plaza	Chennai	Zone 4	10,812	12,593	11,771
517	Ponnambalapatti Plaza	Madurai	Zone 4	2,719	3,073	2,768

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
518	Kozhinjiipatti Plaza	Madurai	Zone 4	8,786	10,443	9,501
519	Rasampalayam Plaza	Chennai	Zone 4	6,389	7,623	7,059
520	Mettupatti Plaza	Chennai	Zone 4	8,067	9,504	8,945
521	Nathakkarai Plaza	Chennai	Zone 4	6,676	8,050	7,427
522	Veeracholapuram Plaza	Chennai	Zone 4	5,065	5,498	5,209
523	Thiruparaithurai Plaza	Chennai	Zone 4	3,855	4,964	4,564
524	Manavasi Plaza	Chennai	Zone 4	4,462	5,767	5,371
525	Krishnagiri Plaza	Chennai	Zone 4	19,294	22,279	20,250
526	Vaniyambadi Toll Plaza	Chennai	Zone 4	8,834	10,342	9,320
527	Pallikonda Toll Plaza	Chennai	Zone 4	10,921	12,731	11,478

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
528	Nallur Toll Plaza	Chennai	Zone 4	10,243	13,033	11,871
529	L&T Krishnagiri Thopur Toll Plaza	Chennai	Zone 4	15,132	17,154	15,923
530	Velanchettiyur	Madurai	Zone 4	4,951	5,526	4,978
531	Athur	Chennai	Zone 4	13,548	15,147	14,117
532	Valvanthankottai	Madurai	Zone 4	5,152	7,227	6,220
533	Elliyarpathy	Madurai	Zone 4	4,689	6,020	5,363
534	Pudurpandiyapuram	Madurai	Zone 4	4,868	5,680	5,447
535	Pondicherry Tindivanam Toll Plaza	Chennai	Zone 4	3,556	5,308	4,397
536	Vagaikulam Toll Plaza	Madurai	Zone 4	2,527	3,170	3,139
537	IVRCL Chengapally Tollways Limited	Chennai	Zone 4	13,807	16,232	14,387

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
538	S.V Puram Toll Plaza	Chennai	Zone 4	3,899	5,130	4,492
539	Pattarai Toll Plaza	Chennai	Zone 4	2,015	2,959	2,542
540	Shenbagampettai Toll Plaza	Madurai	Zone 4	607	782	714
541	Palaya Gandharvakottai Toll Plaza	Madurai	Zone 4	691	1,041	958
542	Salaipudur	Madurai	Zone 4	4,119	4,740	4,414
543	Paranur	Chennai	Zone 4	12,022	1	17,928
544	Lembalakudi	Madurai	Zone 4	2,211	2,805	2,524
545	Lechchumanapatti	Madurai	Zone 4	2,365	3,095	2,792
546	Chittampatti	Madurai	Zone 4	5,881	7,337	6,777
547	Boothakudi	Madurai	Zone 4	5,491	6,588	5,959

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
548	Etturvattam	Madurai	Zone 4	4,769	5,680	5,130
549	Mathur Toll Plaza	Chennai	Zone 4	7,059	9,705	9,134
550	Tirupachethi	Madurai	Zone 4	1,373	2,088	1,792
551	Bogalur	Madurai	Zone 4	1,090	1,464	1,250
552	Pantangi	Hyderabad	Zone 4	15,898	17,972	16,942
553	Koralaphad	Hyderabad	Zone 4	10,935	12,200	11,544
554	Chillakallu	Hyderabad	Zone 4	7,842	8,255	7,601
555	Raikal Toll Plaza	Hyderabad	Zone 4	13,490	16,508	15,232
556	Guduru Toll Plaza	Hyderabad	Zone 4	7,223	9,436	8,848
557	Rolmamda	Hyderabad	Zone 4	3,571	4,943	4,331

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
558	Gamjal	Hyderabad	Zone 4	4,635	5,733	5,149
559	Indalwai	Hyderabad	Zone 4	5,832	7,229	6,624
560	Sakapur Toll Plaza	Hyderabad	Zone 4	9,190	11,013	10,306
561	Pullur	Hyderabad	Zone 4	8,979	10,675	9,523
562	Chinthapally	Hyderabad	Zone 4	242	298	261
563	Kadthal	Hyderabad	Zone 4	1,501	2,251	1,954
564	Pippalwada	Hyderabad	Zone 4	3,033	4,107	3,622
565	Bhiknoor Toll Plaza	Hyderabad	Zone 4	5,643	7,248	6,835
566	Manoharabad	Hyderabad	Zone 4	5,646	7,070	6,563
567	Konetipuram	Hyderabad	Zone 4	628	869	695

Sl. #	Plaza Name	RO	Zone	Daily Avg. ETC Txn (in Jan '20)	Daily Avg. ETC Txn (in Feb '20)	Daily Avg. ETC Txn (in Mar '20)
568	Muthojipet	Hyderabad	Zone 4	205	358	250
569	Dilawarpur Fee Plaza	Hyderabad	Zone 4	602	1,153	1,104

(As per NPCI data)

8.15. Annexure 15: List of Fee Plazas

Sl. #	Plaza Name	Plaza Type (PF/Conc.)	RO	State	Zone
1	Manesar Toll Plaza	Conc.	Delhi	Delhi	Zone 1
2	IGI Toll Plaza	Conc.	Delhi	Delhi	Zone 1
3	Srinagar Toll Plaza	Conc.	Delhi	Delhi	Zone 1
4	Mahuvan Toll Plaza	Conc.	Delhi	Delhi	Zone 1
5	Main Plaza Village Jakhauli	PF	Delhi	Delhi	Zone 1
6	Maujpur	PF	Delhi	Delhi	Zone 1
7	Chhajju Nagar	PF	Delhi	Delhi	Zone 1
8	Mavikala	PF	Delhi	Delhi	Zone 1
9	Duhai	PF	Delhi	Delhi	Zone 1
10	Dasana	PF	Delhi	Delhi	Zone 1
11	Bilakbarpur	PF	Delhi	Delhi	Zone 1
12	Fatehpur Rampur	PF	Delhi	Delhi	Zone 1
13	Chhajarsi	PF	Delhi	Delhi	Zone 1
14	L&T Panipat	Conc.	Chandigarh	Haryana	Zone 1
15	Jat Gangaicha Toll Plaza	Conc.	Chandigarh	Haryana	Zone 1
16	Dighal Toll Plaza	Conc.	Chandigarh	Haryana	Zone 1
17	Makrauli Kalan Toll Plaza	Conc.	Chandigarh	Haryana	Zone 1
18	Dahar Toll Plaza	Conc.	Chandigarh	Haryana	Zone 1
19	Gharonda Toll Plaza	Conc.	Chandigarh	Haryana	Zone 1
20	Ghagghar Toll Plaza	Conc.	Chandigarh	Haryana	Zone 1
21	Ladowal Toll Plaza	Conc.	Chandigarh	Haryana	Zone 1
22	Rohad Toll Plaza	Conc.	Chandigarh	Haryana	Zone 1
23	Badarpur Faridabad Toll Plaza	Conc.	Delhi	Haryana	Zone 1
24	Madina Toll Plaza	Conc.	Chandigarh	Haryana	Zone 1
25	Mayar Toll Plaza	Conc.	Chandigarh	Haryana	Zone 1
26	Narwana	Conc.	Chandigarh	Haryana	Zone 1
27	Bado Patti	Conc.	Chandigarh	Haryana	Zone 1
28	Chaudhariwas	Conc.	Chandigarh	Haryana	Zone 1
29	Bhavdeen Plaza	PF	Chandigarh	Haryana	Zone 1
30	Khuian Malkna	PF	Chandigarh	Haryana	Zone 1
31	Bhagan Toll Plaza	PF	Sonepat	Haryana	Zone 1
32	Landhari Toll Plaza	PF	Chandigarh	Haryana	Zone 1
33	Thana Village Toll Plaza	PF	Chandigarh	Haryana	Zone 1
34	Saini Majra Toll Plaza	PF	Chandigarh	Haryana	Zone 1
35	Khatkar Toll Plaza	PF	#REF!	Haryana	Zone 1
36	Jaloli Fee Plaza	PF	Chandigarh	Haryana	Zone 1
37	Dolhu Nallah Fee Plaza	PF	Shimla	Himachal Pradesh	Zone 1
38	Bann Toll Plaza	PF	Jammu	Jammu & Kashmir	Zone 1
39	Mada Fee Plaza	PF	Jammu	Jammu & Kashmir	Zone 1
40	Thandikhui Toll Plaza	PF	Jammu	Jammu & Kashmir	Zone 1

Sl. #	Plaza Name	Plaza Type (PF/Conc.)	RO	State	Zone
41	Kachkoot Toll Plaza	PF	Jammu	Jammu & Kashmir	Zone 1
42	Ambala Chandigarh	Conc.	Chandigarh	Punjab	Zone 1
43	Ladpalwan Toll Plaza	Conc.	Chandigarh	Punjab	Zone 1
44	Waryam Nangal Toll Plaza	Conc.	Chandigarh	Punjab	Zone 1
45	Jatl Dhilwan Toll Plaza	Conc.	Chandigarh	Punjab	Zone 1
46	Jatl Nijjerpura Toll Plaza	Conc.	Chandigarh	Punjab	Zone 1
47	Chandimandir Toll Plaza	Conc.	Chandigarh	Punjab	Zone 1
48	Chiddan Toll Plaza	PF	Chandigarh	Punjab	Zone 1
49	Bsc-C&C Kurali Toll Plaza	Conc.	Chandigarh	Punjab	Zone 1
50	Harsa Mansar Toll Plaza	Conc.	Chandigarh	Punjab	Zone 1
51	Chollang Toll Plaza	Conc.	Chandigarh	Punjab	Zone 1
52	Milkmajra	PF	Chandigarh	Punjab	Zone 1
53	Badbar	PF	Chandigarh	Punjab	Zone 1
54	Lehra Begga	PF	Chandigarh	Punjab	Zone 1
55	Kalajhar Toll Plaza	PF	Chandigarh	Punjab	Zone 1
56	Usma Toll Plaza	PF	Chandigarh	Punjab	Zone 1
57	Zidda Toll Plaza	PF	Chandigarh	Punjab	Zone 1
58	Dhareri Jattan Plaza	PF	Chandigarh	Punjab	Zone 1
59	Dharer Azizpur Toll Plaza	PF	Chandigarh	Punjab	Zone 1
60	Kot Karora Kalan Plaza	PF	Chandigarh	Punjab	Zone 1
61	Paind Toll Plaza	PF	Chandigarh	Punjab	Zone 1
62	Chak Bamniya Toll Plaza	PF	Chandigarh	Punjab	Zone 1
63	Barajore Toll Plaza	Conc.	Lucknow - West	Uttar Pradesh	Zone 1
64	Anantram Toll Plaza	Conc.	Lucknow - West	Uttar Pradesh	Zone 1
65	Niyamatpur Ekrotiya Toll Plaza	Conc.	Lucknow - West	Uttar Pradesh	Zone 1
66	Thiriya Khetal Toll Plaza	Conc.	Lucknow - West	Uttar Pradesh	Zone 1
67	Tundla Toll Plaza	Conc.	Lucknow - West	Uttar Pradesh	Zone 1
68	Gurau (Formerly Semra Atikabad) Toll Plaza	Conc.	Lucknow - West	Uttar Pradesh	Zone 1
69	Babina Toll Plaza	PF	Lucknow - West	Uttar Pradesh	Zone 1
70	Salemgarh Toll Plaza	Conc.	Lucknow - East	Uttar Pradesh	Zone 1
71	Muzaina Hetim Toll Plaza	Conc.	Lucknow - East	Uttar Pradesh	Zone 1
72	Tendua Toll Plaza	Conc.	Lucknow - East	Uttar Pradesh	Zone 1
73	Chaukadi Toll Plaza	Conc.	Lucknow - East	Uttar Pradesh	Zone 1
74	Mandawnagar Toll Plaza	Conc.	Lucknow - East	Uttar Pradesh	Zone 1
75	Nawabganj Toll Plaza	Conc.	Lucknow - East	Uttar Pradesh	Zone 1
76	Ahmadpur Toll Plaza	Conc.	Lucknow - East	Uttar Pradesh	Zone 1
77	Ronahi Toll Plaza	Conc.	Lucknow - East	Uttar Pradesh	Zone 1
78	Ait Toll Plaza	Conc.	Lucknow - West	Uttar Pradesh	Zone 1
79	Semri Toll Plaza	Conc.	Lucknow - West	Uttar Pradesh	Zone 1
80	Brijghat Toll Plaza	Conc.	Lucknow - West	Uttar Pradesh	Zone 1
81	Joya Toll Plaza	Conc.	Lucknow - West	Uttar Pradesh	Zone 1
82	Itaunja Toll Plaza	Conc.	Lucknow - East	Uttar Pradesh	Zone 1
83	Khairabad Toll Plaza	Conc.	Lucknow - East	Uttar Pradesh	Zone 1

SI. #	Plaza Name	Plaza Type (PF/Conc.)	RO	State	Zone
84	Katoghan Toll Plaza	PF	Lucknow - West	Uttar Pradesh	Zone 1
85	Kokhraj (Sirohi) Toll Plaza	Conc.	Lucknow - East	Uttar Pradesh	Zone 1
86	Handiya (Sujala) Toll Plaza	Conc.	Lucknow - East	Uttar Pradesh	Zone 1
87	Nawabganj Toll Plaza	Conc.	Lucknow - East	Uttar Pradesh	Zone 1
88	Soraon Toll Plaza	Conc.	Lucknow - East	Uttar Pradesh	Zone 1
89	Sahson Toll Plaza	Conc.	Lucknow - East	Uttar Pradesh	Zone 1
90	Lalanagar Toll Plaza	PF	Lucknow - East	Uttar Pradesh	Zone 1
91	Madrak Toll Plaza	Conc.	Lucknow - West	Uttar Pradesh	Zone 1
92	Baros Toll Plaza	Conc.	Lucknow - West	Uttar Pradesh	Zone 1
93	Badauri Toll Plaza	PF	Lucknow - West	Uttar Pradesh	Zone 1
94	Aliyapur Toll Plaza	Conc.	Lucknow - West	Uttar Pradesh	Zone 1
95	Khanna Toll Plaza	Conc.	Lucknow - West	Uttar Pradesh	Zone 1
96	Sivaya Toll Plaza	Conc.	Lucknow - West	Uttar Pradesh	Zone 1
97	Luharli Toll Plaza	Conc.	Lucknow - West	Uttar Pradesh	Zone 1
98	Gabhana Tollplaza	Conc.	Lucknow - West	Uttar Pradesh	Zone 1
99	Nuruddinpur Toll Plaza	PF	Lucknow - East	Uttar Pradesh	Zone 1
100	Kunwarpur	PF	Lucknow - East	Uttar Pradesh	Zone 1
101	Raibha Toll Plaza	PF	Lucknow - West	Uttar Pradesh	Zone 1
102	Aaini Toll Plaza	PF	Lucknow - East	Uttar Pradesh	Zone 1
103	ALEP Ramp Plaza 108	PF	Lucknow - East	Uttar Pradesh	Zone 1
104	ALEP Ramp Plaza 284	PF	Lucknow - East	Uttar Pradesh	Zone 1
105	ALEP Ramp Plaza 204	PF	Lucknow - East	Uttar Pradesh	Zone 1
106	ALEP Ramp Plaza 269	PF	Lucknow - East	Uttar Pradesh	Zone 1
107	ALEP Ramp plaza 101	PF	Lucknow - East	Uttar Pradesh	Zone 1
108	Chamari Toll Plaza	PF	Lucknow - West	Uttar Pradesh	Zone 1
109	Dakhina Shekpur Toll Plaza	PF	Lucknow - East	Uttar Pradesh	Zone 1
110	Vighakhet Toll Plaza	PF	Lucknow - West	Uttar Pradesh	Zone 1
111	Harro Toll Plaza Near Ganne	PF	Lucknow - East	Uttar Pradesh	Zone 1
112	Sahahbpur	PF	Lucknow - East	Uttar Pradesh	Zone 1
113	Nainsar	PF	Lucknow - East	Uttar Pradesh	Zone 1
114	Hadwa	PF	Lucknow - East	Uttar Pradesh	Zone 1
115	Akshda	PF	Lucknow - East	Uttar Pradesh	Zone 1
116	Mohammad Ibrahimpur	PF	Lucknow - West	Uttar Pradesh	Zone 1
117	Belon	PF	Lucknow - West	Uttar Pradesh	Zone 1
118	Amdi Fee Plaza	PF	Lucknow - East	Uttar Pradesh	Zone 1
119	Chapwa	PF	Lucknow - East	Uttar Pradesh	Zone 1
120	Amreha	PF	Lucknow - East	Uttar Pradesh	Zone 1
121	Mungari	PF	Lucknow - East	Uttar Pradesh	Zone 1
122	Pidhi Toll Plaza	PF	Lucknow - East	Uttar Pradesh	Zone 1
123	Andiyari	Conc.	Lucknow - East	Uttar Pradesh	Zone 1
124	Aindhi Toll Plaza	PF	Lucknow - East	Uttar Pradesh	Zone 1
125	Naini Toll Plaza	PF	Lucknow - West	Uttar Pradesh	Zone 1
126	Bharatkhund	PF	Lucknow - East	Uttar Pradesh	Zone 1
127	Sabli Toll Plaza	PF	Lucknow - West	Uttar Pradesh	Zone 1
128	Deoria Toll Plaza	Conc.	Dehradun	Uttarakhand	Zone 1

Sl. #	Plaza Name	Plaza Type (PF/Conc.)	RO	State	Zone
129	Banushi	PF	Dehradun	Uttarakhand	Zone 1
130	L&T Vadodra	Conc.	Gandhinagar	Gujarat	Zone 2
131	IRB Boriach	Conc.	Gandhinagar	Gujarat	Zone 2
132	IRB Charoti	Conc.	Gandhinagar	Gujarat	Zone 2
133	IRB Bhagwada	Conc.	Gandhinagar	Gujarat	Zone 2
134	IRB Choryasi	Conc.	Gandhinagar	Gujarat	Zone 2
135	Ahmedabad Toll Plaza	Conc.	Gandhinagar	Gujarat	Zone 2
136	Ahmedabad (Ring Road) Toll Plaza	Conc.	Gandhinagar	Gujarat	Zone 2
137	Nadiad Toll Plaza	Conc.	Gandhinagar	Gujarat	Zone 2
138	Anand Toll Plaza	Conc.	Gandhinagar	Gujarat	Zone 2
139	Vadodara Toll Plaza	Conc.	Gandhinagar	Gujarat	Zone 2
140	Kheda	Conc.	Gandhinagar	Gujarat	Zone 2
141	Vasad	Conc.	Gandhinagar	Gujarat	Zone 2
142	Vantada Toll Plaza	PF	Gandhinagar	Gujarat	Zone 2
143	Kathpur Toll Plaza	PF	Gandhinagar	Gujarat	Zone 2
144	Pithai Toll Plaza	Conc.	Gandhinagar	Gujarat	Zone 2
145	Vavadi Toll Plaza	Conc.	Gandhinagar	Gujarat	Zone 2
146	Khaniwade Toll Plaza	Conc.	Gandhinagar	Gujarat	Zone 2
147	Pithadiya Toll Plaza	Conc.	Gandhinagar	Gujarat	Zone 2
148	Bharudi Toll Plaza	Conc.	Gandhinagar	Gujarat	Zone 2
149	Bhatwada Toll Plaza	Conc.	Gandhinagar	Gujarat	Zone 2
150	Khemana Toll Plaza	PF	Gandhinagar	Gujarat	Zone 2
151	Varahi Toll Plaza	Conc.	Gandhinagar	Gujarat	Zone 2
152	Makhel Toll Plaza	Conc.	Gandhinagar	Gujarat	Zone 2
153	Bhiladi Toll Plaza	Conc.	Gandhinagar	Gujarat	Zone 2
154	Bhalgam Toll Plaza	Conc.	Gandhinagar	Gujarat	Zone 2
155	Surajbari Toll Plaza	Conc.	Gandhinagar	Gujarat	Zone 2
156	Vaghasiya Toll Plaza	Conc.	Gandhinagar	Gujarat	Zone 2
157	Vanana Toll Plaza	Conc.	Gandhinagar	Gujarat	Zone 2
158	Dhumiyani Toll Plaza	Conc.	Gandhinagar	Gujarat	Zone 2
159	Samakhiali	Conc.	Gandhinagar	Gujarat	Zone 2
160	Undvariya Toll Plaza	PF	Gandhinagar	Gujarat	Zone 2
161	Bhatia Toll Plaza	Conc.	Gandhinagar	Gujarat	Zone 2
162	Mandal Toll Plaza	Conc.	Gandhinagar	Gujarat	Zone 2
163	Mokha Toll Plaza	Conc.	Gandhinagar	Gujarat	Zone 2
164	Mandva Toll Plaza (Narmada Bridge)	PF	Gandhinagar	Gujarat	Zone 2
165	Gadoi Toll Plaza	PF	Gandhinagar	Gujarat	Zone 2
166	Dari Toll Plaza	PF	Gandhinagar	Gujarat	Zone 2
167	Nandgaon Toll Plaza	Conc.	Nagpur	Maharashtra	Zone 2
168	Mansar Toll Plaza	Conc.	Nagpur	Maharashtra	Zone 2
169	Kamptee Kanhan Bypass Check Toll Plaza	Conc.	Nagpur	Maharashtra	Zone 2
170	Nagpur Bypass Check Toll Plaza	Conc.	Nagpur	Maharashtra	Zone 2
171	Borkhedi Toll Plaza	Conc.	Nagpur	Maharashtra	Zone 2
172	Karanja Toll Plaza	Conc.	Nagpur	Maharashtra	Zone 2

Sl. #	Plaza Name	Plaza Type (PF/Conc.)	RO	State	Zone
173	Tasawade Toll Plaza	Conc.	Mumbai	Maharashtra	Zone 2
174	Kini Toll Plaza	Conc.	Mumbai	Maharashtra	Zone 2
175	Sawaleshwar Toll Plaza	Conc.	Mumbai	Maharashtra	Zone 2
176	Varwade Toll Plaza	Conc.	Mumbai	Maharashtra	Zone 2
177	Gondkhairi Plaza	Conc.	Nagpur	Maharashtra	Zone 2
178	Patas Plaza	Conc.	Mumbai	Maharashtra	Zone 2
179	Sardewadi Plaza	Conc.	Mumbai	Maharashtra	Zone 2
180	Anewadi Toll Plaza	Conc.	Mumbai	Maharashtra	Zone 2
181	Khed-Shivapur Toll Plaza	Conc.	Mumbai	Maharashtra	Zone 2
182	Daroada	PF	Nagpur	Maharashtra	Zone 2
183	Mathni	Conc.	Nagpur	Maharashtra	Zone 2
184	Sendurwafa Toll Plaza	Conc.	Nagpur	Maharashtra	Zone 2
185	Shirpur	Conc.	Nagpur	Maharashtra	Zone 2
186	Songir	Conc.	Nagpur	Maharashtra	Zone 2
187	Chandwad Toll Plaza	Conc.	Mumbai	Maharashtra	Zone 2
188	Laling Toll Plaza	Conc.	Mumbai	Maharashtra	Zone 2
189	Baswant Toll Plaza	PF	Mumbai	Maharashtra	Zone 2
190	Ghoti Toll Plaza	Conc.	Mumbai	Maharashtra	Zone 2
191	Arjunalli Toll Plaza	Conc.	Mumbai	Maharashtra	Zone 2
192	Khambara Toll Plaza	PF	Nagpur	Maharashtra	Zone 2
193	Patanswangi Toll Plaza	PF	Nagpur	Maharashtra	Zone 2
194	Tamalwadi Toll Plaza	Conc.	Mumbai	Maharashtra	Zone 2
195	Yedashi Toll Plaza	Conc.	Mumbai	Maharashtra	Zone 2
196	Pargaon Tp	Conc.	Nagpur	Maharashtra	Zone 2
197	Padalshingi Tp	Conc.	Nagpur	Maharashtra	Zone 2
198	Maliwadi Tp	Conc.	Nagpur	Maharashtra	Zone 2
199	Dhoki	PF	Mumbai	Maharashtra	Zone 2
200	Dumbarwadi	PF	Mumbai	Maharashtra	Zone 2
201	Husnapur	PF	Nagpur	Maharashtra	Zone 2
202	Hiwargaon Pavasa	Conc.	Mumbai	Maharashtra	Zone 2
203	Milanpur Toll Plaza	PF	Nagpur	Maharashtra	Zone 2
204	Ashiv Fee Plaza	PF	Nagpur	Maharashtra	Zone 2
205	Haladgao Toll Plaza	PF	Nagpur	Maharashtra	Zone 2
206	Kelapur	PF	Nagpur	Maharashtra	Zone 2
207	Phulwadi Toll Plaza	Conc.	Mumbai	Maharashtra	Zone 2
208	Talmod Toll Plaza	Conc.	Mumbai	Maharashtra	Zone 2
209	Chalakwadi Toll Plaza	Conc.	Mumbai	Maharashtra	Zone 2
210	Badewadi	PF	Mumbai	Maharashtra	Zone 2
211	Gegal	Conc.	Jaipur	Rajasthan	Zone 2
212	Pipalaz	Conc.	Jaipur	Rajasthan	Zone 2
213	Jaipur Plaza	Conc.	Jaipur	Rajasthan	Zone 2
214	Kishangarh Plaza	Conc.	Jaipur	Rajasthan	Zone 2
215	Shahjahanpur Toll Plaza	Conc.	Jaipur	Rajasthan	Zone 2
216	Manoharpura Toll Plaza	Conc.	Jaipur	Rajasthan	Zone 2
217	Daulatpura Toll Plaza	Conc.	Jaipur	Rajasthan	Zone 2

Sl. #	Plaza Name	Plaza Type (PF/Conc.)	RO	State	Zone
218	Jojro Ka Kheda Toll Plaza	Conc.	Jaipur	Rajasthan	Zone 2
219	Narayanpura Toll Plaza	Conc.	Jaipur	Rajasthan	Zone 2
220	Khandi Obri Toll Plaza	Conc.	Jaipur	Rajasthan	Zone 2
221	Korai Toll Plaza	Conc.	Jaipur	Rajasthan	Zone 2
222	Barkheda Toll Plaza	Conc.	Jaipur	Rajasthan	Zone 2
223	Sonwa Toll Plaza	Conc.	Jaipur	Rajasthan	Zone 2
224	Tatiawas Toll Plaza	Conc.	Jaipur	Rajasthan	Zone 2
225	Similiya	PF	Jaipur	Rajasthan	Zone 2
226	Fatehpur	PF	Jaipur	Rajasthan	Zone 2
227	Malera	PF	Jaipur	Rajasthan	Zone 2
228	Gogunda	PF	Jaipur	Rajasthan	Zone 2
229	Ludhwai Toll Plaza	Conc.	Jaipur	Rajasthan	Zone 2
230	Amoli Toll Plaza	Conc.	Jaipur	Rajasthan	Zone 2
231	Sikandra Toll Plaza	Conc.	Jaipur	Rajasthan	Zone 2
232	Rajadhok Toll Plaza	Conc.	Jaipur	Rajasthan	Zone 2
233	Raipur	Conc.	Jaipur	Rajasthan	Zone 2
234	Indranagar	Conc.	Jaipur	Rajasthan	Zone 2
235	Birami	Conc.	Jaipur	Rajasthan	Zone 2
236	Uthman	Conc.	Jaipur	Rajasthan	Zone 2
237	Methoon Toll Plaza	PF	Jaipur	Rajasthan	Zone 2
238	Kishorepura Toll Plaza	Conc.	Jaipur	Rajasthan	Zone 2
239	Mandawara Toll Plaza	Conc.	Jaipur	Rajasthan	Zone 2
240	Negadiya Toll Plaza	Conc.	Jaipur	Rajasthan	Zone 2
241	Rupakheda Toll Plaza	Conc.	Jaipur	Rajasthan	Zone 2
242	Mujras Toll Plaza	Conc.	Jaipur	Rajasthan	Zone 2
243	Doli Toll Plaza	PF	Jaipur	Rajasthan	Zone 2
244	Lasedi	Conc.	Jaipur	Rajasthan	Zone 2
245	Dhadhar	Conc.	Jaipur	Rajasthan	Zone 2
246	Sobhasar	Conc.	Jaipur	Rajasthan	Zone 2
247	Banthri	PF	Jaipur	Rajasthan	Zone 2
248	Tamdoli	PF	Jaipur	Rajasthan	Zone 2
249	Lambiya Kalan	Conc.	Jaipur	Rajasthan	Zone 2
250	Khedi	Conc.	Jaipur	Rajasthan	Zone 2
251	Kondar	PF	Jaipur	Rajasthan	Zone 2
252	Chilla Chond	PF	Jaipur	Rajasthan	Zone 2
253	Nimbayani	PF	Jaipur	Rajasthan	Zone 2
254	Kota Bypass Toll Plaza	PF	Jaipur	Rajasthan	Zone 2
255	Nimbasar	PF	Jaipur	Rajasthan	Zone 2
256	Kair Fakir Ki Dhani Toll Plaza	PF	Jaipur	Rajasthan	Zone 2
257	Nekawala	PF	Jaipur	Rajasthan	Zone 2
258	Salasar Toll Plaza	Conc.	Jaipur	Rajasthan	Zone 2
259	Nokhra Toll Plaza	Conc.	Jaipur	Rajasthan	Zone 2
260	Kheerwa Toll Plaza	Conc.	Jaipur	Rajasthan	Zone 2
261	Hathitala Toll Plaza	PF	Jaipur	Rajasthan	Zone 2
262	Bor Charnan Toll Plaza	PF	Jaipur	Rajasthan	Zone 2

Sl. #	Plaza Name	Plaza Type (PF/Conc.)	RO	State	Zone
263	Rajora Khurd	PF	Jaipur	Rajasthan	Zone 2
264	Nimbi Jodha	PF	Jaipur	Rajasthan	Zone 2
265	Harimma	PF	Jaipur	Rajasthan	Zone 2
266	Para Plaza	PF	Jaipur	Rajasthan	Zone 2
267	Limdi Toll Plaza	PF	Jaipur	Rajasthan	Zone 2
268	Netra	PF	Jaipur	Rajasthan	Zone 2
269	Tankala	PF	Jaipur	Rajasthan	Zone 2
270	Gumanpura	PF	Jaipur	Rajasthan	Zone 2
271	Jasnathnagar	PF	Jaipur	Rajasthan	Zone 2
272	Khanori	PF	Jaipur	Rajasthan	Zone 2
273	Khachrol	PF	Jaipur	Rajasthan	Zone 2
274	Leelamba Plaza	PF	Jaipur	Rajasthan	Zone 2
275	Lathi	PF	Jaipur	Rajasthan	Zone 2
276	Ramdevara	PF	Jaipur	Rajasthan	Zone 2
277	Akhepura	PF	Jaipur	Rajasthan	Zone 2
278	Mandana Toll Plaza	PF	Jaipur	Rajasthan	Zone 2
279	Hanumangarh	PF	Jaipur	Rajasthan	Zone 2
280	Bassi	PF	Jaipur	Rajasthan	Zone 2
281	Aroli	PF	Jaipur	Rajasthan	Zone 2
282	Dhaneshwar	PF	Jaipur	Rajasthan	Zone 2
283	Morani	PF	#REF!	Rajasthan	Zone 2
284	Titoli	Conc.	Jaipur	Rajasthan	Zone 2
285	Rabawata	Conc.	Jaipur	Rajasthan	Zone 2
286	Pahammawlein Toll Plaza	PF	Guwahati	Assam	Zone 3
287	Pasyih	PF	Guwahati	Assam	Zone 3
288	Lomshinong	PF	Guwahati	Assam	Zone 3
289	Diengpasoh Toll Plaza	PF	Guwahati	Assam	Zone 3
290	Dahalapara	PF	Guwahati	Assam	Zone 3
291	Patgaon Toll Plaza	PF	Guwahati	Assam	Zone 3
292	Mikirati Hawgaon Toll Plaza	PF	Guwahati	Assam	Zone 3
293	Daffi Toll Plaza	Conc.	Patna	Bihar	Zone 3
294	Mohania Toll Plaza	Conc.	Patna	Bihar	Zone 3
295	Sasaram Toll Plaza	Conc.	Patna	Bihar	Zone 3
296	Saukala Toll Plaza	PF	Patna	Bihar	Zone 3
297	Hariabara	Conc.	Patna	Bihar	Zone 3
298	Asanpur Toll Plaza	Conc.	Patna	Bihar	Zone 3
299	Maithi	Conc.	Patna	Bihar	Zone 3
300	Parsoni Khem	PF	Patna	Bihar	Zone 3
301	Maranga	PF	Patna	Bihar	Zone 3
302	Barsoni Toll Plaza	PF	Patna	Bihar	Zone 3
303	Balgudar Toll Plaza	PF	Patna	Bihar	Zone 3
304	Raje Toll Plaza (T-2)	Conc.	Patna	Bihar	Zone 3
305	Runni Shaidpur Toll Plaza	PF	Patna	Bihar	Zone 3
306	Murlitol	Conc.	Patna	Bihar	Zone 3
307	Mahant Maniyari	Conc.	Patna	Bihar	Zone 3

Sl. #	Plaza Name	Plaza Type (PF/Conc.)	RO	State	Zone
308	Didarganj	Conc.	Patna	Bihar	Zone 3
309	Saidpur Patedha	PF	Patna	Bihar	Zone 3
310	Kharik	PF	Patna	Bihar	Zone 3
311	Sonho Fee Plaza	PF	Patna	Bihar	Zone 3
312	Pokhraira Fee Plaza	PF	Patna	Bihar	Zone 3
313	Chapraitha Fee Plaza	PF	Patna	Bihar	Zone 3
314	Brindawan Fee Plaza	PF	Patna	Bihar	Zone 3
315	Durg Bypass	Conc.	Raipur	Chhattisgarh	Zone 3
316	Thakurtolla Toll Plaza	Conc.	Raipur	Chhattisgarh	Zone 3
317	Chhuhipali Toll Plaza	Conc.	Raipur	Chhattisgarh	Zone 3
318	Dhank Toll Plaza	Conc.	Raipur	Chhattisgarh	Zone 3
319	Lakholi Toll Plaza	Conc.	Raipur	Chhattisgarh	Zone 3
320	Jagtara	PF	Raipur	Chhattisgarh	Zone 3
321	Mashora	PF	Raipur	Chhattisgarh	Zone 3
322	Badaiyiguda	PF	Raipur	Chhattisgarh	Zone 3
323	Mudhipar Toll Plaza	PF	Raipur	Chhattisgarh	Zone 3
324	Bhojpuri Toll Plaza	PF	#REF!	Chhattisgarh	Zone 3
325	Kumhari	PF	Raipur	Chhattisgarh	Zone 3
326	Rasoiya Dhamna Toll Plaza	PF	Ranchi	Jharkhand	Zone 3
327	Hazaribagh-Ranchi Expressway (Pundag)	PF	Ranchi	Jharkhand	Zone 3
328	Tand Balidih	PF	Ranchi	Jharkhand	Zone 3
329	Ghanghri Toll Plaza	PF	Ranchi	Jharkhand	Zone 3
330	Sosokhurd	PF	Ranchi	Jharkhand	Zone 3
331	Navasari	PF	Ranchi	Jharkhand	Zone 3
332	Kokpara Toll Plaza	PF	Ranchi	Jharkhand	Zone 3
333	Brajrajnagar Toll Plaza	PF	Ranchi	Jharkhand	Zone 3
334	Kothiya	PF	Ranchi	Jharkhand	Zone 3
335	Khalghat Toll Plaza	Conc.	Bhopal	Madhya Pradesh	Zone 3
336	Choundha	Conc.	Bhopal	Madhya Pradesh	Zone 3
337	Baretha Or Jajau	Conc.	Bhopal	Madhya Pradesh	Zone 3
338	Mehra	Conc.	Bhopal	Madhya Pradesh	Zone 3
339	Malthone	Conc.	Bhopal	Madhya Pradesh	Zone 3
340	Chitora	Conc.	Bhopal	Madhya Pradesh	Zone 3
341	Titarpani	Conc.	Bhopal	Madhya Pradesh	Zone 3
342	Ramnagar	PF	Bhopal	Madhya Pradesh	Zone 3
343	Raksha	PF	Bhopal	Madhya Pradesh	Zone 3
344	Guna	Conc.	Bhopal	Madhya Pradesh	Zone 3
345	Jamli Toll Pllaza	Conc.	Bhopal	Madhya Pradesh	Zone 3
346	Idtl Toll Plaza-A	Conc.	Bhopal	Madhya Pradesh	Zone 3
347	Idtl Toll Plaza-B	Conc.	Bhopal	Madhya Pradesh	Zone 3
348	Mundiyar	PF	Bhopal	Madhya Pradesh	Zone 3
349	Jungawani	PF	Bhopal	Madhya Pradesh	Zone 3
350	Jaitpur	PF	Bhopal	Madhya Pradesh	Zone 3
351	Sonway Toll Plaza	Conc.	Bhopal	Madhya Pradesh	Zone 3

Sl. #	Plaza Name	Plaza Type (PF/Conc.)	RO	State	Zone
352	Panihar	Conc.	Bhopal	Madhya Pradesh	Zone 3
353	Mud Kheda	Conc.	Bhopal	Madhya Pradesh	Zone 3
354	Pagara Toll Plaza	Conc.	Bhopal	Madhya Pradesh	Zone 3
355	Jogipur Toll Plaza	Conc.	Bhopal	Madhya Pradesh	Zone 3
356	Purankhedi Toll Plaza	Conc.	Bhopal	Madhya Pradesh	Zone 3
357	Methwada	Conc.	Bhopal	Madhya Pradesh	Zone 3
358	Dattigaon	Conc.	Bhopal	Madhya Pradesh	Zone 3
359	Chapra New Delhi	Conc.	Bhopal	Madhya Pradesh	Zone 3
360	Rojwas	Conc.	Bhopal	Madhya Pradesh	Zone 3
361	Khadda	PF	Bhopal	Madhya Pradesh	Zone 3
362	Sonvarsha	PF	Bhopal	Madhya Pradesh	Zone 3
363	Allonia	PF	Bhopal	Madhya Pradesh	Zone 3
364	Mungwari	PF	Bhopal	Madhya Pradesh	Zone 3
365	Odaki Pipkhar	PF	Bhopal	Madhya Pradesh	Zone 3
366	Kherwasani	PF	Bhopal	Madhya Pradesh	Zone 3
367	Pathoroundi	PF	Bhopal	Madhya Pradesh	Zone 3
368	Majhgawan	PF	Bhopal	Madhya Pradesh	Zone 3
369	Shadol/Dhuwar	PF	Bhopal	Madhya Pradesh	Zone 3
370	Saliwada	PF	Bhopal	Madhya Pradesh	Zone 3
371	Pandutala	PF	Bhopal	Madhya Pradesh	Zone 3
372	Mohtara Toll Plaza	PF	Bhopal	Madhya Pradesh	Zone 3
373	Ujara	PF	Bhopal	Madhya Pradesh	Zone 3
374	Bakori	Conc.	Bhopal	Madhya Pradesh	Zone 3
375	Kelwad	PF	Bhopal	Madhya Pradesh	Zone 3
376	Chikhalikala	PF	Bhopal	Madhya Pradesh	Zone 3
377	Fulara	PF	#REF!	Madhya Pradesh	Zone 3
378	Madai Fee Plaza	PF	Bhopal	Madhya Pradesh	Zone 3
379	Sehatganj	PF	Bhopal	Madhya Pradesh	Zone 3
380	Bahoripar Fee Plaza	PF	Bhopal	Madhya Pradesh	Zone 3
381	Sergarh Toll Plaza	PF	Bhubaneswar	Odisha	Zone 3
382	Manguli Toll Plaza	Conc.	Bhubaneswar	Odisha	Zone 3
383	Gudipada Or Gangapada Toll Plaza	PF	Bhubaneswar	Odisha	Zone 3
384	Gurapali	PF	Bhubaneswar	Odisha	Zone 3
385	Sambalpur Baragarh Tollways	Conc.	Bhubaneswar	Odisha	Zone 3
386	Hasanpur	Conc.	Bhubaneswar	Odisha	Zone 3
387	Kantaghar	Conc.	Bhubaneswar	Odisha	Zone 3
388	Banajodi	Conc.	Bhubaneswar	Odisha	Zone 3
389	Srirampur Toll Plaza	PF	Bhubaneswar	Odisha	Zone 3
390	Panikoili Toll Plaza	PF	Bhubaneswar	Odisha	Zone 3
391	Pipili	PF	Bhubaneswar	Odisha	Zone 3
392	Brajarajnagar (Nuadeeh)	PF	Bhubaneswar	Odisha	Zone 3
393	Laxamannath Plaza	Conc.	Kolkata	West Bengal	Zone 3
394	Rampura Plaza	Conc.	Kolkata	West Bengal	Zone 3
395	Rajchandrapur Toll Plaza	Conc.	Kolkata	West Bengal	Zone 3
396	Jaladhulagori Toll Plaza	Conc.	Kolkata	West Bengal	Zone 3

Sl. #	Plaza Name	Plaza Type (PF/Conc.)	RO	State	Zone
397	Debra Toll Plaza	Conc.	Kolkata	West Bengal	Zone 3
398	Paschim Madati	PF	Kolkata	West Bengal	Zone 3
399	Sonapetya	Conc.	Kolkata	West Bengal	Zone 3
400	Beliyad Toll Plaza	Conc.	Kolkata	West Bengal	Zone 3
401	Chandermore Plaza	Conc.	Kolkata	West Bengal	Zone 3
402	Shibpur Plaza	Conc.	Kolkata	West Bengal	Zone 3
403	18th Mile Toll Plaza	Conc.	Kolkata	West Bengal	Zone 3
404	Gazole Toll Plaza	Conc.	Kolkata	West Bengal	Zone 3
405	Banskopa Plaza	Conc.	Kolkata	West Bengal	Zone 3
406	Palsit	PF	Kolkata	West Bengal	Zone 3
407	Dankuni	PF	Kolkata	West Bengal	Zone 3
408	Surjapur	PF	Kolkata	West Bengal	Zone 3
409	Guabari Toll Plaza	PF	Kolkata	West Bengal	Zone 3
410	Km 267.250 Of NH 60	PF	Kolkata	West Bengal	Zone 3
411	Km 801.120 Of NH 31	PF	Kolkata	West Bengal	Zone 3
412	Km 114.430 Of NH 117	PF	Kolkata	West Bengal	Zone 3
413	Km 9.640 Of NH 2	PF	Kolkata	West Bengal	Zone 3
414	Km 74.49 of NH 48	PF	Kolkata	West Bengal	Zone 3
415	Km 117.050 of NH 31 C	PF	Kolkata	West Bengal	Zone 3
416	Km 14.550 of NH 60 A	PF	Kolkata	West Bengal	Zone 3
417	Sali Bamandanga	PF	Kolkata	West Bengal	Zone 3
418	Amakthadu Toll Plaza	PF	Vijayawada	Andhra Pradesh	Zone 4
419	Kasepalli Toll Plaza	PF	Vijayawada	Andhra Pradesh	Zone 4
420	Marur Toll Plaza	PF	Vijayawada	Andhra Pradesh	Zone 4
421	Sullurpet Plaza (NH- 16), (Old NH-5)	Conc.	Vijayawada	Andhra Pradesh	Zone 4
422	Budhanam Plaza (NH- 16),(Old NH-5)	Conc.	Vijayawada	Andhra Pradesh	Zone 4
423	Nellore Plaza (NH 16), (Old NH-5)	Conc.	Vijayawada	Andhra Pradesh	Zone 4
424	Keesara Plaza (NH-65), (Old NH-9)	Conc.	Vijayawada	Andhra Pradesh	Zone 4
425	Kaza Toll Plaza Mangalgiri	Conc.	Vijayawada	Andhra Pradesh	Zone 4
426	Bellupada	Conc.	Vijayawada	Andhra Pradesh	Zone 4
427	Madapam	PF	Vijayawada	Andhra Pradesh	Zone 4
428	Chilakpelam	PF	Vijayawada	Andhra Pradesh	Zone 4
429	Nathavalasa	PF	Vijayawada	Andhra Pradesh	Zone 4
430	Agnampadi	PF	Vijayawada	Andhra Pradesh	Zone 4
431	Vempadu	Conc.	Vijayawada	Andhra Pradesh	Zone 4
432	Krishnavaram	Conc.	Vijayawada	Andhra Pradesh	Zone 4
433	Kalaparru	PF	Vijayawada	Andhra Pradesh	Zone 4
434	Bollapalli Toll Plaza	Conc.	Vijayawada	Andhra Pradesh	Zone 4
435	Tangatur Toll Plaza	Conc.	Vijayawada	Andhra Pradesh	Zone 4
436	Musunur Toll Plaza	Conc.	Vijayawada	Andhra Pradesh	Zone 4
437	Panchvati Colony(Vishakapatnam Port Connectivity)	Conc.	Vijayawada	Andhra Pradesh	Zone 4
438	Laxmipuram	Conc.	Vijayawada	Andhra Pradesh	Zone 4
439	Palempalli Toll Plaza	Conc.	Vijayawada	Andhra Pradesh	Zone 4
440	Chagalmarri Toll Plaza	Conc.	Vijayawada	Andhra Pradesh	Zone 4

Sl. #	Plaza Name	Plaza Type (PF/Conc.)	RO	State	Zone
441	Unguturu Toll Plaza	Conc.	Vijayawada	Andhra Pradesh	Zone 4
442	Eethakota At Km.946.300	Conc.	Vijayawada	Andhra Pradesh	Zone 4
443	Nannur	Conc.	Vijayawada	Andhra Pradesh	Zone 4
444	Mekalavaripalli	PF	Vijayawada	Andhra Pradesh	Zone 4
445	Raviguntapalli	PF	Vijayawada	Andhra Pradesh	Zone 4
446	Chinthalapalem Toll Plaza	PF	Vijayawada	Andhra Pradesh	Zone 4
447	Rapur Toll Plaza	PF	Vijayawada	Andhra Pradesh	Zone 4
448	Badava	PF	Vijayawada	Andhra Pradesh	Zone 4
449	Bhramanapalli	PF	Vijayawada	Andhra Pradesh	Zone 4
450	Durgamvaripalli Toll Plaza	PF	Vijayawada	Andhra Pradesh	Zone 4
451	Pottipadu	PF	Vijayawada	Andhra Pradesh	Zone 4
452	Chapirevula	PF	Vijayawada	Andhra Pradesh	Zone 4
453	Davaluru	PF	Vijayawada	Andhra Pradesh	Zone 4
454	Basapuram	PF	Vijayawada	Andhra Pradesh	Zone 4
455	Halaharvi	PF	Vijayawada	Andhra Pradesh	Zone 4
456	Millampali	PF	Vijayawada	Andhra Pradesh	Zone 4
457	Gollaprolu	PF	Vijayawada	Andhra Pradesh	Zone 4
458	D C Palli	PF	Vijayawada	Andhra Pradesh	Zone 4
459	Buchireddypalem	PF	Vijayawada	Andhra Pradesh	Zone 4
460	Goshtani Gate Of Navy(Vishakapatnam Port Connectivity)	Conc.	#REF!	Andhra Pradesh	Zone 4
461	Chinaganjam Fee Plaza	PF	Vijayawada	Andhra Pradesh	Zone 4
462	Raha	PF	Vijayawada	Andhra Pradesh	Zone 4
463	Vanagiri	Conc.	Bangalore	Karnataka	Zone 4
464	Shahapur	Conc.	Bangalore	Karnataka	Zone 4
465	Hitnal	Conc.	Bangalore	Karnataka	Zone 4
466	Karjeevanhally Toll Plaza	Conc.	Bangalore	Karnataka	Zone 4
467	Guilalu Toll Plaza	Conc.	Bangalore	Karnataka	Zone 4
468	Electronic City Phase 1	Conc.	Bangalore	Karnataka	Zone 4
469	Attibele Toll Plaza	Conc.	Bangalore	Karnataka	Zone 4
470	Bijapur Toll Plaza	Conc.	Bangalore	Karnataka	Zone 4
471	Nagarhalla Toll Plaza	Conc.	Bangalore	Karnataka	Zone 4
472	Kognoli	PF	Bangalore	Karnataka	Zone 4
473	Hattargi	PF	Bangalore	Karnataka	Zone 4
474	Hirebgewadi Toll Plaza	Conc.	Bangalore	Karnataka	Zone 4
475	Bankapur	PF	Bangalore	Karnataka	Zone 4
476	Chalageri	PF	Bangalore	Karnataka	Zone 4
477	Hebbalu	PF	Bangalore	Karnataka	Zone 4
478	Kulumapalya Toll Plaza	Conc.	Bangalore	Karnataka	Zone 4
479	Chokkenahalli Toll Plaza	Conc.	Bangalore	Karnataka	Zone 4
480	Plaza 1 @ Km 14+825	Conc.	Bangalore	Karnataka	Zone 4
481	Devanahalli Toll Plaza	Conc.	Bangalore	Karnataka	Zone 4
482	Bagepalli Toll Plaza	PF	Bangalore	Karnataka	Zone 4
483	Nelamangala Toll Plaza	Conc.	Bangalore	Karnataka	Zone 4
484	Bellur Toll Plaza	Conc.	Bangalore	Karnataka	Zone 4

Sl. #	Plaza Name	Plaza Type (PF/Conc.)	RO	State	Zone
485	Hoskote Toll Plaza	Conc.	Bangalore	Karnataka	Zone 4
486	Mulbagal Toll Plaza	Conc.	Bangalore	Karnataka	Zone 4
487	Shantigrama Toll Plaza	Conc.	Bangalore	Karnataka	Zone 4
488	Kadabhalli (Kirasave) Toll Plaza	Conc.	Bangalore	Karnataka	Zone 4
489	Nangli Toll Plaza	Conc.	Bangalore	Karnataka	Zone 4
490	Sasthan Toll Plaza	Conc.	Bangalore	Karnataka	Zone 4
491	Hejamadi Toll Plaza	Conc.	Bangalore	Karnataka	Zone 4
492	Talapady Toll Plaza	Conc.	Bangalore	Karnataka	Zone 4
493	Kamkole	Conc.	Bangalore	Karnataka	Zone 4
494	Kannole	PF	Bangalore	Karnataka	Zone 4
495	Harwal	PF	Bangalore	Karnataka	Zone 4
496	Mangalgi	Conc.	Bangalore	Karnataka	Zone 4
497	Brahamarakotlu	PF	Bangalore	Karnataka	Zone 4
498	Yeddore	PF	Bangalore	Karnataka	Zone 4
499	Kannegala	PF	Bangalore	Karnataka	Zone 4
500	K N Huindy	PF	Bangalore	Karnataka	Zone 4
501	Belekeri	Conc.	Bangalore	Karnataka	Zone 4
502	Holgegadde	Conc.	Bangalore	Karnataka	Zone 4
503	Surathkal Toll Plaza	PF	Bangalore	Karnataka	Zone 4
504	Shirur	Conc.	Bangalore	Karnataka	Zone 4
505	Paliyekkara Toll Plaza	Conc.	Kerala	Kerala	Zone 4
506	Kumbalam Toll Plaza	Conc.	Kerala	Kerala	Zone 4
507	Pampampallam Toll Plaza	Conc.	Kerala	Kerala	Zone 4
508	Poonarimangalam	PF	Kerala	Kerala	Zone 4
509	Sriperumbadur	PF	Chennai	Tamil Nadu	Zone 4
510	Chennasamaduram	PF	Chennai	Tamil Nadu	Zone 4
511	Vikkravandi Toll Plaza	Conc.	Chennai	Tamil Nadu	Zone 4
512	Sengurichi Toll Plaza	Conc.	Madurai	Tamil Nadu	Zone 4
513	Thirumandurai Toll Plaza	Conc.	Madurai	Tamil Nadu	Zone 4
514	Surapattu Toll Plaza	PF	Chennai	Tamil Nadu	Zone 4
515	Vanagaram Toll Plaza	PF	Chennai	Tamil Nadu	Zone 4
516	Kappalur	PF	Madurai	Tamil Nadu	Zone 4
517	Nanguneri	PF	Madurai	Tamil Nadu	Zone 4
518	Omalur Toll Plaza	Conc.	Chennai	Tamil Nadu	Zone 4
519	Samayapuram Toll Plaza	Conc.	Madurai	Tamil Nadu	Zone 4
520	Vijayamangalam Toll Plaza	Conc.	Chennai	Tamil Nadu	Zone 4
521	Vaiguntham Toll Plaza	Conc.	Chennai	Tamil Nadu	Zone 4
522	Ponnambalapatti Plaza	Conc.	Madurai	Tamil Nadu	Zone 4
523	Kozhinjiipatti Plaza	Conc.	Madurai	Tamil Nadu	Zone 4
524	Rasampalayam Plaza	Conc.	Chennai	Tamil Nadu	Zone 4
525	Mettupatti Plaza	Conc.	Chennai	Tamil Nadu	Zone 4
526	Nathakkarai Plaza	Conc.	Chennai	Tamil Nadu	Zone 4
527	Veeracholapuram Plaza	Conc.	Chennai	Tamil Nadu	Zone 4
528	Thiruparaithurai Plaza	Conc.	Chennai	Tamil Nadu	Zone 4
529	Manavasi Plaza	Conc.	Chennai	Tamil Nadu	Zone 4

Sl. #	Plaza Name	Plaza Type (PF/Conc.)	RO	State	Zone
530	Krishnagiri Plaza	Conc.	Chennai	Tamil Nadu	Zone 4
531	Vaniyambadi Toll Plaza	Conc.	Chennai	Tamil Nadu	Zone 4
532	Pallikonda Toll Plaza	Conc.	Chennai	Tamil Nadu	Zone 4
533	Nallur Toll Plaza	PF	Chennai	Tamil Nadu	Zone 4
534	L&T Krishnagiri Thopur Toll Plaza	Conc.	Chennai	Tamil Nadu	Zone 4
535	Velanchettiyur	Conc.	Madurai	Tamil Nadu	Zone 4
536	Athur	PF	Chennai	Tamil Nadu	Zone 4
537	Valvanthankottai	Conc.	Madurai	Tamil Nadu	Zone 4
538	Elliyarpathy	Conc.	Madurai	Tamil Nadu	Zone 4
539	Pudurpandiyapuram	Conc.	Madurai	Tamil Nadu	Zone 4
540	Pondicherry Tindivanam Toll Plaza	Conc.	Chennai	Tamil Nadu	Zone 4
541	Vagaikulam Toll Plaza	PF	Madurai	Tamil Nadu	Zone 4
542	IVRCL Chengapally Tollways Limited	Conc.	Chennai	Tamil Nadu	Zone 4
543	S.V Puram Toll Plaza	PF	Chennai	Tamil Nadu	Zone 4
544	Pattarai Toll Plaza	PF	Chennai	Tamil Nadu	Zone 4
545	Shenbagampettai Toll Plaza	PF	Madurai	Tamil Nadu	Zone 4
546	Palaya Gandharvakottai Toll Plaza	PF	Madurai	Tamil Nadu	Zone 4
547	Salaipudur	PF	Madurai	Tamil Nadu	Zone 4
548	Paranur	PF	Chennai	Tamil Nadu	Zone 4
549	Lembalakudi	PF	Madurai	Tamil Nadu	Zone 4
550	Lechchumanapatti	PF	Madurai	Tamil Nadu	Zone 4
551	Chittampatti	PF	Madurai	Tamil Nadu	Zone 4
552	Boothakudi	PF	Madurai	Tamil Nadu	Zone 4
553	Etturvattam	PF	Madurai	Tamil Nadu	Zone 4
554	Mathur Toll Plaza	PF	Chennai	Tamil Nadu	Zone 4
555	Tirupachethi	PF	Madurai	Tamil Nadu	Zone 4
556	Bogalur	PF	Madurai	Tamil Nadu	Zone 4
557	Pantangi	Conc.	Hyderabad	Telangana	Zone 4
558	Koralaphad	Conc.	Hyderabad	Telangana	Zone 4
559	Chillakallu	Conc.	Hyderabad	Telangana	Zone 4
560	Raikal Toll Plaza	Conc.	Hyderabad	Telangana	Zone 4
561	Guduru Toll Plaza	Conc.	Hyderabad	Telangana	Zone 4
562	Rolmamda	PF	Hyderabad	Telangana	Zone 4
563	Gamjal	PF	Hyderabad	Telangana	Zone 4
564	Indalwai	Conc.	Hyderabad	Telangana	Zone 4
565	Sakapur Toll Plaza	Conc.	Hyderabad	Telangana	Zone 4
566	Pullur	PF	Hyderabad	Telangana	Zone 4
567	Chinthapally	PF	Hyderabad	Telangana	Zone 4
568	Kadthal	PF	Hyderabad	Telangana	Zone 4
569	Pippalwada	PF	Hyderabad	Telangana	Zone 4
570	Bhiknoor Toll Plaza	PF	Hyderabad	Telangana	Zone 4
571	Manoharabad	PF	Hyderabad	Telangana	Zone 4
572	Konetipuram	PF	Hyderabad	Telangana	Zone 4
573	Muthojipet	PF	Hyderabad	Telangana	Zone 4
574	Dilawarpur Fee Plaza	PF	Hyderabad	Telangana	Zone 4

8.16. **Annexure 16: Summary of Project Experience Submitted by Bidder**

Name of Bidder - _____

Sl. No.	Name of Project	Client Name	Contract Value of Project (in Rs. Cr)	Start Date of Work	Completion Date of Work	Status (Completed/Ongoing)	Reference for Documentary Evidence to the Technical Proposal/Bid Submitted (Page no., Document name)
For Experience TQ – B1							
For Experience TQ – B2							

8.17. **Annexure 17: Pre-bid Query Format**

(To be submitted in Excel Format ONLY)

Name of Bidder:_____

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

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

8.18. **Annexure 18: Change Control Note (CCN)**

Change Control Note	CCN Number:
Part A: Initiation	
Title:	
Originator:	
Sponsor:	
Date of Initiation:	
Details of Proposed Change	
(To include reason for change and appropriate details/specifications. Identify any attachments as A1, A2, and A3 etc.)	
Authorized by Purchaser	Date:
Name:	
Signature:	
Received by the Bidder	Date:
Name:	
Signature:	

Change Control Note	CCN Number:
Part B : Evaluation	
(Identify any attachments as B1, B2, and B3 etc.) Changes to Services, payment terms, payment profile, documentation, training, service levels and component working arrangements and any other contractual issue.	
Brief Description of Solution:	
Impact:	

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